Cultural competency: a concept analysis in TUMS
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From the Editor

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This issue is rich with papers from the region. The topics vary from clinical research, to case series, population studies and educational research. Helvaci, M.R et al looked at the relationship between cholelithiasis and cholecystectomy and plasma lipids. The authors found that cholelithiasis may actually be a natural defence mechanism of the body to decrease amount of cholesterol absorbed via decreasing amount of bile acids secreted during entrance of food into the duodenum since cholelithiasis and cholecystectomy may lower the low density lipoprotein cholesterol in the plasma.

Talebzadeh, S.M et al through an analytical retrospective study attempted to determine the prevalence of brain and neck injuries in patients with maxillofacial fractures in teaching hospitals. The results showed that 61 percent of the fractures were due to accidents. The highest frequency of brain damages was related to Extradural Hematoma by 23/65 percent. Results of the treatments also showed that 76% of the patients were partially recovered.

Esmaielzadeh S, et al did cross sectional study looking at Serum and follicular fluid vitamin D and follicular response among infertile women undergoing ICSI. There was no significant correlation between the follicular concentrations of vitamin D and the number of oocytes. The authors concluded that Different concentrations of vitamin D in serum or follicles have not a significant correlation with the number of ovarian follicles and mature oocytes.

Qidwai, W & Jawaid, M led a population-based cross sectional survey to estimate the frequency of hyperuricemia in Pakistan. The frequency of hyperuricemia was 39% , with 90.8% symptomatic. The authors concluded that the burden of hyperuricemia together with increasing burden of metabolic syndrome, obesity, ischemic heart disease and chronic kidney disease is becoming alarming.

Jokari , M & Gorjian, Z led an experimental study evaluating The Effect of Educational Training on Nurses' Clinical Function of Cardiopulmonary Resuscitation . The authors concluded that the nurses of Taleghani Hospital had experience of CPR guidelines at the significant level which improved after the educational training; this issue showed the necessity of routine educational sessions on CPR for nurses.

Controversy exists as to whether the ordinary mid-sternotomy approach to malfunctioning mitral valves or new right thoracotomy approach without cross clamping the aorta in better suited. The authors managed 125 cases of severely ill patients with malfunctioning prosthetic mitral valves. They concluded that in the context of these critically ill patients, the hypothesis that right thoracotomy approach without the cross-clamping of the aorta should be advocated for surgical intervention to save these patients and to conserve resources in supported by the persecuted data.

Hashemian, A.H et al attempted to employ stratification method and penalized logistic regression with the adaptive LASSO for selecting appropriate and important genes in prostate cancer. Based on the results of this study, it can be said that in gene expression data, where there are both linear and large scale data, techniques such as adaptive Lasso can be useful in diagnosis of effective genes.

Nankali, A et al led a single-blinded randomized clinical trial to determine the efficacy of sublingual misoprostol on intra-operative blood loss during total abdominal hysterectomy. The authors found that sublingual misoprostol (400 mcg) administered 1 hour before TAH was effective in reducing blood loss volume, hemoglobin drop, and hospitalization duration.

Boroujeni A.S et al reviewed new methods in the treatment renal failure in patients with multiple myeloma. The authors reviewed common and advanced treatments (immunotherapy, cell therapy, new therapies based on genetic engineering) in these patients and to consider this disease in an immunological view.

Vaezi , A.A et al investigate the effect of endotracheal tube cuff pressure on sore throat, hoarseness and cough in patients with cardiac artery bypass surgery. The authors found that endotracheal tube cuff pressure reduce the severity of coronary artery bypass graft surgery patients cough and sore throat so in order to prevent complications in these patients is recommended and used to adjust the endotracheal tube cuff pressure.

Shahla, N et al led an interventional clinical trial to examine the effect of proprioceptive neuromuscular facilitation (PNF) exercise on activities of daily living of stroke patients. The authors concluded that proprioceptive neuromuscular facilitation exercise did not affect the activities of daily living patients with stroke.

Azami, S.R et al studied the relation of quality of work life with socio-economic status and general health among the employees working in Ministry of Health and Medical Education. The authors concluded that, there is a significant relationship between the quality of work life and general health and also socio-economic status and general health.

Shooriabi, M & Gilavand, A did a descriptive study looking at the Use of Smartphones for Learning Purposes by Iranian Dental Students. The authors found that the use of smartphones for learning purposes or combining traditional educational approaches and e-teaching methods, including smartphones, can provide students with more diverse learning opportunities.

Mahboubi, M et al through cross-sectional study looked at the Determinants of Tooth Brushing among Primary School Students. The authors found that cues to action and self-efficacy may be most effective determinants of tooth brushing among primary school students.

Mahboobi, M et al led a descriptive study to investigate the attitude of students, faculty and staff toward severe psychiatric of stigma in Abadan. The authors concluded that it is essential for university community to understand components of the stigma towards mental illness.

Gorjian, Z et al studied all the population with gender dysphoria. The authors found that gender dysphoria patients face many challenges like isolation, family conflict, finding jobs or partner after surgery which are due to Iranian cultural, social and religious beliefs. They become isolated and depressed and they have the same situation like before the treatment and surgery.

Jalilian, N & Mokari, Z looked at the effectiveness of sexual skills training with a cognitive-behavioral approach on sexual dysfunction among infertile women. The authors suggested that psychologists, psychotherapists, and obstetric and gynecologists use sexual skills training with cognitive-behavioral approach for infertile women who suffer from sexual dysfunction.

Solati, K conducted a semi experimental study to determine the effectiveness of life skills training on happiness, mental health, and marital satisfaction in wives of Iran-Iraq war veterans. The authors found that life skills training to veterans' wives can help them promote their mental, physical health, and marital satisfaction, but the findings on follow-up indicate that this effect is not stable.

Arbil, L et al aimed to determine the effect of cognitive-behavioral counseling on sexual satisfaction of mothers with children with autism. Results showed that cognitive behavioral counseling increased the sexual satisfaction of women with autistic children.

Rezaeian et al provide tips on how to present Research effectively in a Poster format for delivery at conferences looking at both content and format.

Khatamidoost, F et al looked at Cultural competency: a concept analysis in TUMS. The authors found that there are special historical, social and cultural conditions that form antecedents and also drive our attributes and expectations of consequences of cultural competency

so, we can define the term based on the context.

Shetabi, H.R et al led a descriptive and analytical study to evaluate the personal characteristics and risk factors of suicide attempted was carried out. The authors found that identifying some factors for predicting the risk are looking epidemiological studies on people who have attempted suicide can be of good practices to prevent social planners, health offer.

Janjani, P et al led descriptive, correlational and analytical study to investigate the role of self-compassion factors in predicting the marital satisfaction. The authors concluded that some effective steps can be taken towards improving marital satisfaction among staff using the results of studies and their application in relations between spouses.

Janjani, P et al. did a correlation exploratory research to investigate the mediating role of irrational beliefs in the relationship between family relationship quality and marital satisfaction.

The authors pin point that irrational beliefs to the relationship between the quality of family communication and marital satisfaction act as a mediator, and can be an advocate of family counseling in pre-marital counseling and marital interventions.

Bakhshi, S et al compared self-esteem and resiliency between blind and sighted children. The authors claimed that disability exists not only in the body of people with disabilities, but also in the attitudes of those individuals and other individuals in different societies.

Barzabad P.A et al studied the Effect of Health System Development Plan on Reduction of First Cesarean. The authors stressed that preserving health and promoting it is one of the transcendental goals of health systems of countries which is being scrutinized every day by utilizing financial, human, and modern methods.

Mobayen, M et al reported a case of use of TEN in an 7-year-old Iranian girl treated as an emergency burnt case with intravenous Immunoglobulin and amniotic membrane. The authors found

that early diagnosis, supportive care and careful monitoring for complications comprise crucial management in TEN.

Shahriari, H et al, studied , the gene expression of ROR t and FOXP3 were evaluated to exam the potential immunological roles of Th17 and Treg in CIU patients.. The high expression of FOXP3 in patients without any significant changes in ROR t might indicate the presence of an independent inflammatory pathway such as neurogenic inflammation, which induces Treg cells and mediates inflammation through the degranulation of mast cells.

Review

International Health Affairs

Education and Training

Clinical Research and Methods

Model and System of Primary Care

Case Series and Case Reports

IN MEMORIAM

Prof.Dr. Ekrem MÜFTÜOĞLU
(28 Aralık 1987-28 Aralık 1990)   (7 Ocak 1993-3 Nisan 1995)

Orhan Ekrem Müftüoğlu
(1942 - 2017)

Orhan Ekrem Müftüoğlu who died at age 75, was the Dean of the Medical Faculty of the Dicle University, Diyarbakır, Turkey. He was Professor of Internal Medicine and Hematology.

He performed one of the first bone marrow transplantations in Turkey in 1988. He has educated many medical students some of whom are now professors in Turkey. One of them is myself. He also helped thousands of patients. He worked only at the universities and did not work in private hospitals where he could have earned more money. Actually, he was one of the white pages of human beings. The significance of the white pages can only be understood through their death. Today, Turkey has lost a significant educator, doctor, mind, and expert. He will live in our hearts for several years. I think it is enough for a person to be accepted as a good person among all others after his or her death.

He will be greatly missed by his patients, students, friends and colleagues.

Mehmet Rami Helvaci
Professor of Internal Medicine

Professor Müftüoğlu was an author and one of our co-authors in the Middle East Journal of Family Medicine/ World Family Medicine Journal. We thank him for his contributions to the advancement of medical knowledge and practice, and in lifting standards of health care in the region and the world.

Lesley Pocock
Publisher MEJFM / WFM

Cholelithiasis and cholecystectomy may lower the low density lipoprotein cholesterol in plasma

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Abstract

Background: We tried to understand whether or not there is a significant relationship between cholelithiasis and cholecystectomy and plasma lipids.

Methods: The study was performed in the Internal Medicine Polyclinics on routine check up patients. All cases with cholelithiasis or already performed cholecystectomy for cholelithiasis were put into the first group and age and sex-matched control cases were put into the second group.

Results: One hundred and forty-four cases either with cholelithiasis or already performed cholecystectomy for cholelithiasis were detected among 3,437 cases, totally (4.1%). One hundred and sixteen (80.1%) of them were females with a mean age of 53.6 years. Obesity was significantly higher (54.8% versus 43.7%, p<0.01) in the cholelithiasis group, and the mean body mass indexes were 31.0 versus 28.9 kg/m2 in them, respectively (p<0.01). Prevalence of hypertension (26.3% versus 13.1%, p<0.001) and hypertriglyceridemia (25.0% versus 18.0%, p<0.05) were also higher in the cholelithiasis group, significantly. On the other hand, hyperbetalipoproteinemia was significantly lower in the cholelithiasis group (9.7% versus 18.0%, p<0.05).

Conclusions: There are significant relationships between cholelithiasis and parameters of the metabolic syndrome including age, female sex, obesity, hypertension, and hypertriglyceridemia, so cholelithiasis may also be found among the terminal consequences of the metabolic syndrome. On the other hand, cholelithiasis may actually be a natural defence mechanism of the body to decrease amount of cholesterol absorbed via decreasing amount of bile acids secreted during entrance of food into the duodenum since cholelithiasis and cholecystectomy may lower the low density lipoprotein cholesterol in the plasma.

Key words: Cholelithiasis, cholecystectomy, metabolic syndrome, low density lipoprotein cholesterol

Introduction

Chronic endothelial damage may be the most common type of vasculitis and the leading cause of aging, morbidity, and mortality in human beings. Much higher blood pressure (BP) of the afferent vasculature may be the major underlying cause by inducing recurrent injuries on endothelium, and probably whole afferent vasculature including capillaries are involved in the process. Thus the term of venosclerosis is not as famous as atherosclerosis in the literature. Secondary to the chronic endothelial inflammation, edema, and fibrosis, vascular walls become thickened, their lumens are narrowed, and they lose their elastic nature that reduces blood flow and increases systolic BP further. Some of the well-known causes and indicators of the inflammatory process are sedentary life style, animal-rich diet, overweight, smoking, alcohol, hypertriglyceridemia, hyperbetalipoproteinemia, dyslipidemia, impaired fasting glucose, impaired glucose tolerance, white coat hypertension, and other chronic inflammatory processes including rheumatologic disorders, prolonged infections, and cancers for the development of irreversible consequences including obesity, hypertension, diabetes mellitus (DM), cirrhosis, peripheric artery disease (PAD), chronic obstructive pulmonary disease (COPD), chronic renal disease (CRD), coronary artery disease (CAD), mesenteric ischemia, osteoporosis, and stroke, all of which terminate with early aging and death. Although early withdrawal of causative factors may prevent terminal consequences, after development of cirrhosis, COPD, CRD, CAD, PAD, or stroke, endothelial changes cannot be reversed, completely due to their fibrotic nature. They were researched under the titles of metabolic syndrome, aging syndrome, or accelerated endothelial damage syndrome in the literature, extensively (1-4). On the other hand, gallstones are also found among one of the most common health problems in developed countries (5), and they are particularly frequent in women above the age of 40 years (6). Most of the gallstones are found in the gallbladder with the definition of cholelithiasis. Its pathogenesis is uncertain and appears to be influenced by genetic and environmental factors (7). Excess weight is a well-known and age-independent risk factor for cholelithiasis (8). Delayed bladder emptying, decreased small intestinal motility, and sensitivity to cholecystokinin were associated with obesity and cholelithiasis (9). An increased risk was confirmed in obese diabetics with hypertriglyceridemia (10), and plasma cholesterol levels were also found related with cholelithiasis (11). Even more conflicting results were reported about the associations between cholelithiasis and smoking (12-14). We tried to understand whether or not there is a significant relationship between cholelithiasis and cholecystectomy and plasma lipids.

Material and Methods

The study was performed in the Internal Medicine Polyclinics of the Dumlupinar and Mustafa Kemal Universities on routine check up patients between August 2005 and November 2007. We took consecutive patients below the age of 70 years to avoid debility induced weight loss in elders. Their medical histories including smoking habit, hypertension, DM, dyslipidemia, and already used medications and performed operations were learnt, and a routine check up procedure including fasting plasma glucose (FPG), triglyceride, high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C), and an abdominal ultrasonography were performed. Patients with devastating illnesses including type 1 DM, malignancies, acute or chronic renal failure, chronic liver diseases, hyper- or hypothyroidism, and heart failure were excluded to avoid their possible effects on weight. Current daily smokers for the last six months and cases with a history of five pack-years were accepted as smokers. Cigar or pipe smokers were excluded. Body mass index (BMI) of each case was calculated by the measurements of the same physician instead of verbal expressions since there is evidence that heavier individuals systematically underreport their weight (15). Weight in kilograms is divided by height in meters squared, and underweight is defined as a BMI of lower than 18.5, normal weight as lower than 24.9, overweight as lower than 29.9, and obesity as a BMI of 30.0 kg/m2 or higher (16). Cases with an overnight FPG level of 126 mg/dL or greater on two occasions or already receiving antidiabetic medications were defined as diabetics (16). An oral glucose tolerance test with 75-gram glucose was performed in cases with a FPG level between 110 and 125 mg/dL, and diagnosis of cases with a 2-hour plasma glucose level 200 mg/dL or greater is DM (16). Patients with dyslipidemia were detected, and we used the National Cholesterol Education Program Expert Panel's recommendations for defining dyslipidemic subgroups (16). Dyslipidemia is diagnosed when LDL-C is 160 or higher and/or triglyceride is 200 or higher and/or HDL-C is lower than 40 mg/dL. Office BP was checked after a 5-minute rest in seated position with a mercury sphygmomanometer on three visits, and no smoking was permitted during the previous 2 hours. A 10-day twice daily measurement of blood pressure at home (HBP) was obtained in all cases, even in normotensives in the office due to the risk of masked hypertension after a 10-minute education session about proper BP measurement techniques (17). The education included recommendation of upper arm while discouraging wrist and finger devices, using a standard adult cuff with bladder sizes of 12 x 26 cm for arm circumferences up to 33 cm in length and a large adult cuff with bladder sizes of 12 x 40 cm for arm circumferences up to 50 cm in length, and taking a rest at least for a period of 5 minutes in the seated position before measurement. An additional 24-hour ambulatory BP monitoring was not required due to the equal efficacy of the method with HBP measurement to diagnose hypertension (18). Eventually, hypertension is defined as a BP of 135/85 mmHg or greater on HBP measurements (17). Cholelithiasis was diagnosed ultrasonographically. Eventually, all cases either with presenting cholelithiasis or already performed cholecystectomy for cholelithiasis were put into the first group and age and sex-matched control cases were put into the second group. Prevalence of smoking, normal weight, overweight, obesity, hypertension, DM, hypertriglyceridemia, hyperbetalipoproteinemia, and dyslipidemia and mean BMI values were detected in both

groups and compared. Mann-Whitney U test, Independent-Samples t test, and comparison of proportions were used as the methods of statistical analyses.

Results

Although the exclusion criteria, 119 cases with cholecystectomy for cholelithiasis and 25 cases with already presenting asymptomatic cholelithiasis were detected among 3,437 cases, totally (4.1%). One hundred and sixteen (80.1%) of them were females with a mean age of 53.6 years, so cholelithiasis is mainly a disorder of females in their fifties. Prevalence of smoking was similar in the cholelithiasis and control groups (18.0% versus 19.4%, p>0.05, respectively). There was not any patient with underweight. Interestingly, 92.3% (133 cases) of the cholelithiasis group had excess weight and only 7.6% (11 cases) had normal weight. Obesity was significantly higher (54.8% versus 43.7%, p<0.01) and normal weight was significantly lower (7.6% versus 18.0%, p<0.01) in the cholelithiasis group. Mean BMI values were 31.0 and 28.9 kg/m2, (p<0.01) in the two groups. Probably parallel to the higher mean BMI values, prevalence of hypertension (26.3% versus 13.1%, p<0.001) and hypertriglyceridemia (25.0% versus 18.0%, p<0.05) were also higher in the cholelithiasis group, significantly. Although the prevalence of DM (20.8% versus 19.4%, p>0.05) and dyslipidemia (31.9% versus 29.8%, p>0.05) were also higher in the cholelithiasis groups, differences were nonsignificant probably due to the small sample sizes of the groups. On the other hand, hyperbetalipoproteinemia was significantly lower in the cholelithiasis group (9.7% versus 18.0%, p<0.05) (Table 1).

Discussion

Bile is formed in the liver as an isosmotic solution of bile acids, cholesterol, phospholipids, bilirubin, and electrolytes. Bile flow is generated by the active transport of bile salts and electrolytes and the accompanying obligate passive movement of water. The liver synthesizes water-soluble bile acids from water-insoluble cholesterol. Bile acids are excreted in bile, which flows from the intrahepatic collecting system into the proximal or common hepatic duct. About 50% of bile secreted in the fasting state passes into the gallbladder via the cystic duct and the rest flows directly into the distal or common bile duct. So gallbladder filling is facilitated during fasting. Up to 90% of water in the gallbladder bile is absorbed as an electrolyte solution, and bile remaining in the gallbladder is a concentrated solution consisting primarily of bile acids. So during fasting, bile acids are concentrated in the gallbladder, and a small amount of bile flows from the liver. Food entering the duodenum stimulates gallbladder contraction, releasing much of body pool (3 to 4 g) of bile acids into the small intestine. Bile flows into the duodenum to mix with food content and to perform its several functions including solubilization of dietary cholesterol, fats, and fat-soluble vitamins to facilitate their absorption in the form of mixed micelles, causing water secretion by the colon as they enter that organ thus promoting catharsis, excretion of bilirubin as degradation products of heme compounds from worn-out red blood cells, excretion of drugs, ions, and endogenously produced compounds from the body, and secretion of various proteins important in gastrointestinal function. About 90% of bile acids is absorbed in the terminal ileum into the portal venous circulation by active transport.

Table 1: Comparison of cases with and without cholelithiasis

Variable	Cases with cholelithiasis or cholecystectomy for cholelithiasis	Control cases	p-value
Number	144	144	
Female ratio	80.5% (116)	80.5% (116)	
Mean age (year)	53.6 ± 9.3 (27-70)	53.6 ± 10.2 (28-70)	Ns*
Prevalence of smoking	18.0% (26)	19.4% (28)	Ns
Mean BMI† (kg/m2)	*31.0 ± 6.1 (19-51)*	*28.9 ± 5.7 (19-52)*	*<0.01*
Prevalence of normal weight	*7.6% (11)*	*18.0% (26)*	*<0.01*
Prevalence of overweight	37.5% (54)	38.1% (55)	Ns
Prevalence of obesity	*54.8% (79)*	*43.7% (63)*	*<0.01*
Prevalence of hypertension	*26.3% (38)*	*13.1% (19)*	*<0.001*
Prevalence of DM‡	20.8% (30)	19.4% (28)	Ns
Prevalence of hyperbetalipoproteinemia	*9.7% (14)*	*18.0% (26)*	*<0.05*
Prevalence of hypertriglyceridemia	*25.0% (36)*	*18.0% (26)*	*<0.05*
Prevalence of dyslipidemia	31.9% (46)	29.8% (43)	Ns

*Nonsignificant (p>0.05)   †Body mass index   ‡Diabetes mellitus

Bile salts are efficiently extracted by the liver, and secreted back into bile. Bile acids undergo enterohepatic circulation 10 to 12 times per day. During each pass, a small amount of primary bile acids reaches the colon, where anaerobic bacteria containing 7alpha-hydroxylase form secondary bile acids. The most clinical disorders of the extrahepatic biliary tract are related to gallstones. In the USA, 20% of people above the age of 65 years have gallstones, and each year more than 500,000 patients undergo cholecystectomy. Factors that increase the probability of gallstones include age, female sex, and obesity. Highly water-insoluble cholesterol is the major component of most gallstones. Biliary cholesterol is solubilized in the bile salt-phospholipid micelles and phospholipid vesicles which greatly increase the cholesterol-carrying capacity of bile. The amount of cholesterol carried in micelles and vesicles varies with the bile salt secretion rate. Supersaturation of cholesterol in bile is a necessary condition of cholesterol gallstone formation. Virtually all gallstones form within the gallbladder but stones may form in the bile duct after cholecystectomy or behind strictures as a result of stasis. In another perspective, cholelithiasis may actually be a natural defence mechanism of the body to decrease amount of cholesterol absorbed via decreasing amount of bile acids secreted during entrance of food into the duodenum. Similarly, bile acid sequestrants including cholestyramine and cholestipol effectively lower serum LDL-C by binding bile acids in intestine and interrupting enterohepatic circulation of them.

Excess weight leads to both structural and functional abnormalities of many organ systems of the body. Recent studies revealed that adipose tissue produces biologically active leptin, tumor necrosis factor-alpha, plasminogen activator inhibitor-1, and adiponectin which are closely related with the development of complications (19). For example, the cardiovascular field has recently shown a great interest in the role of inflammation in the development of atherosclerosis and numerous studies indicated that inflammation plays a significant role in the pathogenesis of atherosclerosis and thrombosis (20, 21). Adipose tissue is involved in the regulation of cytokines (22). On the other hand, individuals with excess weight will have an increased circulating blood volume as well as an increased cardiac output, thought to be the result of increased oxygen demand of the excessive fat tissue. The prolonged increase in circulating blood volume can lead to myocardial hypertrophy and decreased compliance, in addition to the common comorbidity of hypertension. In addition to the hypertension, the prevalence of high FPG, high serum total cholesterol, and low HDL-C, and their clustering were all raised with the higher BMI (23). Combination of these cardiovascular risk factors will eventually lead to an increase in left ventricular stroke work with higher risks of arrhythmias, cardiac failure, and sudden cardiac death. Similarly, the incidence of CHD and stroke have increased with a higher BMI in other studies (23, 24), and risk of death from all causes including cancers increases throughout the range of moderate and severe excess weight for both genders in all age groups (25). As another consequence of excess weight on health, the cholelithiasis cases had a significantly higher mean BMI value in the present study (31.0 versus 28.9 kg/m2, p<0.01) similar to the previous reports (8, 9). Probably as a consequence of the significantly higher BMI, the prevalence of hypertension (26.3% versus 13.1%, p<0.001) and hypertriglyceridemia (25.0% versus 18.0%, p<0.05) were also higher in the cholelithiasis group. The relationship between excess weight and elevated BP and hypertriglyceridemia has already been described in the metabolic syndrome or aging syndrome, or accelerated endothelial damage syndrome (26), and clinical manifestations of the syndrome include obesity, dyslipidemia, hypertension, insulin resistance, and proinflammatory as well as prothrombotic states (27). The above confirmed increased risk of cholelithiasis in obese diabetics with hypertriglyceridemia may also be an indicator of its association with the metabolic syndrome (10, 26). Although the presence of some conflicting results in the literature (12-14), we did not find any significant association between cholelithiasis and smoking in the present study (p>0.05).

Although the waist circumference, BMI, hypertension, fasting glycemia, insulinemia and insulin resistance index indicated significant differences in the cholelithiasis and cholecystectomy group in patients with the metabolic syndrome, there was no significant differences for the lipid parameters in another study (28). Plasma concentration of total cholesterol, triglycerides, and LDL-C were significantly reduced in patients on day 3 of surgery and 6 months after the cholecystectomy in another study (29). Significantly higher prevalence of cholelithiasis was found among patients with nonalcoholic fatty liver disease (NAFLD) (47% versus 26%, p< 0.0001), and type 2 DM, overweight, obesity, and cholelithiasis were identified as independent predictors of NAFLD (30). Fifty six percent of patients with cholelithiasis had NAFLD compared with 33% of patients without (p< 0.0001) (30). Age above 50 years, triglycerides above 1.7 mmol/l, overweight, obesity, and total cholesterol concentration were the independent predictors of cholelithiasis (30). So NAFLD may represent a pathogenetic link between the metabolic syndrome and cholelithiasis (30). Serum LDL-C values of patients with cholelithiasis above the age of 40 years were significantly elevated (p<0.05) in another study (31). Patients with type 2 DM had higher probability of having cholelithiasis, and age, female sex, and higher BMI were independently associated with cholelithiasis (32). Authors have concluded that obesity may lead to fatty infiltration of multiple organs causing organ dysfunction, and BMI was associated with steatocholecystitis in another study (33).

As a conclusion, there are significant relationships between cholelithiasis and parameters of the metabolic syndrome including age, female sex, obesity, hypertension, and hypertriglyceridemia, so cholelithiasis may also be found among the terminal consequences of the metabolic syndrome. On the other hand, cholelithiasis may actually be a natural defence mechanism of the body to decrease the amount of cholesterol absorbed via decreasing amount of bile acids secreted during entrance of food into the duodenum since cholelithiasis and cholecystectomy may lower LDL-C in the plasma.

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Serum and follicular fluid vitamin D and follicular response among infertile women undergoing ICSI

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Abstract

Background: Some studies have shown the relation between vitamin D levels and the success rate of fertility in couples treated with Assisted Reproductive Technology (ART). The aim of this study is to determine Association of vitamin D level in serum and follicular fluid with follicular response in infertile women in an ART program.

Method: In this cross sectional study 81 infertile women were placed under treatment for induction ovulation according to a long protocol. Follicular fluids were extracted from follicles over 14 mm and blood samples collected on the same day. Follicular fluid and blood samples were centrifuged and stored at -80 C. Then level of 25-OH-vit D was measured by immunoassay method.

Result: The mean age of the subjects was 32.91 ± 4.83. The average BMI of patients was 27.63 ± 3.97. There was no significant correlation between the follicular concentrations of vitamin D and the number of oocytes as well as serum concentration of vitamin D and the number of oocytes (Respectively, P = 0.95 and P = 057). There was also no relation between the numbers of ovarian follicles and follicular concentrations of vitamin D as well as the number of ovarian follicles and serum concentration of vitamin D (P=0.07).

Correlation analysis revealed a high relationship between serum and follicular fluid vitamin D (P<0.001).

Conclusion: Different concentrations of vitamin D in serum or follicles have no significant correlation with the number of ovarian follicles and mature oocytes.

Key words: Vitamin D, infertility, Intracytoplasmic sperm injection, Oocyte, follicular fluid

Introduction

The World Health Organization estimates that approximately 10-25% of couples have infertility problems. Infertility has affected about 80 million people worldwide [1, 2]. Vitamin D is a steroid hormone and induces its effects on the nucleus by connecting its receptors to this part of the cell. This hormone is effective on almost all body cells and has a positive relation with the body's health from cancer to heart disease [3, 4]. Vitamin D can play an important role in growth and differentiation of various tissues, reducing the risk of chronic diseases such as cancer, autoimmune diseases, infectious diseases and cardiovascular disease [5-11]. Studies have shown that Vitamin D receptors exist in most tissues and cells in the body which in itself shows the role of vitamin D [5]. Among the various physiological functions of vitamin D, some seem an important role in reproductive physiology [12] in a way that Vitamin D receptors are also found in reproductive tissues such as ovary and uterus [13, 14].

More information confirming the association between vitamin D and reproduction arise from studies carried out on receptors. Vitamin D receptors can be observed in reproductive organs like the uterus and ovaries [15]. Recent studies have shown that Vitamin D plays an important role in female fertility by promoting the synthesis of two important hormones in reproduction which are estrogen and progesterone. The correct balance of these two hormones is essential for reproductive health and menstrual cycles [16]. Vitamin D may also be associated with endometriosis and the possibility of pregnancy after IVF operation [17]. Lack of vitamin D shows up to 85% companionship, in women with polycystic ovary syndrome. The deficiency of this vitamin is also associated with PCOS symptoms such as menstrual irregularities and infertility [17]. Patients with PCOS have hypervitaminosis D and average levels of vitamin D are lower in these patients compared to non-PCOS people [18]. It has been shown that vitamin D supplementation can improve insulin resistance as well as the sequence of menstrual cycles [19, 20] which in itself can increase the chances of pregnancy. Adequate levels of vitamin D are also important for fetal development during pregnancy [21]. Vitamin D deficiency is especially common in the Middle East. Factors such as avoiding exposure to the sun, using sunscreen, type of dressing of women and the high number of skin pigments in Asian people can be among the main reasons for this deficiency [22]. The prevalence of vitamin D deficiency in Australia is between 70 to 80 percent among children and pregnant women while this percentage falls to 23 in young adults [23]. According to studies of the Endocrinology Research Center of Tehran University of Medical Sciences, the prevalence of this problem is in oscillation from 40 to 80 percent in different parts of Iran [24]. Some of the studies have shown the relation between the level of vitamin D and the success rate of fertility in couples treated with ART, in a way that women with vitamin D deficiency have shown a lower fertility rate compared to women who had higher vitamin D levels [25, 26]. It has been shown in some studies that women with higher levels of vitamin D in serum and follicular fluid will have significantly higher clinical pregnancy after IVF and ET and high levels of vitamin D are significantly associated with better parameters of controlled ovarian stimulation [12]. But other studies have mentioned the lack of significant effect of vitamin D in the follicular fluid and blood in predicting outcomes related to reproductive techniques [27]. Thus, the objective of our study is to evaluate the companionship of vitamin D level in serum and follicular fluid with follicular response in infertile women undergoing ART treatment.

Materials and Methods

This is a cross-sectional study. Sampling has been carried out using census method and includes all women with infertility undergoing IVF or ICSI who referred to infertility center of Fatemeh Zahra of Babolin 2015 during the period of 8 months (October to March). Inclusion criteria included age between 18 and 40, normal Hormone, thyroid and prolactin tests and exclusion criteria included Cancellation of treatment cycles, performing ART for genetic identifications, underlying medical condition such as heart, liver and kidney diseases and the use of drugs that interfere with the metabolism of vitamin D.

Written consent is initially signed by infertile women after explaining the method for women eligible for study inclusion and demographic data are collected by questionnaire. Then, infertile women will be placed under treatment for ovulation induction according to the protocol of infertility center of Fatemeh Zahra (Long Protocol) which is in from of prescribed Buserelin acetate (Cinnagen, Iran) with the initial dose of 0.5mg / d in mid luteal phase which is reduced to 0.25mg / d after occurrence of menses and completion of pituitary suppression and will continue until the day of oocyte retrieval. Gonal F (Cinnagen, Iran) starts from the second day of menses based on age and the number of antral follicles and their dose is regulated by monitoring Estradiol and TVS. HCG (Daroupakhsh, Iran) is administered at a dose of IU10000 when the size of follicle reaches to 16-18 mm and TVS guide of ovaries are removed 34 to 36 hours later. Follicular fluid is taken from follicles over 14 mm and heparinized blood sample of these women is taken on the same day to measure the level of 25-hydroxy vitamin D. Blood samples and follicular fluid sample are placed at -80 ° centigrade after centrifugation and sent to the laboratory on a weekly basis. Vitamin D measurement is done by immunoassay method using the bioactiva kit. It should be noted that Serum vitamin D levels less than 20ng / dl are considered as deficient levels of vitamin D and levels between 20-30ng / dl are considered as inadequate levels and levels higher than 30ng / dl are considered as adequate levels of vitamin D according to the Endocrine Society [27]. Analysis of the data was done using the SPSS19 application and descriptive statistical indexes including frequency and average and chi-square test was used to compare qualitative variables between the two groups.

Results

82 patients entered the study from whom 1 subject was excluded (due to corruption of test and unwillingness of the patient for re-testing). Finally, 81 infertile patients were evaluated. The average weight and BMI and type of infertility and cause of infertility and average FSH LH hormone did not have significant difference in groups with inadequate levels of vitamin D and vitamin D deficiency and adequate levels of vitamin D (Table 1).

Table 1: Demographic and hormonal characteristics of sampled patients

	Patient Groups (serum vitamin D, ng/ml)			
	Vit D < 20	20 ≤ D < 30.0	D ≥ 30.0	P value
Age (year)	33±4.99	31.63±4.82	35.14±2.61	0.27
BMI (kg/m^2) ^{a}	27.61±3.70	27.78±5.27	27.48±1.15	.98
Infertility				.32
Primary	41(70.7%)	14(87.5%)	4(57.1%)	
Secondary	17(29.3%)	2(12.5%)	3(42.9%)	
Infertility cause				
Unexplained	19(32.8)	4(25)	0	
Tubal factor	9(15.5)	0	1(14.3)	
Ovulatory disorder	4(6.9)	1(6.3)	2(28.6)	.18
Male factor	21(36.2)	7(43.8)	2(28.6)	
Uterine malformation	1(1.7)	1(6.3)	0	
Mix	21(36.2)	7(43.8)	2(28.6)	
Hormonal assessment				
FSH (mlu/ml)	6.88±3.12	6.88±2.87	8.88±6.48	.34
LH(mlu/ml)	5.44±3.41	6.04±3.50	6.17±8.65	.81

Values are reported as mean±SD or n (%)

40 patients had number of follicles less than 5 (49.4%), 32 patients had between 5 to 10 (39.5%) and 9 patients had more than 10 (11.1%). The average number of oocytes was 6.62 ± 4.98. The average serum levels of vitamin D was 15.12 ± 13.14 and the average vitamin D follicular fluid was 23.32 ± 13.54.

Pearson correlation test showed a significant positive relation between serum and follicular levels of vitamin D (rp=0.67, p<0.001) (Figure 1 - next page).

Correlation obtained between the number of oocytes and levels of vitamin D in the serum was not statistically significant (rp=-0.028, p=0.8) (Figure 2). Pearson correlation between the number of oocytes and levels of vitamin D in follicular fluid did not show a significant relation (rp=0.029, p=0.79) (Figure 3). Kendall and Spearman correlations between the number of follicles and serum vitamin D levels were not statistically significant (rc=0.078, p=0.36)(rs=-0.098, p=0.38) (Figure 4). Kendall and Spearman correlations between the number of follicles and follicular fluid vitamin D levels were not statistically significant (rc=0.014, p=0.88)(rs=-0.014, p=0.88) (Figure 5).

Figure 1: Correlation of serum and follicular fluid vitamin D
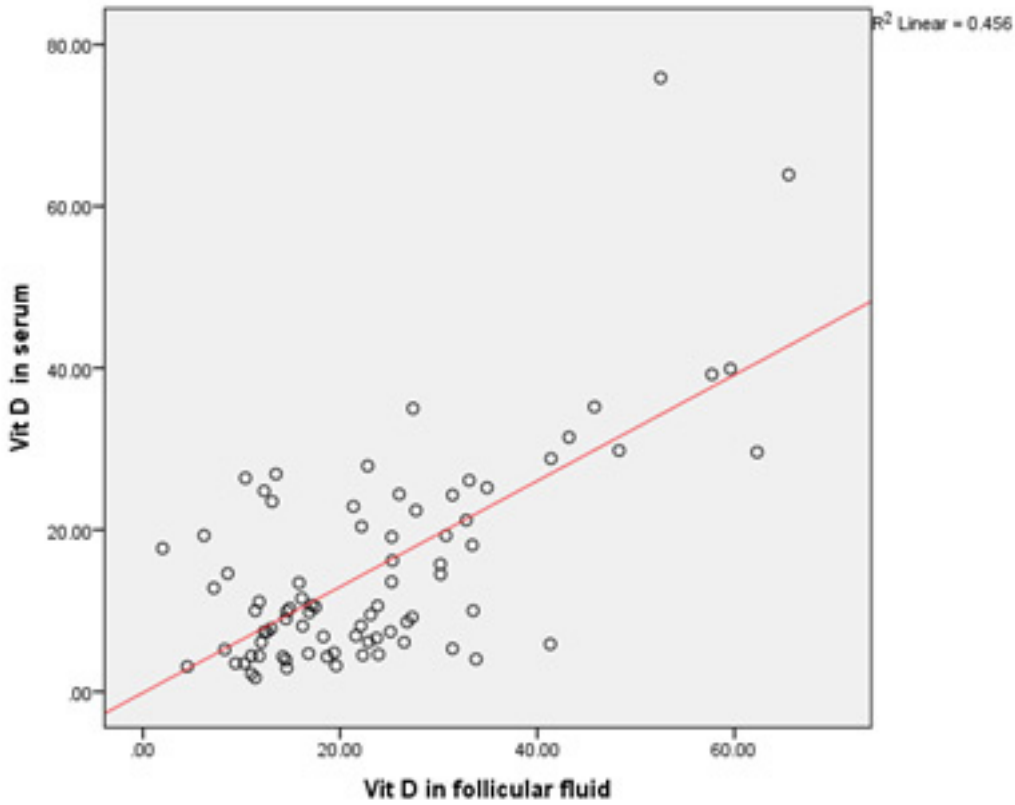
Figure 2: Correlation of oocytes numbers and serum vitamin D
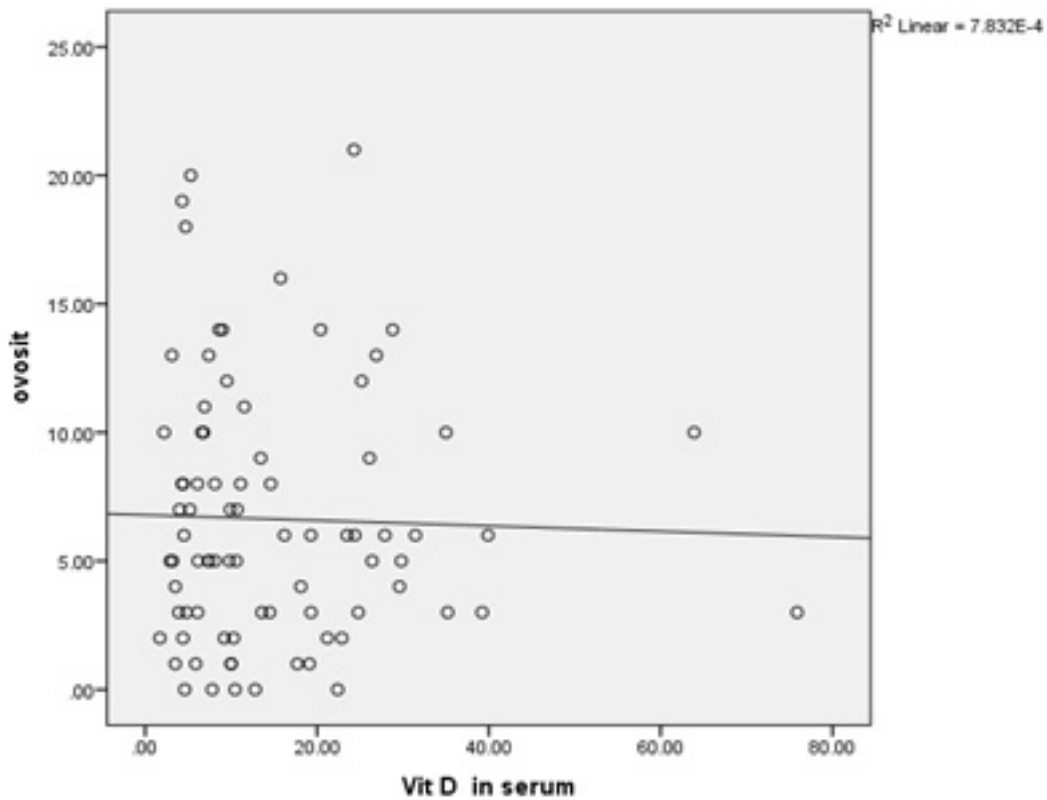
Figure 3: Correlation of oocytes numbers and follicular fluid vitamin D
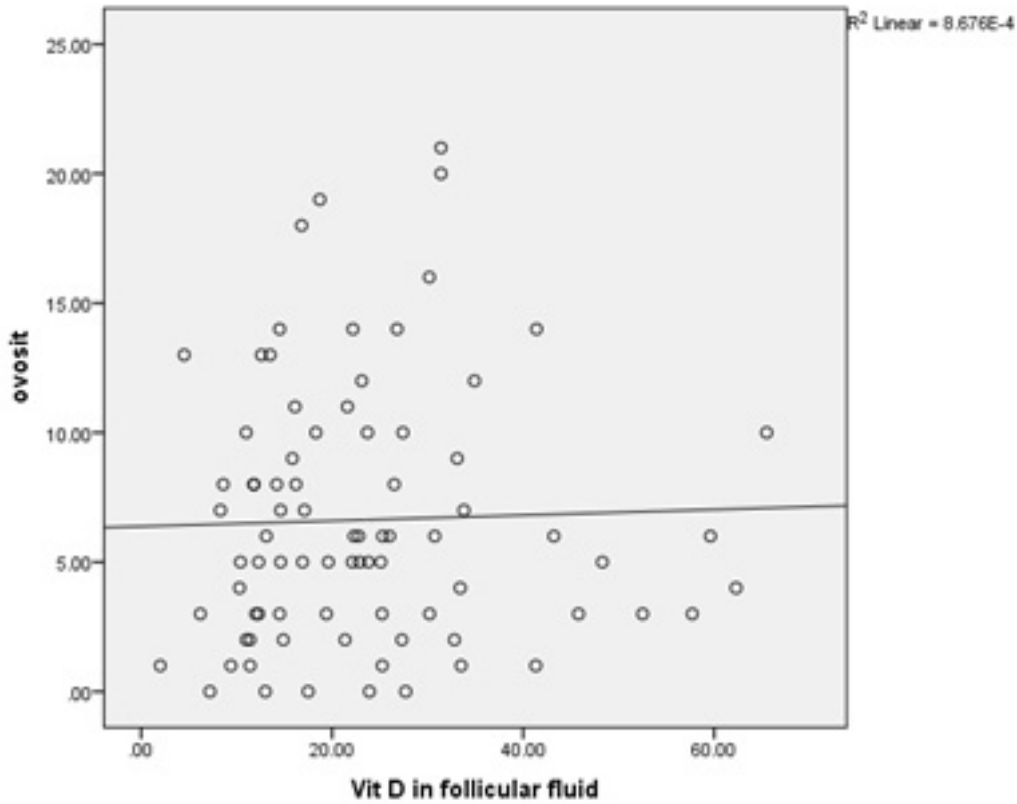
Figure 4: Correlation of follicle number and serum vitamin D
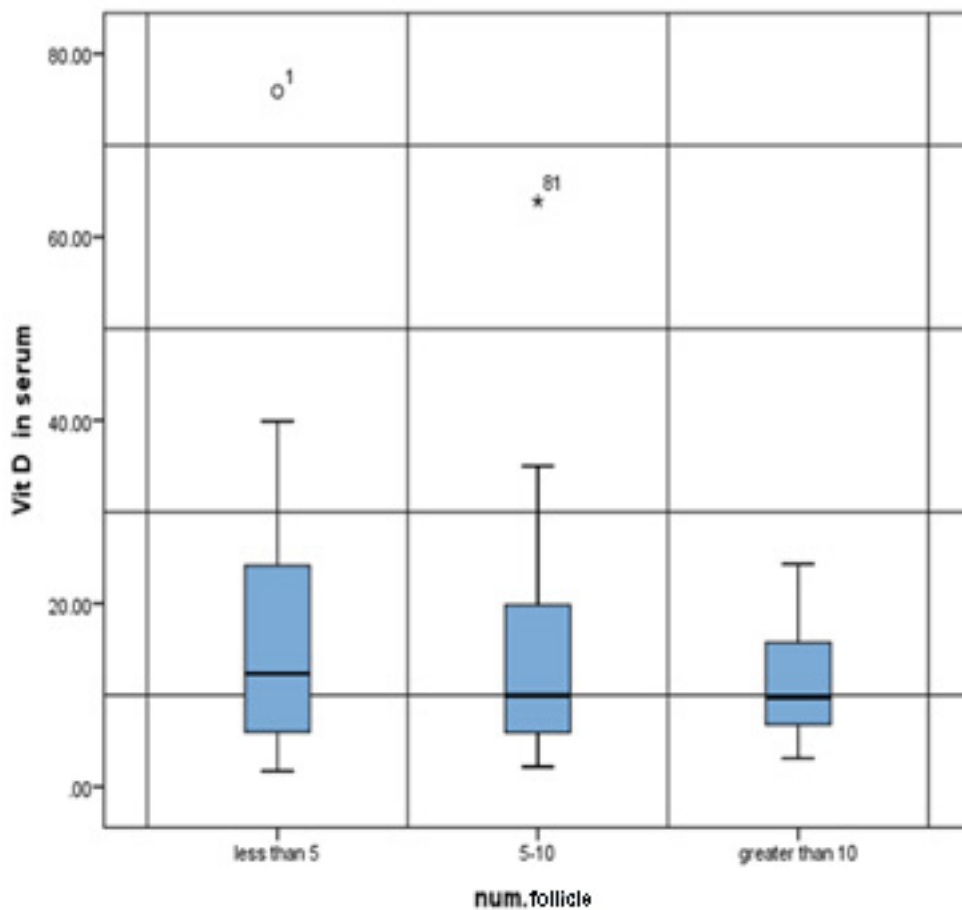
Figure 5: Correlation of follicle number and follicular fluid vitamin D
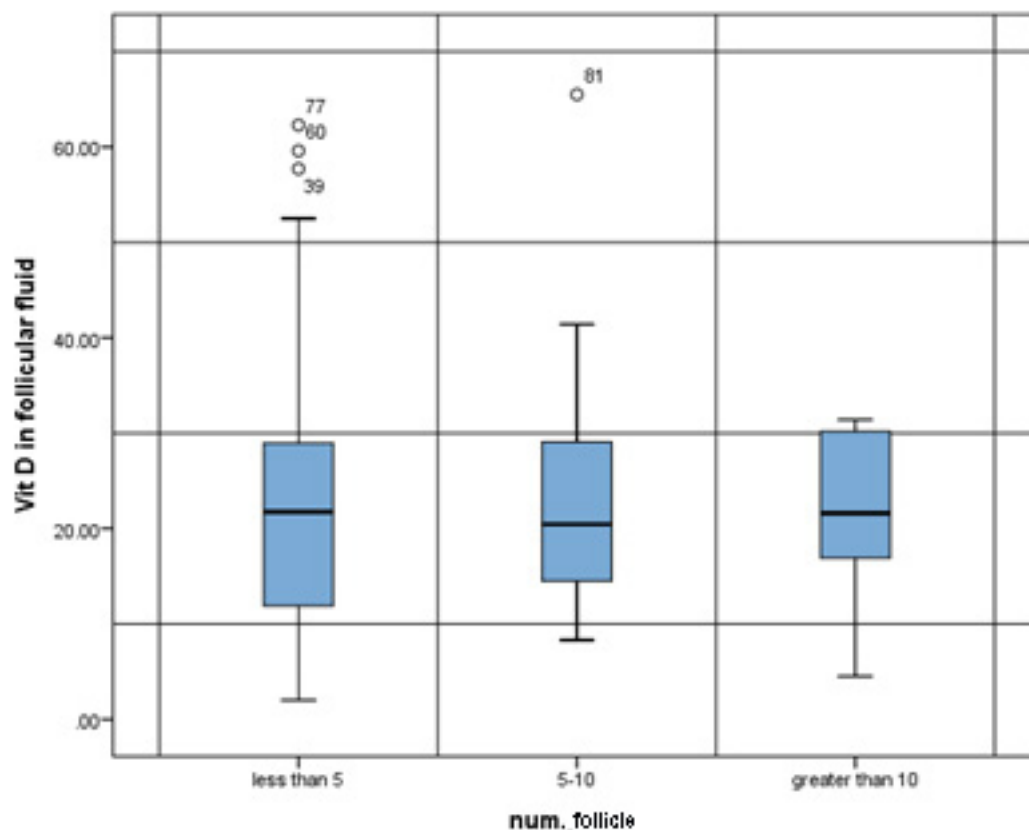
Discussion

The present study has been carried out in order to determine the possible role of serum and follicular fluid vitamin D levels on follicular response in 81 infertile women referred to infertility center of Fatemeh Zahra in Babol during 8 months (from August to March of2015). The results of our study showed a 72 percent prevalence of vitamin D deficiency in infertile women and only 8% of patients had adequate levels of vitamin D. It was determined in a study carried out by Garabedian and colleagues on 173 infertile women that 55% of them had vitamin D deficiency [15]. Rudick and colleagues examined the effects of vitamin D on the clinical outcome of IVF in another study, out of 188 infertile women, 109 patients (58%) suffered from a lack of vitamin D (with levels less than 30ng / ml) [28]. Vitamin D status is different among various communities which can be due to different factors affecting the level of vitamin D. Seasons, geographic location, dressing, using sunscreen and skin pigmentation in people are among these factors [29].

Some of the hormones and metabolites are effective on the number and maturation of oocytes which are supplied by follicular fluid. Follicular fluid is also an important environment for oocyte development. Increased or decreased compositions of this fluid affect the number and quality of oocytes and embryo. A part of the composition of follicular fluid originates from serum and metabolic changes in serum may affect the biochemical compounds of follicular fluid. Thus, growth and maturation of follicle

are affected by metabolite concentrations of blood [30, 31]. Our study also showed a significant positive correlation between serum vitamin D levels and follicular fluid vitamin D levels which was similar to the results obtained from the study of Firouzabadi and Anifandis [32, 33].

The results of our study showed that different concentrations of vitamin D in serum and follicular fluid do not have significant relation with the number of ovarian follicles and oocytes. A few studies have examined the serum and follicular fluid vitamin D levels at the same time and most of the studies have only evaluated the serum level of vitamin D or follicular fluid level of vitamin. In the study of Farzadi and his colleagues, no significant relation was observed between the follicular fluid vitamin D levels and number and quality of oocytes but follicular fluid levels of vitamin D had a significant positive correlation with the level of implantation and IVF results [34]. In the study of Polyzos and colleagues, no significant relation was observed between vitamin D levels and fertility and there was also no relation between serum vitamin D deficient and ovarian reserve and ovarian response to ovulation induction [25]. Anifandis and colleagues also did not find any relation between the follicular fluid levels of vitamin D and the number of oocytes in their study which examined the effect of vitamin D level and glucose level follicular fluid [33]. Only in a study which compared the serum vitamin D level with follicular fluid similar to our study, Ozkan and his colleagues found out by evaluating the infertile women undergoing IVF that higher levels of 25-hydroxyvitamin D in serum and follicular fluid are associated with higher rates of clinical pregnancy after IVF and high levels of

of vitamin D in serum and follicular fluid are significantly associated with better parameters of controlled ovarian stimulation [35]. Rudick and colleagues confirmed that vitamin D status is associated with the success of IVF in non-Hispanic white women in populations with high ethnic diversity but no beneficial effects of adequate levels were observed among the Asian population and in fact, vitamin D is inversely related to IVF success [28]. This matter probably could explain the results of our study.

Conclusion

The present study showed that there is a significant correlation between serum vitamin D levels and follicular vitamin D levels but there is no relation between serum and follicular vitamin D levels and the number of oocytes and ovarian follicles in infertile women.

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Studying the relation of quality of work life with socio-economic status and general health among the employees working in Students Welfare Fund of Ministry of Health and Medical Education in 2016

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Abstract

Introduction: The importance of socio-economic variables such as level of literacy, income, and occupational status and their impact on the physical and psychological well-being of the people is clear for experts and policymakers. In much research, the root of increase in life expectancy and improvement in other indexes of health is considered to not only progress medicine, but also improve socio-economic indexes. Thus, the present study aims to determine the relation between socio-economic status and general health and the consequences of disease on the quality of work life of the employees working in Students Welfare Fund of Ministry of Health and Medical Education.

Methodology: The present cross-sectional research is of descriptive-analytical type, that has been conducted in Students Welfare Fund of Ministry of Health and Medical Education in 2016, and the population under study included all the 130 employees working in the Students Welfare Fund. The required data was collected by consensus method and Quality of Work life (QWL) questionnaire. This questionnaire was based on Walton components and Socio-economic Status (SES) questionnaire, and was designed in order to evaluate socio-economic status, and had 4 components. The data on general health was collected by Goldberg and Hillier 28-Item General Health Questionnaire (GHQ-28) (1979). Then, the collected data was recorded by SPSS version 18 software and was analyzed by common methods of descriptive-analytical statistics.

Results: The results demonstrated that the frequency of socio-economic status of the employees under study were 73 persons (57.9 percent) for low level, 45 persons (35.7 percent) for moderate level, and 8 persons (6.3 percent) for high level, and the frequency of the quality of work life of the employees under study were 7 persons (5.6 percent) for low level, 40 persons (32.3 percent) for moderate level, and 77 persons (62.1 percent) for high level.

Conclusion: Considering the importance of quality of work life in socio-economic status, it is proposed that the following measures be taken into account: appropriateness of salary to the economic factors like inflation; demand and supply in fair and adequate payment; paying more attention to the physical conditions of workplace, e.g. light, cooling and heating facilities to prepare a secure and healthy workplace; preparing some possibilities for the employees so that they can further develop their personal talents and have opportunities for making progress in their specialized field by encouraging creativity and innovation that leads to the promotion of the organization; and providing continuous security and growth opportunities for the employees, allowing them to do of their own free will, and providing any information or skill that they need in the workplace to develop their human capabilities. In the present study, there is a significant relationship between the quality of work life and general health and also socio-economic status and general health, however, there was no significant relationship between quality of work life and socio-economic status.

Key words: Quality of Work life (QWL), socio-economic status, general health, employees working in Students Welfare Fund.

Introduction

Nowadays organizations are considered as living creatures with an identity that is independent of their members (1), and by this new identity, they can affect the behavior of their employees. This personality and identity can be organizationally healthy or ill (2). Miles introduced the notion of "organizational health" in 1969. In his view, organizational health refers to the durability and persistence of an organization in its environment and adaptability to it, and also developing its own ability to be more adaptable to it (3). Wrong choice, misuse of skills, and lack of proper atmosphere to allow creativity to flourish can endanger health and promotion of the organization. When a position or office is proposed for employees that is not commensurate with their dignity, it can lead to disobedience, absence from work, delays, and resignation. In an organization, if communication at all levels is not multilaterally and openly established, and full confidence does not exist between different parts, misunderstanding and disharmony will be created. When goals are not clear, they become vague, and as a result, the employees do not make a concerted effort to achieve the goals (4).

Recently the human factor has been considered as the most important and sensitive organizational element, and most of the new theories of organization and management have referred to this sensitive factor (5). One of the most important parameters affecting the performance of human resources is the role of individual health in improving the economy of a country. Therefore, any kind of planning or investment in human resources that leads to protect and promote the health of employees, can eventually lead to increased efficiency and Return on Investment (ROI) (6). Nowadays the notion of quality of work life has turned into a major social issue all around the world, while in the past the emphasis was only on personal life. From the 1970s onward, improving the employees' quality of work life has been considered as one of the most important issues in many organizations, including health care organizations (7). Due to the inevitability of some of the stress factors in health care organizations and the need to prevent psychological stress effects, one of the duties of managers in these organizations is taking some measures and actions to improve the quality of work life, and teaching coping techniques (8). Although there is no formal definition of quality of work life, however, Walton's theory has offered the most comprehensive components of quality of work life plan (9). He has offered the main components of quality of work life in four dimensions that are as follows: meaningfulness of work; organizational and social fit of work; provocativeness, richness, and fruitfulness of work; and security, developing skills, and continuous learning in work (10).

Quality of work life programs deal with various objective and subjective areas of employees' issues. Quality of work life is a process by which the organization's members can participate in making decisions that generally affect their job and particularly their work environment; in doing so, they can use open and appropriate communication ways that have been designed for this purpose. As a result, their work-related stress will diminish and employees' satisfaction will increase. An organization that pays attention to its employees' quality of work life will benefit from having competent workforce, the signs of which are willingness to cooperate with the management and improvement in the performance of the workforce (11).

General health is a subset of the health system and is defined as a set of important social activities and measures that are based primarily on prevention strategies (12). One of the characteristics of a healthy organization is that the physical and psychological health of the employees are as important and interesting as production and productivity for its managers (13). In recent decades various studies have been conducted on the relationship between work and stress and its consequences for health care workers. In these studies, some topics such as productivity, occupational accidents, absenteeism, and increase in physical and mental damage in various occupational groups have been scrutinized (14). The profession of the people is one of the main causes of stress in their life. There is more stress in professions in which human contact is important (15).

Socio-economic determinants of health such as level of income, education, job, nutrition, and social class are far more important in catching diseases than the biological factors, and they play an important role in human's health (16). In the social hierarchy, people take different positions based on their occupational status and level of education and income, and the position of the people in this system is defined by their socio-economic status. Although occupation and level of income and education all determine the position of an individual in the social hierarchy, these factors are generally not separate from each other, but they should be individually studied in order to realize their role in health. Level of education makes differences in terms of having access to information and level of expertise to take advantage of knowledge, while occupation entails differences in having access to scarce material goods. Occupational status includes both of these aspects, and also includes benefits of working in certain occupations such as dignity, privilege, and technical and social skills and power (17).

The present age organizations have a strategic approach to human resources and consider it as a smart and valuable asset, and desire to further improve the quality of life and job satisfaction of their employees (18). Workplace health and psychological health are created by improving quality of life indexes, and it is necessary to pay attention to this issue in all organizations in order to prevent job burnout and low efficiency. Measuring the understanding and sense of people about their own health in order to assess the status quo, investigating the efficacy of health interventions and health care, and implementing appropriate health services are of crucial importance (19). Socio-economic status is an important factor that affects the possibility of taking advantage of medical services, while the wealthy social groups, which in every respect are better equipped than the disadvantaged groups, can sooner and better convert their need to demand, and hence, take more advantage (20). A survey of 17,000 employees in England showed that occupation rank itself plays a more important role in health than some risk factors combined, such as smoking and high blood pressure and cholesterol. Since healthy human is the axis of sustainable development, and also modern societies call for providing a proper environment for production and having the required speed to achieve comprehensive development, it is clearly the responsibility of health practitioners and researchers to investigate and explain all the social factors influencing health, and then giving feedback to the policy-makers in the form of scientific and practical information. In this way, they can help a great deal toward sustainable development (21).

The importance of socio-economic variables such as level of education, income, and occupational status, and their impact on physical and psychological health of the people, is clear for health experts and policy-makers. It has been suggested in many studies that increase in life expectancy and improvement in the other health indexes are not merely because of medical progress, but in many cases are due to the improvement in the socio-economic indexes (22).

Global data shows that environment, socio-economic status, housing, job security, access to health facilities, and human behavior are all crucial factors in securing or weakening health (23). Research in many countries shows extensive inequalities and differences in health conditions of various socio-economic, racial, ethnic, and geographical groups in society. This is indicative of the crucial impact of various factors on health that include reducing social exclusion, alleviating educational shortcomings, reducing insecurity and unemployment, and improving housing standards (24). Studies on the relationship between health and socio-economic status of a population originally started in England. Gradually this type of research was of interest to researchers in other countries and useful data was collected in this field, all of which shows that individuals and families who are in lower social groups, in comparison to higher and richer social groups, experience more and premature death, and diseases and defects are more common in this group; this inequality can be seen in all European countries, and is an undeniable fact that needs more attention (23). To this aim, this research has been conducted to determine the relationship between socio-economic status and general health, and show the consequences of disease that affects the quality of work life of Students Welfare Fund employees.

Methodology

This study is of descriptive-analytical type that has been conducted by cross-sectional method in Students Welfare Fund in 2016, and the population under study included all the 130 employees working in Students Welfare Fund. The inclusion criterion for the study was being an employee in Students Welfare Fund, i.e. all the employees working in the Fund and the employees working in Khazarabad Complex in Sari. Quality of Work life (QWL) questionnaire was used to collect the required data. This questionnaire was based on Walton's components, including fair and adequate payment (questions 1 to 5), safe and healthy working environment (questions 6 to 8), providing growth opportunities and continuous security (questions 9 to 11), having respect for the laws in the organization (questions 12 to 17), social dependence of work life (questions 18 to 20), the overall atmosphere of life (questions 21 to 25), social integrity and solidarity (questions 26 to 29), and developing human capabilities (questions 30 to 32). This questionnaire has been conducted by many researchers and contains 32 items, and is based on a Likert scale from very low (1 point) to very high (5 points).

Walton showed the reliability coefficient of the questionnaire to be 0.88 (25). Also in 2006 Rahimi reported the reliability coefficient of the test to be 0.85 (1). Furthermore, in this study, the Socio-economic Status (SES) questionnaire is implemented, which takes four components of income, economic class, education, and housing into account, and generally consists of 6 demographic questions and 5 key questions. The criterion scaling of questions in this questionnaire has 5 options and responses are graded on a continuum, from very low (1) to very high (5). Eslami et al. (26), by asking 12 sports experts, has confirmed the face

and content validity of this questionnaire. Also by applying Cronbach's alpha test, the reliability of the questionnaire was calculated as 0.83. General health data were collected by Goldberg and Hillier 28-Item General Health Questionnaire (GHQ-28) (1979). It has 4 subscales and each subscale contains 7 questions. These subscales include somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. Of the 28 items of the questionnaire, questions 1 to 7 are about somatic symptoms, questions 8 to 14 ask about anxiety and insomnia, questions 15 to 21 assess social dysfunction, and finally, questions 22 to 28 are related to severe depression.

In standardization of GHQ-28 questionnaire in Iran, Houman (1997) implemented Cronbach's alpha coefficient for the subscales to assess the internal consistency of it, and reported them to be 0.85, 0.87, 0.79, and 0.91, respectively. For the overall score, that demonstrates general health, he reported 0.85. Goldberg and Blackwell (1972), by using a clinical interview checklist for 200 surgery patients in England, and concluded that more than 90% of the sample was correctly classified by the questionnaire as sick or healthy. Moreover, they reported the correlation coefficient between the scores of GHQ-28 questionnaire

and the result of clinical evaluation of the results to be 0.80. Also they reported sensitivity and specificity as 0.84 and 0.82, respectively.

In order to assess the socio-economic status, the Socio-economic Status (SES) Questionnaire (Ghodratnama, 2013) was generally implemented. This questionnaire contains 4 components, namely income, economic class, education, and housing, and in total contains six demographic questions and 5 key questions. Criterion scaling in this questionnaire consisted of five responses, and the scoring method for each response was from very low (1) to very high (5). Eslami et al. (26), by asking 12 sports experts, has confirmed the face and content validity of this questionnaire. Also by applying Cronbach's alpha test, the reliability of the questionnaire was calculated as 0.83 (28).

Thus, the collected data were recorded by SPSS version 18 software and then underwent statistical analysis. By using common methods in descriptive-analytical statistics, the results were demonstrated in the forms of tables, diagrams, etc.

Results

The results demonstrated that the frequency of socio-economic status of the studied employees were 68 for low status (52.3%), 41 for medium status (31.5%), and 21 for high status (16.2%).

Table 1: Socio-economic Status

Socio-economic status	Frequency	Percentage
low	68	52.3
medium	41	31.5
high	21	16.2
total	130	100

The results demonstrated that the frequency of quality of work life of studied employees were 7 for low status (5.6%), 40 for medium status (32.3%), and 77 for high status (62.1%).

Table 2: Frequency and percentage of Quality of Work Life (QWL) status

QWL	Frequency	Percentage
low	7	5.6
medium	40	32.3
high	77	62.1
total	124	100

The results demonstrated that the mean and standard deviation of dimensions of quality of work life were 16.97 and 3.68 for fair and adequate payment, 8.25 and 2.84 for safe and healthy working environment, 9.32 and 3.14 for providing growth opportunities and continuous security, 18.93 and 5.31 for having respect for the laws in the organization, 8.57 and 2.72 for social dependence of work life, 15.21 and 5.48 for the overall atmosphere of life, 12.47 and 3.50 for social integrity and solidarity, and 8.85 and 3.04 for developing human capabilities.

Table 3: Status of QWL's dimensions

Dimensions of QWL	Mean	Standard Deviation
Fair and adequate payment	16.97	3.68
Safe and healthy working environment	8.25	2.84
Providing growth opportunities and continuous security	9.32	3.14
Having respect for the laws in the organization	18.93	5.31
Social dependence of work life	8.57	2.72
Overall atmosphere of life	15.21	5.48
Social integrity and solidarity	12.47	3.50
Developing human capabilities	8.85	3.04

The results demonstrated that in the somatic dimension of employee's general health, 50 persons were at very low level (39.1%), 53 persons were at slight level (41.1%), 18 persons were at medium level (14.1%), and 7 persons were at severe level (5.5%). In anxiety dimension, 41 persons were at very low level (32.8%), 49 persons were at slight level (39.2%), 30 persons at medium level (24%), and 5 persons at severe level (4%). In social dimension, 33 persons were at very low level (25.8%), 77 persons at slight level (60.2%), 16 persons at medium level (12.5%), and 2 persons at severe level (1.6%). In depression dimension, 104 persons were at very low level (81.3%), 19 persons at slight level (14.8%), 4 persons at medium level (3.1%), and 1 person at severe level (0.8%):

Table 4: Status of total general health and its dimensions

Dimensions of General health	Status				
	very low	slight	medium	severe	total
Somatic	50 (39.1%)	53 (41.1%)	18 (14.1%)	7 (5.5%)	128 (100%)
Anxiety	41 (32.8%)	49 (39.2%)	30 (24.0%)	5 (4.0%)	125 (100%)
Social	33 (25.8%)	77 (60.2%)	16 (12.5%)	2 (1.6%)	128 (100%)
Depression	104 (81.3%)	19 (14.8%)	4 (3.1%)	1 (0.8%)	128 (100%)

The results of the test demonstrate that among the employees that in terms of socio-economic status were at a low level, 3 persons (4.3%) had low quality of life. Of those employees that had a medium socio-economic status, 2 persons (4.7%) had low quality of life. Also, 1 person (12.5%) among the employees with high socio-economic status, had medium quality of work life. The results of Chi-squared test show that there is no significant relationship between socio-economic status and quality of work life (p=0.086).

Table 5: Quality of work life status in terms of socio-economic status

socio-economic status	quality of work life				probability
	low	medium	high	total	
low	3 (4.3%)	21 (30.4%)	45 (65.2%)	69 (100%)	
medium	2 (4.7%)	18 (41.9%)	23 (53.5%)	43 (100%)	0.086
high	2 (25.0%)	1 (12.5%)	5 (62.5%)	8 (100%)	

The results of the test show that among the employees with a very low level of general health, 20 persons (60.6%) had high quality of work life, while among the employees with slight general health, 32 persons (58.2%) had high quality of work life. Also among the employees with a medium general health, 21 persons (80.8%) had high quality of work life, and among the employees with severe general health, 4 persons (40.0%) had high quality of life. The results of Fisher test show that there is a significant relationship between general health and quality of work life (p=0.029).

Table 6: General health in terms of quality of work life

General health	Quality of work life				probability
	low	medium	high	total	0.029
very low	0 (0.0%)	13 (39.4%)	20 (60.6%)	33 (100%)	
slight	3 (5.5%)	20 (36.4%)	32 (58.2%)	55 (100%)	
medium	2 (7.7%)	3 (11.5%)	21 (80.8%)	26 (100%)	
severe	2 (20.0%)	4 (40.0%)	4 (40.0%)	10 (100%)	

The results of the test show that among the employees with a very low level of general health, 23 persons (67.6%) had a low socio-economic status, and among the employees with a slight level of general health, 29 persons (50.9%) had a low socio-economic status. Also among the employees with a medium level of general health, 14 persons (51.9%) had a low socio-economic status, and among the employees with a severe general health, 2 persons (16.7%) had a low socio-economic status. The results of Fisher test show that there is a significant relationship between general health and socio-economic status (p=0.002).

Table 7: General health in terms of socio-economic status

General health	Socio-economic status				probability
	low	medium	high	total	
very low	23 (67.6%)	8 (23.5%)	3 (8.8%)	34 (100%)	
slight	29 (50.9%)	22 (38.6%)	6 (10.5%)	57 (100%)	0.002
medium	14 (51.9%)	9 (33.3%)	4 (14.8%)	27 (100%)	
severe	2 (16.7%)	2 (16.7%)	8 (66.7%)	12 (100%)	

Discussion and Conclusion

The purpose of this study was to investigate the relationship of quality work life with socio-economic status and general health among the employees working in Students Welfare Fund of Ministry of Health and Medical Education. According to the descriptive results of the present study, most of the employees (almost 52%) had a low level of socio-economic status.

The results of the study show that the frequency of socio-economic status of the employees under study were 179 (53.3%) for low level, 109 (35.5%) for medium level, and 199 (6.2%) for high level. Also the frequency of employees' quality of work life were 10 (3.3%) for low level, 108 (35.6%) for medium level, and 185 (61.1%) for high level, while most of them (almost 62%) had a high quality of work life. As mentioned before, in order to study the quality of work life of the employees, these components were taken into account: fair and adequate payment, safe and healthy working environment, providing growth opportunities and continuous security, having respect for the laws in the organization, social dependence of work life, overall atmosphere of life, social integrity and solidarity, and developing human capabilities. Among these factors, having respect for the laws in the organization and fair and adequate payment respectively had the highest average in the quality of work life of the employees. General health, was the other objective of this study; most of the employees

working in the Students Welfare Fund (almost 38.4%) were at slight level. Of the studied dimensions of general health, most of the employees reported their status to be at slight level in somatic, anxiety, and social dimensions, and only a few of them reported to be at severe level in these dimensions. However, in depression dimension, most of the studied employees (81.3%) reported to be at a very low level, and only a few of them (almost 1 percent) reported severe depression. The results of this study are in line with the study of Dargahi et al., in which the general health status of the executive managers was investigated, and the highest and the lowest average scores and frequency percentages related to social and depression dimensions, respectively. Furthermore, the managers in this study were at an appropriate status in other dimensions of general health (somatic and psychological), and this is in line with the results of the present study. The other issue relates to the analytical findings. The results of the test shows that the employees in terms of general health were at a very low level; 23 persons (67.6%) had a low socio-economic level, and among the employees who were at a slight level of general health, 29 persons (50.9%) had a low socio-economic level. Among the employees who were at a medium level of general health, 14 persons (51.9%) had low socio-economic level, and of the employees who were at a severe level of general health, 2 persons (16.7%) had low socio-economic status. The results of the Fisher test show that there is a significant relationship between general health and socio-economic status (p=0.002).

In addition to studying the relationship between each of the variables of general health and socio-economic status with the quality of work life of employees in this study, there is a significant relationship between quality of work life and general health, and also between socio-economic status and general health, but there is no significant relationship between quality of work life and socio-economic status. Hence, the relation between each one of the dimensions of general health with socio-economic status was investigated, and the results of the Fisher test showed that there is no significant relationship between dimensions of general health (somatic, anxiety, social, dimension) and socio-economic status. Considering the findings of this study, and in order to promote the socio-economic status of the employees working in the Students Welfare Fund of Ministry of Health and Medical Education, it is suggested that the authorities pay especial attention to these suggestions: fair and adequate payment, providing growth opportunities and continuous security, having respect for the laws in the organization, and developing human capabilities. Furthermore, implementing some policies in order to reduce depression and anxiety and increase social function of the employees can enhance their quality of work life.

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On the Effect of Cognitive Behavioural Counseling on Sexual Satisfaction of Mothers with Autistic Children: A Randomized Clinical Trial

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Abstract

Introduction: Sexual satisfaction is one of the important factors affecting the quality of marital life which seems to be significantly decreasing among parents with autistic children.

Goal: the present study aimed to determine the effect of cognitive-behavioral counseling on sexual satisfaction of mothers with children with autism in Qom province in 2016-2017.

Methods: It was a randomized, single-blinded clinical trial. Samples of the study included all mothers with autistic children who were referred to the autism center of Qom province, Iran. According to the criteria of entry and exit, 30 mothers were selected and the research was explained to them and they signed written consents. Samples were randomly divided to intervention and control groups (n=15). The samples in both groups completed the Linda Berg and Karst sexual satisfaction questionnaire before the intervention, and answered demographic questionnaire. The intervention took place at the Autistic center in Qom, Iran for 8 sessions of 90 minutes. At the end of the third step of evaluation, the control group received a training program. At the end of counseling sessions, both groups received post tests immediately after finishing the program and four weeks later. Gathered data were analyzed using SPSS 19. Wilcox on test, paired t-test and Mann-Whitney test were also used for further analysis of data.

Results: Results from the analysis showed meaningful changes in sexual satisfaction mean scores of mothers with autistic children in the intervention group after receiving cognitive-behavioral counseling sessions compared to the control group. It was suggested that cognitive-behavioral counseling improved samples sexual satisfaction (P<0.001).

Conclusion: Results showed that cognitive behavioral counseling increased the sexual satisfaction of women with autistic children. Consequently, paying special attention to these women, especially in the area of sexual satisfaction, could increase their satisfaction of marital relationships, their longevity and their attempts to care for such children.

Key words: cognitive-behavioral counseling, sexual satisfaction, autism, mothers

Introduction

Sexual satisfaction is the emotional response that results from a person's subjective assessment of positive and negative dimensions of intercourse [1]. Sexual satisfaction is one of the important factors in satisfying marital life, and usually those who have more sexual satisfaction report a better quality of life than those who report no sexual satisfaction[2]. One of the factors influencing women's sexual satisfaction is chronic diseases and conditions of children, including autism, causing major confusion in marital life. Autism is one of the most common psychiatric disorders in children affecting one in every 50 live births; it is defined as a disorder characterized by a variety of developmental disorders, usually associated with delays or problems in cognitive, social, emotional, verbal, sensory and motor skills [4]. Due to many physical and psychological problems of autistic children, including communication disorders, restlessness, behavioral stereotypes, etc., having these children in the family is a very big and stressful experience for parents that can lead to anxiety, distress, and persecution between the couple. Although the autistic child's parents experience these crises, since in most societies mother has the responsibility of the child's physical and mental care, mothers with autistic children face more complex challenges and problems after giving birth to a child with autism; they may even be partially socially excluded [5-7]. Several reasons could justify such stress and dissatisfaction among mothers with autistic children, such as reducing the stimulus and pleasure of interpersonal interactions, the emergence of interpersonal problems especially between mother and father, reducing the total pleasure and satisfaction of women from life or shifting the pleasure to child care, which may lead to mothers' self-neglect [6-8]. Singan et al. (2010) reported divorce rates of 13.8 % and 23.5% among parents without and with autistic children, respectively [9]. Therefore, it seems that mothers with autistic children require counseling in a variety of contexts as well as sexual satisfaction in order to survive and improve their quality of life.

Shorfen Gaue et al. (2010) showed that parents with children with autism suffer from a higher mental burden than normal children's parents [10]. Mothers of these children showed less marital satisfaction, love, coherence and family cohesion than their fathers. Tavakolizadeh et al. (2013), Hesam Khageh et al. (2013), Nemati et al. (2012) and Hoyer et al (2009) investigated the effect of cognitive-behavior counseling on satisfaction, marital quality and sexual dysfunction and reported that a significant number of clients had improved after counseling, indicating a significant difference and effect on subjects' disorder [11-14].

Different approaches and methods have been used while counseling on sexual satisfaction. Cognitive-behavioral counseling is known as an effective approach in treatment of sexual dysfunction [15]. As a result, cognitive-behavioral counseling can be helpful to increase sexual satisfaction and improve the quality of life of mothers with autistic children.

A significant increase in the prevalence of autism disorder in the last three decades has motivated many studies in the field to acquire a better understanding of biological and genetic symptoms associated with the causality and incidence of autism. However, limited research has been conducted on the relationship between the symptoms of this disease and family functioning. Regarding the role of sexual satisfaction in couples' pleasure and increasing their physical and mental potentials to deal with the problems of autistic children on one hand and considering the human rights of women for having a pleasant sexual relationship, the researcher conducted a study on the effectiveness of cognitive-behavior counseling on sexual satisfaction of mothers with autistic children in 2016 and 2017.

Methodology

It was a randomized, single-blinded clinical trial. Being approved by the Ethics Committee number IR.KUMS.REC.1395.538 in Kermanshah University of Medical Sciences research center, and submitted in clinical trial center number IRCT2016111130830N1, the present study investigated mothers with autistic children referring to autism centers in Qom, Iran. 30 mothers were randomly selected and divided into intervention and control groups (n=15). Using the formula for estimating sample size for comparing two ratios in two groups and considering parameters such as confidence interval %95 (1-α), test power of 90% (1-β) and other parameters of this formula, sample size was defined based on the results from a similar study by Nemati et al. [13]. Participants in the control and intervention groups were selected using random assignment method in different autism centers since mothers with autistic children attending a same center showed a strong relationship for their common problems. It was hypothesized that if the participants in the two groups attended the same center, there would be a possibility to transfer information. Easy and random sampling was used to choose participants as mothers attending the centers on even days were set in the counseling group and those referring on odd days were set in the control group. Randomized placement with cards A and B was used to select intervention and control groups. In order to hide the randomization process, a research collaborator (a staff member at the Autism Centers) was requested to run sampling and do group assignments without knowing the nature of the cards A and B to select participants in intervention or control groups. In this study, the research fellow was in charge of the randomization and concealment of allocation and implementation was carried out by the researcher. Blinding the study was performed by data analyzer so that the subjects of intervention and control groups were identified by the codes (for example, 1 and 2) while the analyzer was not aware of the subject matter of the codes. Recalling in the autism centers of Qom, 30 qualified mothers interested in participating in this research were selected, and were informed about the goals of the plan. They signed consent to their participation in the study. The criteria for entering the study included: age range of 25-45, non-pregnancy, non-use of psychotropic drugs, non-use of psychosocial drugs, non-addiction, education

Table 1: Cognitive-behavioral consulting sessions

Sessions	Subjects	Content	Techniques
First	Meet the participant and explain the program	-Touch and talk - Support for meeting schedule - Emphasize the confidentiality of the issues raised in the consultation sessions - Describe the counseling structure (such as the number of counseling sessions, the length of the consultation, and the venue for meetings) - Evaluation of marital relations disorders seen after the birth of a child with autism. - Familiarity with organs and sexual function of women and men	
Second	Participatory education on cognitive-behavioral approach with emphasis on sexual behaviors	- Review the contents of the previous session - A discussion on the effect of thoughts on sexual feelings - Discuss the impact of sexual practices on mood -Theoretical and practical teaching of relaxed tone, gradual relaxation of the muscles of the body, especially in the pelvic region and breasts -To provide homework (write feelings when feeling depressed, anxious or tense and encouraging to discover what is behind these feelings and writing these thoughts in front of each feeling in the table, practicing relaxation 10 minutes a day) - Conclusion	How thoughts lead to feelings.
Third	Knowing negative thoughts and beliefs in the domain of sexual behavior and belief in these thoughts	-Review previous session assignments - Understanding your negative thoughts and their ability to differentiate them from reality - Learning how to assess the degree of excitement and the strength of belief in negative thoughts on sexual behavior - Proposals for emancipation from negative emotions by the mother - 10 minutes of relaxation - Providing homework at home (writing negative thoughts during the week and writing the possible facts for any negative thoughts in the table introduced, and ranking the strength of these excitements and belief in these thoughts from zero to 100, practicing relaxation 10 minutes a day) - Conclusion	- The technique of distinguishing thought from reality and communicating it using the A-B-C technique - Emotion grading technique and the amount of belief in thought
Fourth	Getting to know self-awareness about sexual behaviors	- Review previous session assignments - Getting to know self-awareness thoughts - Proposals for emancipation from negative emotions by the mother - Learning about respiratory relaxation - Assign homework (writing negative thoughts and writing the source of these thoughts acquainting and learning cognitive distortions that are sources of thoughts presented in the table, and practicing relaxation 10 minutes a day) -Conclusion	The technique of categorizing cognitive distortions
Fifth	- Investigating evidence confirming and rejecting negative beliefs on sexual behavior - First-degree sensory concentration training	-Review the previous session assignments -Knowing the evidence supporting and rejecting negative beliefs about sexual behaviors - Using questions and answers, the participants' information is indicated on the sensory focus of the first type and their incorrect information is reformed. - Practicing relaxation for 10 minutes using respiratory techniques -Assign homework (writing negative thoughts or beliefs, then writing evidence supporting that thought and its evidentiary in the table, practicing relaxation 10 minutes a day) -Conclusion	- The technique to review the evidence - Technique of how the thoughts create emotions.

Table1 continued

Sixth	Sensory Concentration Training Type One	-Review the previous session assignments -Sensitive focus assessment of the first type -Conclusion	How thoughts create feelings.
Seventh	Sensory Concentration Training type two	-Review the previous session assignments. -Using questions and answers, the participants' information is indicated on the sensory focus of the first type and their incorrect information is reformed. -Conclusion	How thoughts create feelings.
Eighth	Sensory Concentration Training type three	- Review the previous session assignments. - Evaluation of second-grade sensory concentration -Solve participant's problems regarding the exercises mentioned above - Conclusion - Complete the questionnaire	How thoughts create feelings.

at least at guidance school, fluent in Persian, living with a spouse, no history of psychiatry and depression requiring treatment, no history of psychosis or suicide, having no suicidal thoughts or severe neuropsychiatric disorders, not attending relaxation courses, yoga, etc., having a 5-year-old child with severe autism (certified by a psychiatrist or certified therapist of autism center or accredited university centers), lack of sexual dissatisfaction before giving birth to an autistic child. Exit criteria included: mothers who had complete sexual satisfaction according to the results from Linda Leaf sexual satisfaction questionnaire, being absent in two or more sessions of counseling sessions, lack of consent of the individual to continue participating in the study. Participants of both groups completed the Linda Berg and Krast Sexual Satisfaction Questionnaire and the demographics form before and after the intervention. The intervention group received 8 sessions of personal cognitive-behavioral consulting each lasting for 90 minutes in Qom autism centers in Winter and Spring 2016 (Table 1).

The major goals of consulting sessions included cognitive restructuring, reforming distorted cognitive thoughts and training exercises and techniques. After the end of the third step of the assessment, the control group also received an educational program. The post test was offered to both groups immediately at the end of program and four weeks after the intervention. LindaBerg and Karst questionnaire included 17 items and responses were in form of a Likert scale (totally agree=5 to totally disagree=1). Maximum and minimum scores in the test were 17 and 85, respectively. The questionnaire was developed by Linda Berg and Karst in 1997, and its validity and reliability was confirmed by Salehifadri in Iran [16]. Hosseini (2002) confirmed the reliability of sexual satisfaction questionnaire using Cronbach's alpha coefficients (r=0.83); also, Noorani et al. (2008) made use of test-retest process to confirm its reliability (r=0.89) [17, 18]. SPSS 19 was used to analyze the data. Descriptive statistics (mean and standard deviation) and inferential statistics were used to test the hypotheses. Wilcoxon test, paired t-test and Mann-Whitney test were used to compare the mean scores of groups before and after the intervention.

Results

There were 15 participants in intervention and control groups and the total number of participants equaled 30. The mean and standard deviation of mothers' age in the intervention group and in the control group were 31.33 ± 0.6 and 31.07 ± 0.62, respectively. The mean and standard deviation of the age of the child with autism in the intervention and control groups were 1.85 ± 8.2 and 0.33 ± 5.8 years, respectively. The mean and standard deviation of the children in the intervention group were 0.131 ± 1.6 and in the control group 0.131 ± 1.6. There were no significant differences between the intervention and control groups which suggested similar demographic data among both groups (Tables 2 and 3 - next page).

There was no significant difference between the mean of sexual satisfaction before the cognitive behavioral counseling in intervention and control groups. However, there was a significant difference reported between the mean score of sexual satisfaction after one month of cognitive-behavioral counseling in both interventional and control groups (Table 4).

Discussion

The results of the present study showed a significant difference in the level of sexual satisfaction of mothers with autistic children in the intervention group before, immediately after and one month after counseling, which could indicate the influence of cognitive-behavioral counseling on increasing sexual satisfaction; however, sexual satisfaction was not significantly different in the control group before, immediately after counseling and follow up one month later.

While reviewing the related literature, no specific study was conducted on the sexual satisfaction of women with autistic children and advice to improve their condition. Several studies made use of cognitive-behavioral counseling to investigate sexual satisfaction of women without autistic child, including Nemati et al. (2012) and

Table 2: Absolute and relative frequency of demographic variables of research units

Various variables	Relative Frequency of intervention group	Absolute Frequency of intervention group	Relative Frequency of intervention group	Absolute Frequency of intervention group	Control level*
Mother's education	0	0	0	0	
	6	40	8	53.3	0.463p=
	9	60	7	46.7	
Father's education	0	0	0	0	
	6	40	8	53.3	0.463p=
	9	60	7	46.7	
Mother's occupation	2	13.3	1	6.7	1p=
	13	86.7	14	93.3	
Father's occupation	4	26.7	3	20	
	5	33.33	5	33.33	1p=
	6	40	7	46.7	
Birth order of the autistic child	6	40	7	46.7	
	8	53.3	7	467	0.727p=
	0	0	1	6.7	
	1	6.7	0	0	
Gender of the autistic child	8	53.3	8	53.3	p=1
	7	46.7	7	46.7	
Income	0	0	0	0	
	10	66.7	9	60	0.705
	5	33.3	6	40	

*K2 test

Table 3. Qualitative comparison of intervention and control groups

Variables		Mean	SD	Test	P-value
Mother's age					
	Intervention	31.33	0.6	Independent T test	df=28 t= -0.309 P=0.76
	Control	31.7	0.62		
Child's age					
	Intervention	8.2	1.82	Mann-Whitney	Z= -1.86 P=0.063
	Control	5.8	0.33		
Number of children					
	Intervention	1.6	0.131	Mann-Whitney	Z=0 P=1
	Control	1.6	0.131		

Table 4. Comparison of sexual satisfaction before, after and one month after intervention in intervention and control groups

Sexual satisfaction			SD	Standard mean error	Z	sig
Before the invention			10.02			
	Intervention	34.93		2.59	-0.897	0.369
	Control	31.67	0.82	0.22		
After the intervention			16.59			
Intervention		73.07	3.27	4.28	-4.052	<0.001
Control		31.47		0.84		
A month later			3.88			
	Intervention	74		1.04	-4.68	<0.001
	Control	30.8	2.81	0.73		

* Mann-Whitney test

Mofid and colleagues (2014) that suggested increased sexual satisfaction in the intervention group using cognitive-behavioral counseling ($P<0.05$, $p<0.05$) [15, 19]. Also, Hoyer et al. (2009) showed that sexual dysfunction in most patients decreased by 63.2% after attending cognitive-behavioral counseling. Tavakolizadeh et al. (2012) reported that cognitive behavioral education was effective in increasing the marital satisfaction scores from intervention group compared to control group ($p = 0.038$) ($p = 0.038$) [11], and Hesam Khageh et al. (2013) suggested that the counseling was influential on quality of marital life and subscales of sexual satisfaction, sexual excitement, marital satisfaction and love ($p <0.05$) [12]; the results of these studies indicated that cognitive-behavioral counseling techniques, including participatory education on cognitive-behavioral approach with emphasis on sexual behaviors, knowing about the negative thoughts and beliefs on sexual behaviors and belief in these thoughts, getting to know about self-help thoughts on sexual behaviors, study the verifiable evidence and rejecting negative beliefs on sexual behaviors, training first-type sensory concentration, second-type sensory concentration training, relaxation techniques and muscle relaxation, may have improved women's sexual satisfaction and had positive effects on spouses, especially in relation to sexual relations, and marital satisfaction.

Considering the results of previous studies and this study, it can be concluded that cognitive-behavioral approach was effective on knowledge, attitude, self-confidence, sexual self-expression, etc. In this approach, behavioral exercises for individuals are not merely physical and mechanical factors, but they can influence the emotions and thoughts of individuals. For example, sensory concentration exercises in sessions enhances responsive responses, prevents unwanted tensions and anxiety, affects the relationship with the spouse, and couples improve their emotional relationships. This approach helps people express their sexual excitement freely about the wishes, interests, sexual needs and preferences of physical contact. In the cognitive-behavioral approach, attention is paid to the negative, maladaptive and irrational beliefs, thoughts, and cognitive understandings of the individuals, and it is favorable to replace these maladaptive notions, guilt feelings, or unconscious fears with proper cognitions [11-14, 19]. Most mothers with autistic children lack the ability to focus on pleasures and sexually pleasing thoughts due to their child's problems. Having thoughts, beliefs, attitudes, and, in general, disturbing sexual incompatibility and irrational knowledge, having thoughts that are not related to sexual issues (such as worry about the child) could prevent sexual satisfaction [6, 8]. Therefore, it is clear that parents with autistic children need to pay attention to cognitive factors to treat their sexual problems, and the lack of attention to it reduces therapeutic goals.

Conclusion

Results suggested that cognitive-behavioral counseling increased sexual satisfaction of women with autistic children. Careful attention to these women, especially in terms of sexual satisfaction, could lead to increased satisfaction with marital relationships, life expectancy and better care for such children. The limitation of this study included studying women with autistic children since it was not possible to conduct the study on men by female researcher due to the religious nature of Qom and the importance of gender homogeneity and the specific nature of the topic. We hope that the present study provides the basis for full interventions on couples. A strength to the present study was that it was one of the few studies that addressed one of the basic needs of families and couples, namely, sexual satisfaction.

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Pre-operative sublingual misoprostol and intra-operative blood loss during total abdominal hysterectomy: a randomized single-blinded controlled clinical trial

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Abstract

Objective: To determine the efficacy of sublingual misoprostol on intra-operative blood loss during Total Abdominal Hysterectomy (TAH), need for blood transfusion, hemoglobin drop, operation length, and hospital stay.

Methods: In this single-blinded randomized clinical trial, 60 patients who were candidates for TAH due to uterine fibroid or abnormal uterine bleeding were included. They were randomly divided to receive either misoprostol 400 mcg (30 cases) or vitamin B6 (30 cases) once sublingually 1 hour before TAH. All the procedures were performed by a single surgeon. The volume of blood loss, hemoglobin change, the need for blood transfusion, operation and hospital stay duration were recorded.

Results: The two groups were comparable regarding Body Mass Index (BMI) and age, gravidity, and parity. Mean (±SD) blood loss volume was lower in misoprostol group (370.13± 158.84) compared to control group (466± 204.7); P= 0.046. Hemoglobin level 24 hours after TAH had higher mean value in the misoprostol group (11.72) than in the control group (10.54 g/dL); P= 0.003. Mean hospital stay duration was shorter in the misoprostol group (3.25± 1.32 days) vs. control group (3.43± 0.5 days), P= 0.003. No significant difference was observed regarding need for blood transfusion during the operation between misoprostol (1/30 patients) vs. control group (4/30 patients). No fever was identified in either group after operation.

Conclusion: Sublingual misoprostol (400 mcg) administered 1 hour before TAH was effective in reducing blood loss volume, hemoglobin drop, and hospitalization duration.

Key words: Total abdominal hysterectomy; hemorrhage; misoprostol

Introduction

Uterine myomas are the most prevalent gynecologic benign tumors in women of reproductive age (1). Large symptomatic myomas which do not respond to medical therapies in women who have completed childbearing are considered for total abdominal hysterectomy. In fact, uterine fibroids are the most common indication for hysterectomies. Either in some regions of the world, hysterectomy is considered as the definitive treatment for large uterine fibroids (2). Another common condition for which hysterectomy is the definitive management is abnormal uterine bleeding (AUB) when medical managements fail to improve the condition.

TAH can be associated with several complications including major hemorrhage, thromboembolism, bladder injury, etc. Severe hemorrhage of more than 400 mL which may require blood transfusion is the most common complication of TAH, along with infectious complications (3). This complication is estimated to occur in about 2% of the procedures (4).

Several medical and surgical methods have been used. Shrinkage of the fibroids using hormonal manipulation by gonadotropin-releasing hormone (GnRH) analogues for 3 months before surgery has been shown to decrease the volume of fibroids and reduce their vascularity (5). Vasopressin is another option demonstrated in trials to be an effective method for this purpose (6). However, side effects of these therapies along with high costs may render these therapies unavailable or not appropriate for most patients.

One of the medical therapies that has gained attention for pre-hysterectomy use is prostaglandin E1 synthetic analogue, misoprostol. It has significant uterotonic properties. The older studies focusing on this agent have been conducted during labor and cesarean section (7-11) with promising outcomes. This practice has extended to hysterectomy and some limited trials have been done accordingly. One study assessed rectal misoprostol combined with oxytocin before laparoscopy-assisted vaginal hysterectomy (12) and showed that combination of these two uterotonic agents was efficacious in decreasing blood loss as well as procedure time. But another study did not demonstrate such effect (13). Two studies have investigated pre-operative sublingual misoprostol for blood loss during TAH (2, 14). One of these trials (2) which recruited 132 women undergoing TAH and administered 400 mcg misoprostol 30 minutes before TAH, concluded that the group for which misoprostol was used had lower blood loss (356 mL) compared to placebo group (435 mL). The authors concluded that misoprostol was an effective intervention for reducing blood loss during TAH. However, the other trial (14) studying 32 women with the same dose of misoprostol and the same administration route did not support the beneficial effect of misoprostol.

In view of the aforementioned findings, it seems that more studies are required for better elucidation of this topic. Hence, we intended to assess the efficacy of sublingual misoprostol as a single dose administered before TAH on intra-operative blood loss.

Materials and Methods

This was a randomized single-blinded controlled clinical trial. The study population consisted of women with large uterine fibroids who were candidates for TAH with or without salpingo-oophorecyomy (16 cases with uterine myoma and 14 cases with AUB in the misoprostol group; 11 patients with uterine myoma and 19 with AUB in the control group). Exclusion criteria were previous history of endometriosis, diabetes mellitus, obesity (BMI > 30 kg/m2), history of myomectomy, psychiatric disorders, taking GnRH agonists before operation, invasive endometrial or cervical cancers or ovarian malignancies. Also, any contraindication for misoprostol use including mitral stenosis, cardiac diseases, glaucoma, sickle cell anemia, severe hypertension, diastolic blood pressure of more than 100 mmHg, severe asthma, or severe allergic reactions to prostaglandins were excluded.

The day before TAH, demographic characteristics including age, weight, height, gravidity, and parity were recorded. In addition, blood pressure, body temperature, pulse rate at rest, and hemoglobin level were recorded. The vital sign measurements were made again before anesthesia induction and any abnormalities were documented.

A total of 60 patients were included. Using a random number table, the subjects were randomized into one of the study groups. One group received two tablets of misoprostol 200 mcg (Cytotec®, Pfizer, NY, US) sublingually one hour before TAH. The control group received two vitamin B6 tablets sublingually.

The operations were done under general anesthesia by a board-certified gynecologist. The variables recorded were blood transfusion during and after TAH (considering the hemodynamic situation of the patient), operation duration (measured from skin incision to skin closure), number of sterile gauzes used during the procedure, the volume of suction container, hemoglobin level 24 hours after TAH, temperature after the operation, and hospital stay duration. To measure the blood loss volume, the gravimetric method was used (15). In this method, the blood loss volume (m) is calculated as adding the volume of suction container (a) and weight difference of dry (b) and moist (c) gauzes: $m = a + (c-b)$

Statistical analyses

Descriptive indices including frequency, percentage, mean and its standard deviation were used to express data. The normal distribution of the continuous variables was determined using the Kolmogorov-Smirnov test and histogram. In order to compare quantitative variables with normal distribution, the Student t test was used. The comparison of continuous variables with non-normal distribution was made using the Mann-Whitney U test. To compare nominal variables, the Chi-square test of the Fischer's exact test was used. The significance level was set at 0.05. All analyses were performed using SPSS software (ver. 20.0, IBM).

Ethics
The study protocol and objectives were explained to the patients. Written consent was obtained prior to enrollment. The Ethics Committee of our medical university approved the study protocol. This study was registered in the website of Iranian Clinical Trial No. IRCT201610224025N8.

Results

Baseline variables
Mean (±SD) age of the sample was 47.9 (±5.23) years (range, 37 to 66). Mean (±SD) BMI (body mass index) value was 27.59 (3.82) kg/m2 (range, 22.3 to 37.3). The two groups were comparable regarding age, weight, height, BMI, gravidity, and parity (Table 1). Mean (±SD) pre-operative hemoglobin values in misoprostol and control group were respectively 11.86 (±2.26) and 11.80 (±1.81) g/dL, P= 0.9.

Table 1: Comparison of demographic variables between sublingual misoprostol and control (vitamin B6) groups

	Misoprostol (N= 30)	Control (N= 30)	P value
Age, year	47.6 (±6.29)	48.21 (±3.94)	0.48[a]
Weight, kg	70.17 (±10.76)	69.93 (±16.92)	0.56[b]
Height, cm	159.37 (±4.48)	159.32 (±5.94)	0.99[b]
BMI, kg/m²	28.06 (±4.29)	27.11 (±3.28)	0.34[a]
Gravidity	4.03 (±1.97)	4.38 (±2.04)	0.51[a]
Parity	3.87 (±2.14)	4.11 (±2.01)	0.61[a]

Data are presented as mean (±SD); [a] Student t test; [b] Mann-Whitney U test

Peri-operative variables
The mean (±SD) body temperature just before anesthesia induction was significantly higher in the misoprostol group (37.44± 0.55ºC) than in the control group (35.9 ±6.78ºC); P= 0.01. Table 2 presents comparison of the measured variables during TAH between the two groups. Observed suction container volume and blood loss volume were significantly lower in the misoprostol group compared to control group. Regarding need for blood transfusion, one patient in the misoprostol group and four patients in the control group required transfusion (P= 0.16). TAH duration was marginally shorter in the misoprostol group (99.39± 17.79 min) compared to the control group (109.5± 21.74 min): P= 0.058.

Table 2: Comparison of the variables related to blood loss volume during total abdominal hysterectomy between sublingual misoprostol and control groups

	Misoprostol (N= 30)	Control (N= 30)	P value
Suction container volume, mL	27.10 (±17.79)	89 (±29.51)	< 0.001[a]
Weight difference between wet and dry gauzes	343.33 (±139.39)	420.6 (±256.48)	0.153[b]
Blood loss volume, mL	370.13 (±158.84)	466.40 (±204.7)	0.046[b]

Data are presented as mean (SD); [a] Mann-Whitney U test; [b] Student's t test

Post-operative variables
None of the patients in either group developed fever after the operation. Table 3 shows hemoglobin level 24 hours after the operation, change in hemoglobin, and hospital stay. Hemoglobin drop was significantly more prominent in the control group. Also, hospitalization duration was shorter in the misoprostol group.

Table 3: Comparison of hemoglobin change after total abdominal hysterectomy and hospitalization duration between sublingual misoprostol and control groups

	Misoprostol (N= 30)	Control (N= 30)	P value
Hemoglobin 24 hours after TAH, g/dL	11.72 (±1.06)	10.54 (±1.81)	0.003
Hemoglobin change, g/dL	0.59 (±0.57)	1.33 (±0.73)	< 0.001
Hospital stay, day	3.25 (±1.32)	3.43 (±0.5)	0.003

Discussion

Hysterectomy is considered the most common gynecologic procedure performed (3). Hemorrhage is one of the main complications of hysterectomy and some factors affect this complication. Perhaps, the most important factor is the route of hysterectomy. Blood loss in abdominal hysterectomy is more severe than vaginal or laparoscopic method (16). In addition, other factors that can affect the volume of blood loss are technical considerations, obesity, medications (aspirin), anatomy, etc(3). As hemorrhage increases the risk of blood transfusion and post-operative morbidities, prevention of significant blood loss is one of the main priorities in TAH.

Efforts have been done in order to determine the efficacy of various pre-operative methods in preventing significant blood loss. One of these methods is use of uterotonic medications such as misoprostol. As stated earlier the early studies which used misoprostol in this field relate to post-partum hemorrhage control (either alone or in combination with oxytocin) with mixed results (7, 9-11). More studies favor the usefulness of misoprostol for post-partum hemorrhage control. Based on these observations, experts started to study misoprostol in gynecologic procedures such as abdominal myomectomy (1, 12, 17) owing to its uterotonic effects as well as increasing uterine artery resistance (2). The results of these studies were promising as reflected in a systematic review on 283 patients in 2015 and noted that mean difference of blood loss between misoprostol and placebo groups was -148.55 mL per operation (95 % CI, -233.10 to -64), p < 0.001 (18). Based on the current findings, misoprostol was an effective method in decreasing blood loss and hospital stay duration. Although the need for blood transfusion was not statistically significant, more patients in the control group required blood transfusion and only one patient in the misoprostol group required such intervention.

Although studies about misoprostol use in obstetrics and myomectomy are sufficient, limited studies about misoprostol use in TAH, as the most common gynecologic procedure, has been done. In a previous study (2), the authors studied sublingual misoprostol for TAH (administered half an hour before operation) performed in 132 women. Mean blood loss in the misoprostol group (356 mL) was significantly lower than in the control group (435 mL). This finding is compatible with what we observed herein. According to our findings, hemoglobin level assayed 24 hours after TAH was significantly higher in the misoprostol group. This is in agreement with the previous study (2) which reported mean hemoglobin level of 10.5 in the misoprostol group which was higher compared to the control group (9.5 g/dL). The authors did not find any significant difference regarding hospital stay. In contrast, we observed that patients in the misoprostol group had significantly shorter hospital stay. Another study (14) investigated sublingual misoprostol in 32 TAH patients. They reported that blood loss in the misoprostol group was on average 570 mL and not much different from the placebo group which was 521 mL. Also, intra-operative and post-operative rates of blood transfusion were not different between the groups. In contrast to our findings, the authors of the mentioned study did not find any changes in hemoglobin level.

The misoprostol dosage (400 mcg) and route of administration (sublingual) is identical in our study and two pertinent previous studies (2, 14). Misoprostol dosage and administration route are important factors in studies. Different methods of administration include sublingual, rectal, or vaginal routes. Bioavailability of misoprostol is higher in sublingual method compared to other methods (19).

Conclusion

Sublingual misoprostol (400 mcg) administered 1 hour before TAH was effective in reducing blood loss volume, hemoglobin drop, and hospitalization duration.

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Investigating the Effect of Endotracheal Tube Cuff Pressure on Sore Throat, Hoarseness and Cough in Patients with Coronary Artery Bypass Surgery

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Abstract

Introduction: Endotracheal intubation for general anesthesia and changes in level of consciousness, in order to prevent aspiration and improve the patient's breathing, is done when the symptoms are associated with this action. The aim of this study was to investigate the effect of endotracheal tube cuff pressure on sore throat, hoarseness and cough in patients with cardiac artery bypass surgery.

Materials and Methods: This quasi-experimental clinical trial was done in 72 patients undergoing coronary artery bypass graft surgery in Afshar Hospital of Yazd in 2016 and easy sampling where the patients were assigned to two groups, experimental and control, was carried out. In the control group routine tracheal cuff pressure was adjusted by the anesthesiologist. In the experimental group, after being intubated by standard manometer, pressure cuff at a rate of 2 ± 22 cm of water was regulated and controlled. Data regarding hoarseness, sore throat and cough are checked t intervals of 2, 6, 12 and 24 hours in both groups by measuring scales. Data was collected and analyzed using statistical software SPSS 20.

Results: The results showed that regarding endotracheal tube cuff pressure, reducing the cuff pressure reduced its complications, including cough and sore throat hoarseness in the intervention group (p <0.033) and sore throat (p <0.004) reduction was statistically significant but regarding the hoarseness (p <0.132), the difference was not significant.

Conclusion: The results of this research set by the endotracheal tube cuff pressure manometer reduced the severity of cough and sore throat in Coronary artery bypass graft surgery patients so in order to prevent complications in these patients it is recommended that endotracheal tube cuff pressure be adjusted.

Key words: endotracheal tube cuff pressure, sore throat, hoarseness, graft coronary artery bypass graft surgery

Introduction

Coronary artery bypass surgery is one of the common treatments for coronary artery disease (CAD) and every year more than 2 million and twenty thousand practices in this area takes place, 4,500-5,000 annual actions in Tehran and Yazd and about 200 to 250 heart bypass surgery cases are carried out (1). In this procedure the patient is under general anesthesia for up to 5 hours. In most cases, the patient is placed under general anesthesia induction, intubation for airway management for ventilation and airway protection and the prevention of possible aspiration is done (2). Long-term complications after tracheal intubation are well known and often due to decreased blood flow in the mucosa caused by increased pressure over 30 mmHg. Short-term complications associated with endotracheal tube cuff is seen in patients with sore throat and hoarseness (3). Cough is due to the stimulation of the cuff; during emergence from anesthesia it is a major problem and clinically common and may bring unpleasant consequences (4). Several factors including positive pressure ventilation, duration of intubation, and head to body position, temperature, body movements and emissions can change the cuff pressure. Despite the many benefits of this treatment in patients, such as other treatments for complications if it is ignored, there will be the possibility of dangerous side effects, and sometimes irreversible. One of the most important of these effects, dilation tracheal mucosa injury is due to the cuff and the pressure on chip-walled capillaries at a pressure of 22 mmHg isnormal, and under ischemic complications such as erosion, inflammation, softening of the cartilage ring, chip expansion, bleeding and infection can cause tracheal stenosis (5). Sore throat, hoarseness, and mucosal damage, followed by endotracheal intubation is a common complication after general anesthesia as well. The incidence of postoperative sore throat was reported in 21 to 65 percent of patients (6-11). The condition is medically eighth common complication after surgery (12-14). Due to the efforts being made to reduce the frequency and severity of postoperative sore throat and hoarseness (15-18), these complications are still common problems after surgery (19). Sore throat due to injuries to the throat, larynx or trachea is also known(20). Impregnated with the local anesthetic drug the cuff also reduces sore throat (21). But given the limited impact of these drugs including lidocaine, after completion of treatment, sore throat appears again. There are few studies on the effects of factors related to tracheal tube and the patient's health but the effect of tracheal tube cuff pressure on sore throat and hoarseness and cough patients after cardiac surgery is new to the subject matter. Due to the lack of adequate information in this regard, there is need for this project. The aim of this study was to determine the effect of endotracheal tube cuff pressure and pain in the throat, hoarseness and cough in patients hospitalized in the intensive care unit after cardiac surgery.

Method

This study is a quasi-experimental clinical trial in 2016, on 76 patients undergoing coronary artery bypass surgery in Afshar hospital of Yazd with sampling easy and random allocation based on the number of coupled cases, with 36 patients in the trial group and individual case number, and 36 patients assigned to the control group. 4 of the samples because of the increased intubation time of more than 24 hours were excluded. Inclusion criteria were: age between 18-75 years, a patient for surgery was selected for the first time; surgery was between 1-4 hours and the duration of intubation during surgery less than 24 hours to prevent the impact of other detrimental factors, risks of surgery at levels 1 and 2 and the tracheal tube according to the sex of the patient, as well as not having a history of head and neck surgery. Anesthesia, and medications used was similar; as were adjustments to ventilator for all patients and those with a history of sore throat and pharyngitis to 4 weeks prior to surgery and a history of respiratory problems, addictions, smoking and drug allergy as well as patients in the study where throat pain was unbearable or due to housing request or on inotropic drugs or vasodilator in the intensive care unit and received more than 10 microns or longer than 30 seconds for intubation needed, or during the study needed to be repeated or replacing the pipes or more than 24 hours under ventilation were excluded from the study. In order to collect data, demographic data and medical records of endotracheal tube cuff pressure was used. In the control group, patients with endotracheal tube cuff pressure determined by the anesthesiologist (with more work experience than 5 years) with a 10 cc syringe using the touch pad cuff; during the first 10 minutes of anesthesia, time of admission to the intensive care unit and then in a period of 2 hours, 4 hours and 6 hours later using a handheld German construction company pressure measurement range between zero and 120 cm of water, was measured and recorded. In this study, all patients participating in the study used tracheal tube made of PVC with a life company (Intellectuals Health) brand was used. For women size 7-7.5 was used and for men Size 8-8.5. In the intervention group, after intubation by an anesthesiologist (with more work experience of 5 years) (using the touch pad cuff), and by trained nurses with listing for the control group (during the first 10 minutes of anesthesia) it was set at a rate of 22 ± 2 cm of water (in the first endotracheal tube cuff pressure measurement, if the level was different with the rate of 22 ± 2, at first, and then the correction was recorded). At the time of admission to intensive care unit and in the intervals of 2 hours, 4 hours and 6 hours after control, this amount was set. Then, after removing the tube samples both within 2 hours, 6 hours, 12 and 24 hours later, measuring of sore throat, cough and hoarseness, in terms of throat pain, cough and respiratory violence were investigated and recorded. To search for pain from zero to 3, (Zero score without sore throat, a score of 1 - Mild sore throat (only if the person is asked), score 2 - moderate sore throat (pharyngitis expressed by the patient) grade 3 severe sore throat (change in volume with sore throat) and also measured was any

cough, mild or the extreme on the scale from 0 to 4 (zero score without coughing, rare 1- score, score 2 - casual less than an hour, score 3 repeated one or more times an hour, the score 4 - almost unchanged) as well as a change in sound quality which was defined as hoarseness and its severity was determined by 4 degrees from zero to three (zero score without hoarseness, 1 score violence so that only noise was reported by the patient during the interview, score 2 a clear sound but mild violence, Score 3 violence clear sound and sharp) and transfer of the patient to the intensive care unit after surgery, after 2 hours, symptoms of hoarseness, shortness of breath, coughing and inflammation of the throat in a period of 2 hours, 6 hours, 12 and 24 hours study, the data was recorded. Cuff pressure measurement in the operating room in a state of sedation Ramsay 2 or 3, at the end of exhalation and while the patient was in line with the axis of the body and in a special section at the end of exhalation at positions 45 degrees while the patient was measured along the body. Data were analyzed by SPSS 20 statistical software. In order for ethical treatment approval and licensing by the Vice Chancellor for Research Ethics Committee and authorization by the medical university of Afshar hospital officials, was done for all patients preoperatively along with an interview to explain the objectives and characteristics of the work and steps, written consent was obtained for the study. Also patients participating or not participating in the study were reassured that there would be no effect on patient treatment and all the patient information would remain confidential.

Results

The results indicate that most subjects were over 60 years of age (44.1%), male (72.1%), as well as the majority of patients were intubated with a No. 8 (64.7%) which was used in 37 patients (54.4%) and it was introduced into the trachea tube at a rate of 23 cm and was on the chart (1). Average pressure at different times in the experimental and control groups, were compared to show that after setting the cuff pressure, changes in the intervention group but not the control group's the endotracheal tube cuff pressure in the test group, showed significantly less volatility (p =0.000).

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Based on Table 1 results show an average score of sore throat in the experimental group compared to the control group during the study that dropped with more time so that the average score in the experimental group rather than the

control group was due to re-setting the endotracheal tube cuff pressure in the experimental group who experienced less of a sore throat, and this is observed and t test was significant in this context (p <0.004).

Based on Table 2 the results indicate that the endotracheal tube cuff pressure in the experimental group reduced average scores of cough in this group more than in the control group so that with the passage of time more so that with more time after extubation average score of sore throat in the experimental group was associated with a greater reduction and t test was significant in this context (p <0.004)

Table 3 Average score of hoarseness in both test and control groups shows that although endotracheal tube cuff pressure in the test group resulted in a significant reduction in the average score for this group, than in the control group hoarseness, and hoarseness in 6 hours after extubation the two groups was statistically significant but in general, t test was significant in this context (p <0.132)

Discussion

The findings showed that 44.1% of the participants were in the age group 60 years and above. The findings show that most age groups above 60 years were studied. The findings also showed that the cuff pressure changes in the intervention group and the control group and there was no significant difference between the two groups and the reduction of morbidity in the experimental group in other words, setting the endotracheal tube cuff pressure and the change mitigation, to reduce the harm caused by pressure to the lining of the trachea and inflammation of the wall and reducing damage due to ischemia and tracheal mucosal blood flow is impaired as a result of complications such as coughing, hoarseness and sore throat decreases. The findings of this study are consistent with findings Khosravi (2005) which states that the patients in the experimental group compared to control group patients experienced fewer sore throats (22). The findings suggest that the severity of cough and sore throat in the experimental group and control showed significant difference. But for hoarseness, possibly due to decreased drug effect tradeoffs, there was no significant difference but at the time of 6 hours after extubation there is a significant difference. Ryu et al in a study in 2013 on the endotracheal tube cuff pressure in 90 patients undergoing thyroidectomy reported the endotracheal tube cuff pressure regulation reduces hoarseness, sore throat and cough, and in patients with endotracheal tube cuff pressure regulated and controlled, it was easier to swallow than for those in the control group (23). In line with this study, Liu and colleagues study also stated that after setting the endotracheal tube cuff pressure between the two groups of patients in terms of sore throat, hoarseness, cough and hemoptysis there is a significant difference (p <0.001) and the control group sore throat, hoarseness, cough and hemoptysis was more than the experimental group (24). It is noteworthy that Mousavi et al (2009) study reported that in 30 patients admitted to the intensive care unit (ICU) who for whatever

Chart 1: Compare endotracheal tube cuff pressure control and test groups
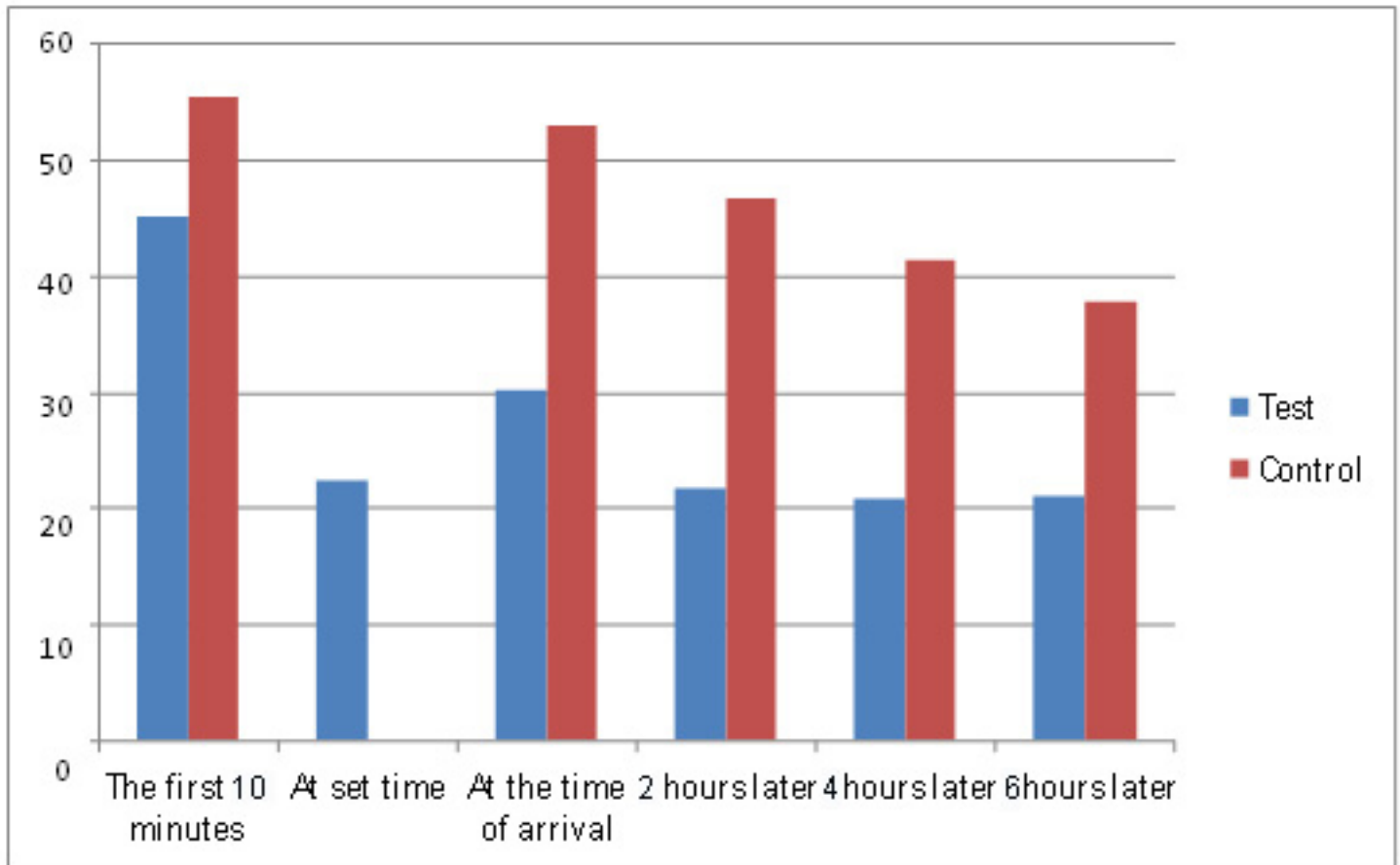
Table 1: Comparison of mean scores in both experimental and control groups during the study of sore throat

Groups Variable	Test Groups		Control group		
	Average	Standard deviation	Average	Standard deviation	T-test
Sore throat 2 hours after extubation	0.24	0.496	0.65	0.645	0.004
Sore throat 6 hours after extubation	0.24	0.606	0.59	0.499	0.011
Sore throat 12 hours after extubation	0.18	0.576	0.35	0.485	0.176
Sore throat for 24 hours after extubation	0.12	0.409	0.38	0.551	0.028

Table 2: Comparison of cough score in both experimental and control groups during the study

Group Variable	Test Groups		Control group		
	Average	Standard deviation	Average	Standard deviation	T-test
Cough 2 hours after extubation	0.1471	0.43571	0.4118	0.55692	0.033
Cough 6 hours after extubation	0.1471	0.43571	0.4412	0.61255	0.026
Cough 12 hours after extubation	0.18	0.459	0.38	0.604	0.118
Cough 24 hours after extubation	0.12	0.327	0.38	0.604	0.028

Table 3: Comparison of hoarseness in both experimental and control groups during the study

Variable Parameter	Test Groups		control group		T-test
	Average	Standard deviation	Average	Standard deviation	
Hoarseness 2 hours after extubation	0.6471	0.73371	0.9412	0.85071	0.132
Hoarseness 6 hours after extubation	0.2059	0.4786	0.6176	0.73915	0.008
Hoarseness 12 hours after extubation	0.2353	0.49597	0.4706	0.74814	0.131
Hoarseness 24 hours after extubation	0.2059	0.4786	0.3529	0.64584	0.29

reason endotracheal intubation was performed. They were measure twice within six hours All ETT cuff pressure measurements by standard manometer were done by an expert trained to do so . In the field of measurement and control endotracheal tube cuff pressure in patients in the intensive care unit, the results showed that 18.5 percent of the ETT cuff pressure despite pressure correction in the first instance, at the second time the cuff pressure was outside of the standard. A not so important reason for this careless cuff pressure being set is perhaps the wrong size tube was selected for the causes outlined (25).

Conclusion

The results suggest that regular adjustment of endotracheal tube cuff pressure reduces the incidence of sore throat and cough in patients with coronary artery bypass surgery and given that this is an easy, cheap and effective way in maintaining and improving the health of these patients and it is recommended that endotracheal tube cuff pressure is maintained by providing training for medical staff in this area and it is also stressed the need for precise control of the pressure at intervals determined so that the preventable complications of endotracheal intubation should be avoided.

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Comparing the Self-Esteem and Resiliency between Blind and Sighted Children and Adolescents in Kermanshah City

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Abstract

Introduction: The lack of independent moving by the blind predicts a delay in the development of daily and social life skills. The purpose of this study was to compare self-esteem and resilience between blind and sighted children and adolescents in Kermanshah City.

Methods: The research was causal-comparative type and the statistical population included all blind people 8 to 16 years old from both sexes (males and females) who lived in Kermanshah City in 2016. The number of these people according to Kermanshah Welfare Center was reported as 70 people of whom 60 (30 males and 30 females) were selected through available sampling method. A total of 60 blind people were matched in terms of education, gender and age with a non-blind group. The research tool consisted of Rosenberg Self-Esteem Questionnaire (1965) and Connor & Davidson Resilience (2003). Data were analyzed using SPSS-19 application and multivariate variance test.

Findings: The results showed that there was no significant difference between the two blind and sighted groups in the resilience rate (P> 0.01) but there was a significant level of difference in self-esteem among blind and sighted people (P <0.01).

Conclusion: It seems that disability exists not only in the body of people with disabilities, but also in the attitudes of those individuals and other individuals in different societies.

Key words: Self-Esteem, Resiliency, Sighted, Children and Adolescents

Introduction

Eyesight disorder is a general term indicating a disability to see and can be mild and modifiable, such as myopia, and hyperopia, or be severe and irreversible, such as blindness or severe eyesight impairment. Blindness may be congenital, such as congenital cataract, congenital syphilis, mother contracting rubella in during pregnancy or it may be adventitious such as trachoma, retinal detachment, eyesight acuity atrophy, corneal ulcers, vitamin A deficiency, accident or a shock and etc. Considering that the visual forms almost a third of the total network fiber of the human sense communication network and this is not the case in any other senses, therefore man should be described as an intuitive being. For this reason, visual impairment causes disability more than any other disability (1). The occurence of blindness in infancy is 8 in 10,000 up to the age of fourteen and with increasing age, this ratio increases. At the age of 60, it reaches to 44 per thousand (2). To Smith, self-esteem is a person' evaluation of themself or specific judgments about their value. For those with injury to their eyesight, adequacy and appropriate social skill is a key factor for self-positive, higher self-esteem, positive behaviors and the ability to accept disability as a part of their life. Self-esteem is the judgment about our values and feelings associated with these judgments (3).Self-esteem is a psychological phenomenon that has a decisive influence on human emotional and cognitive dimensions and is a strong predictor of satisfaction with life. Low self-esteem is a dangerous factor for negative outcomes throughout life (4). Social isolation, and lack of adequate social support among adolescents with eyesight impairment may result in low self-esteem (5).

Self-esteem is the judgment that a person has about their own value. Self-esteem is considered as a central and essential factor in the individuals' emotional and social compatibility. A person with high self-esteem has an appropriate attitude towards themself and others; vice versa, a person with low self-esteem is often isolated or in desperation trying to show others and themselves that they are deserving. Many emotional and mental disorders in adolescents can be prevented by providing mental health services and enhancing self-esteem (6).

Increasing self-esteem is one of the most valuable resources that people with eyesight impairment can have. Studies have shown that people with high self-esteem and eyesight disorder experience much more effective learning and more useful relationships and use opportunities better(7).

The lack of independent movement by the blind predicts a delay in the development of daily and social life skills (8). Considering that emotional and social skills are learned in relation to others and it is necessary to have the power of sight for learning many of these skills, as a result, blind people are deprived of such experiences due to their eyesight impairment; these experiences can have an impact on their emotional excellence and social interaction(9).

Another psychology variable is resiliency which applies to those who are in danger but do not suffer from disturbances. Hence, it may be concluded that exposure to risk is a necessary condition for vulnerability but it is not sufficient. Resiliency factors cause a person to uses his or her existing capacity to achieve success and growth in the face of risk factors and use these challenges and quizzes as an opportunity to empower himself (10, 11).

There are two common components in most resiliency definitions: a) The individual responds positively to the unpleasant situation and b) In this way, the individual feels more self-confidence and growth (12).

Waller (13) considers resiliency as a positive person's response to difficult conditions (injuries and threats). Resiliency, of course, is not just stability against injuries with threatening conditions and is not a passive state in dealing with dangerous conditions, but it is an active and constructive accompaniment in its perimeter environment. It can be said that resiliency is the individual's ability to establish a biological-psychological balance in a dangerous situation (14).

In physiology and medicine, resiliency represents the self-efficacious physical resilience and the ability to regain emotional balance in stressful situations (15, 16).

In research done by Papadopoulos (9), the impact of individual characteristics (gender, eyesight status, age), age at eyesight loss, level of education, employment status and ability to move independently (without the need for help) were studied on the source of control and adolescent self-esteem with eyesight problems. The results of this study showed that predictors of self-esteem are eyesight status, age of the individual at the time of eyesight loss and education level.

Gilmour (17)showed that wisdom, hope, and self-efficacy can be predictors of resiliency in American-African students. Papadopoulos et al.(18)compared the source of control and self-esteem in adults with eyesight impairment and in non-blind adults. 108 adults with eyesight impairment (blindness or low eyesight) and 55 sighted adults participated in this study. Sighted adults showed higher scores in self-esteem than blind people with low eyesight. The results did not show a significant difference in the control scores of three groups. In this study, the eyesight and age of a person were determined at the time of loss of eyesight as self-esteem predictors.

Mishra and Singh (19) conducted research aimed at comparing the self-concept and the confidence in children with eyesight impairment and sighted children. The results of this study showed that children with eyesight impairment have lower self-concept and self-esteem compared to sighted children but this difference was not significant between boys and girls. Sanicar and Groom (20) conducted research aimed at studying self-concept, self-esteem and social support for those with special needs. The results showed that the place of study (education in ordinary

schools and schools for particular children) and the type of disability impact on self-concept, self-esteem and social support. There was also a significant relationship between their self-concept and social support.

Stewart and Yuen (21) examined the psychological factors affecting resiliency in patients with physical disorders. The results of this study showed that psychological factors effect on the resiliency, self-efficacy, self-esteem, internal control source, optimism, psychological hardiness, hope, self-empowerment, and acceptance of the disease. Coping strategies such as positive cognitive assessment, spirituality and active coping also had a significant relationship with resiliency.

Finger et al. (22) in a study reported that people with eyesight impairment in terms of movement, emotional state and constraint of social activities have a lower quality of life than healthy people. Bowen (23) conducted a study to assess the levels of self-esteem among 60 children with eyesight impairment. The results of this study showed that 70% of children had high or normal levels of self-esteem. Girls also showed higher levels of self-esteem than boys. Considering what was presented, there has not been any published research in Iran about the simultaneous comparison of the sum of self-esteem and the resiliency variables between the blind and the sighted. The present research is going to answer the following questions: Is there any significant difference between the blind and sighted people in two self-esteem and resiliency variables?

Methodology

The research is an applied study in terms of purpose, a causal-comparative (post-event) type one and descriptive in terms of method. The statistical population of this study included all male and female children and adolescents who were between the ages of 6 to 16 years old from both sexes in Kermanshah City in the year 2014. The number of these people according to Kermanshah's well-being report was 70 of whom 60 were selected by available sampling method (30 male and 30 female). A total of 60 individuals were matched with the sighted group in terms of education, gender and age. They were then compared in two independent groups. After completing the questionnaires, the responses were encoded and collected data was extracted and analyzed according to the goals and research questionnaire by self-esteem and resiliency statistical tests.

Rosenberg's Self-Esteem Scale

Rosenberg Self-Esteem Scale was prepared by the Astronomical Day in 1965 to measure individuals' self-esteem. The scale has 10 sections which were classified from 1 to 4 and the respondent must mark them in relation to the sensation in front of each item. The validity coefficient of this test was 0.3 in a study performed on a sample of 82 subjects. This test has a good content due to designing by Rosenberg to detect self-esteem level. In addition, Rosenberg has calculated its statistical indices during the

process of setting the test and has considered it to have validity. In this study, Cronbach's alpha reliability coefficient was 0. 93 in a study done on female students and in the test-retest reliability, r = 0.85. Hart (24), believes that after the teenage period, collective self-esteem is important. This scale has been standardized in the sample of Iranian teenagers and the reliability coefficient is 0. 84 (25). In this study, the reliability of the research was obtained as 71% by Cronbach's alpha.

Conner-Davidson resilience Scale Inventory (CD-RISC)

The resiliency questionnaire was written by Conner and Davidson (14) to measure the power of coping with pressure and threat and Mohammadi (26) has adapted it for use in Iran. The questionnaire has 25 questions that are answered in five degrees (perfectly correct, rarely correct, sometimes correct, often correct and always correct) by each subject. The validity coefficient of inner consistency has been reported in the range of 0.86 to 0.90 using the Cronbach's alpha coefficient. The retest validity coefficient of this scale was 0.81.

Mohammadi (26) has adapted this scale for use in Iran. Soltani et al. (27) have obtained 0.87 the Cronbach Alpha coefficient of this scale at students. In this study, the reliability of the research obtained was 79% by Cronbach's alpha.

According to the research hypotheses, in the present study, SPSS-23 application and variance analysis test were used to realize the analysis goals of the research in two descriptive and inferential statistic parts.

Discussion

The main purpose of this research was to compare self-esteem and resiliency between blind and sighted children and teenagers in Kermanshah City. As Table 4 shows, there is a significant difference between the two blind and sighted groups' self-esteem and comparing the means, it can be said that the self-esteem of the sighted is more than the blind. The results of this hypothesis are consistent with the research done by Beaty (28), Wolf and Sachs (29), Rosenblum(30), Wagner (5), Lopez and Cordoba (31), Mishra and Singh (19) but it is not consistent with the research of Mishra, and Singh. (19). It seems that disability exists not only in the body of people with disabilities, but also in the attitudes of those individuals and other individuals in different societies. These negative attitudes and psychosocial obstacles have affected the mental health of people with disabilities and made them have lower self-esteem than others.

The inability of independent movement by blind people in Isfahan was a predictor of the delay in the development of their daily and social life skills. Given that social skills are learned in relation to others and it is needed to have the power of eyesight for many of these skills, as a result, blind people were deprived of such experiences due to

Findings

Table 1: Frequency distribution and percentage of sample examined based on gender

Gender	Blind Group		Sighted Group		Total sample	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Female	30	50	30	50	60	50
Male	30	50	30	50	60	50

According to Table 1, the sample consisted of 120 people (60 sighted and 60 blind); every blind and blind group consisted of 30 men and 30 women. Frequency distribution and sample percent are in (Table 1) based on gender.

Table 2. Mean and standard deviation of variables studied in two groups

Variable	Sighted group		Blind group	
	Mean	Standard deviation	Mean	Standard deviation
Self-esteem	26.18	4.36	17.25	4.31
Resiliency	57.32	14.29	38.45	11.68

Table 3. The results of multivariate intergroup variances analysis for analyzing the mean of dependent variables

Test name	Value	F	Df hypothesis	df Error	Significance level	ETA Square
Picola trace	0.09	3.03	4	115	0.02	0.39
Wilkes Lambda	0.90	3.03	4	115	0.02	0.39
Hotelling trace	0.10	3.03	4	115	0.02	0.39
Roys largest Root	0.10	3.03	4	115	0.02	0.39

As shown in Table 3, the main effects of variance analysis are significant and this means that at least one of the dependent variables in two groups has a significant difference. Therefore, the intergroup variance analysis was used for analyzing every variable. The results of the intergroup variance analysis are presented in (Table 4).

Table 4. An intergroup variance analysis for measuring the difference of mean in two groups

Dependent Variable	Sum of Square	Df	Mean of Squares	F	Significance level	Eta Square
Self-esteem	192.53	1	192.53	8.98	0.003	0.60
Resiliency	43.20	1	43.20	0.23	0.001	0.29

The results of variance analysis show that there is a significant difference in resiliency and self-esteem level (F = 8.98) in both groups.

their eyesight impairment. These experiences could have had an impact on individuals' self-esteem. Social isolation and the lack of adequate social support among these people and lack of special facilities for training in their jobs, delayed marriage of the blinded girls in Isfahan and the negative attitudes of society towards their ability cause them to have low self-esteem.

Having a strong sense of self-esteem is essential for all people, especially children and adolescents with special needs. Self-esteem as a valuable vital asset is one of the most important factors for the development of talent

and creativity. People with eyesight impairment or other disabilities such as the cause of parents' negative attitudes, negative experiences in dealing with ordinary peers and successive failure at school and college are gradually discouraged and overwhelmed; the sequence of such failures and problems makes them feel worthless, a sense that can damage their self-esteem.

As Table 4 shows, there is a significant difference between the resilience of blind and sighted people in Isfahan city. The results of this hypothesis are consistent with the research of Alrickson et al. (32), Zatra et al. (33), Narimani

et al. (34). Some scholars believe that resilience is non-native and it can be learned.

Resilience is affected by the family. Family members can not only increase social ability and positive self-esteem but they can also increase their resilience by increasing feedback and reinforcement and providing more interactive opportunities for blind people. Family support, appropriate feedback, and more interaction in the family, make them more immune to the negative effects of life events and thus reduce their risk of physical and mental illness.

Conclusion

This study, like any other research, was confronted with some limitations including: Participants in this research were blind and sighted people in Isfahan city. Therefore, caution should be exercised in generalizing the results. Another limitation is the low volume of samples that may affect the analysis of results and comparisons. In this research, available sampling method was used. Therefore, it is suggested that this research be carried out in a wider community with more samples in other cities of the country, other psychological variables be compared among blind and sighted people, and in future research, other measurement methods (such as interviews) should be used to provide more accurate results.

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Frequency of Uric Acid Levels, Symptomatic and Asymptomatic Hyperuricemia among the Pakistani Population

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Abstract

Background: Hyperuricemia is an independent risk factor for cardiovascular disease, cerebrovascular diseases, chronic kidney diseases, diabetes mellitus, hypertension, obesity and dyslipidemia. Its global burden suggests the widest prevalence range in East Asia. No large scale study exists to estimate the prevalence of hyperuricemia across Pakistan. Hence, this study aims to estimate the frequency of hyperuricemia in Pakistan.

Patients and Methods: It was a population-based cross sectional survey conducted in health care facilities across Pakistan. A total of 2,727 complete responses were obtained after taking informed consent. The questionnaire included sociodemographic details and serum uric acid levels of the patients. This study regards hyperuricemia as serum uric acid levels greater than 7 mg/dl in males and greater than 6 mg/dl in females. MultiSure blood glucose/uric acid Monitoring System was used to measure serum uric acid. Data was analysed using SPSS version 23.

Results: With mean age of 43.60 years, 1,320 (48.4%) participants were males while 1,407 (51.6%) were females. Mean uric acid level in male hyperuricemics was 8.11±1.25 mg/dl and in females was 7.44±1.19 mg/dl. The frequency of hyperuricemia was 39% (n=1,061). Frequency of hyperuricemia among males was 27.9% (n=367) and 49.3% (n=694) among females. Of the hyperuricemic population, 90.8% (n=963) were symptomatic. Most common comorbidity was diabetes 35.5% (n=388). Least common comorbidity was Ischemic heart disease 2.1% (n=23). Patients with no comorbidities were more likely to be asymptomatic.

Conclusion: The burden of hyperuricemia together with increasing burden of metabolic syndrome, obesity, ischemic heart disease and chronic kidney disease is becoming alarming. The rising statistics emphasize the dire need to develop proficient prevention and management strategies for hyperuricemia.

Key words: Uric acid, Prevalence, Gout, Hyperuricemia, Pakistan

Introduction

Hyperuricemia (HU), or raised serum uric acid (SUA), is the condition closely associated with gout which is a form of inflammatory arthritis triggered by the crystallization of uric acid within the joints. Gout leads to substantial morbidity and affects 1-2% of the world population. [1]

Hyperuricemia itself evolves from nonfunctioning uricase gene and contributes to increased risk for cardiovascular diseases (CVDs); moreso in women. [2] [3]

Although previous studies didn't identify hyperuricemia as an independent risk factor for CVDs because of the presence of obesity, dyslipidemia, hypertension, use of diuretics and insulin resistance in parallel, [4] recent literature has provided evidence for hyperuricemia to be an independent risk factor for cardiovascular diseases, cerebrovascular diseases, chronic kidney diseases, type II diabetes mellitus, hypertension, obesity and dyslipidemia. [5]

High SUA levels are associated with elevated total serum antioxidant capacity among individuals with atherosclerosis. High SUA levels may cause atherosclerosis through disturbing lipid metabolism, promoting the proliferation of vascular smooth muscle cells, and by activating inflammation. [6] Where insulin resistance plays a potentially key role in the relationship between metabolic syndrome, type 2 Diabetes and hyperuricemia, it is likely that HU and insulin resistance share a bidirectional causal effect. [7] The early appearance of hyperuricemia is a reliable predictor of later development of hypertension, and in adults with essential hypertension the comorbidity of hyperuricemia is very common. [8]

Even with such a crucial influence of uric acid levels on various body systems, it has remained a lesser studied domain. Although, local data exists to support association of hyperuricemia with severe coronary artery disease [9] and metabolic syndrome; [10] no large scale study exists to estimate the prevalence of hyperuricemia across Pakistan. Hence, this multicentre study was conducted with the aims to estimate the prevalence of hyperuricemia in Pakistan.

Patients and Methods

It was a population-based cross sectional survey, conducted from January 1st to December 31st 2016, in different primary care clinics and tertiary care hospitals across Pakistan. A total of 3,000 individuals, of age 18 years and above, were invited to participate in the study. However, after eliminating 145 non-responders and 128 incompletely responded questionnaires, 2,727 genuine and complete responses were obtained in our study. Written informed consent was obtained from the patients. The questionnaire included sociodemographic details (such as age, gender, comorbidity), symptoms of hyperuricemia and uric acid levels of the patients. This study regards

hyperuricemia as serum uric acid levels greater than 7 mg/dl in males and greater than 6 mg/dl in females. [11] Comorbidities were taken as per the diagnosis of the treating physician. Where we present our population as symptomatic for HU, we included chronic single/multiple joint pain, urinary stones and tumor lysis syndrome as symptoms of hyperuricemia in this study.

In order to assess uric acid levels, MultiSure blood glucose/uric acid Monitoring System was used in this study. MultiSure is a portable, hand-held device with advanced biosensor technology to accurately assess blood uric acid levels. With a sample volume of 3 µL, MultiSure has a measuring range of 3 - 20 mg/dL (1.1 ~ 33.3 mmol/L) and a measuring time of 30 seconds. [12]

Data was entered and descriptive analysis was performed with SPSS software version 23. Frequency of patients with HU was calculated. Mean age and SUA levels were calculated. Stratification with respect to gender and symptomatic or asymptomatic was done and relation with morbidity and symptoms of hyperuricemia was calculated via cross tabulation and was presented in tabular form.

Results

A total of 2,727 patients participated. With a mean ± SD age of 43.60 ± 12.19 years, 1,320 (48.4%) were males while 1,407 (51.6%) were females. Comorbidities were present in 1,154 (42.3%) patients which are shown in detail in Table 1.

Mean uric acid (MUA) levels of the entire sample were 6.11 ± 1.7 mg/dl. MUA level of males was 6.19 ± 1.65 mg/dl and that of females was 6.04 ± 1.75 mg/dl. The prevalence of hyperuricemia in our study was 39% (n=1,061). Frequency of hyperuricemia among males was 27.9% (n=367) and 49.3% (n=694) among females.

Of patients with HU, 9.2% (n=98) were asymptomatic at the time of study while 90.8% (n=963) presented with symptoms of hyperuricemia. MUA level of clinically symptomatic population was 7.67±1.24 mg/dl and of asymptomatic was 7.68±1.37 mg/dl. The proportion of patients with HU presenting with various comorbidities and their MUA levels are shown in Table 2.

As seen in Table 3, comorbidities were more common in patients with hyperuricemia; only 32.9% were without any comorbidity. The most common comorbidity was diabetes; 36.6% (n=388). Although IHD was the least commonly witnessed comorbidity in our HU patients 2.2% (n=23); it was seen that 100% of IHD patients were symptomatic (Table 3).

Table 1: Characteristics of the subjects included in the study

CHARACTERISTICS	n=2727 n (%)
Age (Mean ± SD)	43.60 ±12.19
Gender	
Male	1320 (48.4)
Female	1407 (51.6)
Comorbidity	
Nil	1573 (57.9)
Diabetes	783 (28.7)
Hypertension	675 (24.8)
CKD	104 (3.8)
IHD	62 (2.3)
Obesity	456 (16.7)
Other	157 (5.8)

Table 2: Uric Acid Level in different populations (mg/dl)

	TOTAL SUBJECTS n (%)	ALL (Mean ± SD)	MALES (Mean ± SD)	FEMALES (Mean ± SD)	p value*
All subjects	2727 (100)	6.11±1.71	6.19±1.65	6.04±1.75	0.006*
Hyperuricemia subjects$	1061 (39)	7.67±1.26	8.11±1.25	7.44±1.19	<0.01*
Asymptomatic	98 (9.2)	7.68±1.37	7.93±0.80	7.18±1.74	0.07
Symptomatic	963 (90.8)	7.67±1.24	8.13±1.31	7.44±1.14	<0.01*
Diabetics	388 (35.56)	7.71±1.15	8.07±1.09	7.50±1.13	<0.01*
Hypertensives	350 (32.98)	7.88±1.29	8.17±1.14	7.75±1.33	0.005*
With Chronic kidney disease	57 (5.37)	8.15±1.46	8.38±1.31	7.97±1.56	0.29
With Ischemic heart disease	23 (2.16)	7.90±1.21	7.97±1.11	7.87±1.30	0.84
With obesity	198(18.66)	7.56±1.26	8.19±1.36	7.32±1.14	<0.01*

$Males with uric acid levels greater than 7 mg/dl and females greater than 6 mg/dl were classified as Hyperuricemia.
* Independent sample t test applied

Table 3: Asymptomatic and symptomatic Hyperuricemia among different comorbid populations

	HYPERURICEMIA n (%)	ASYMPTOMATIC n (%)	SYMPTOMATIC n (%)	p-value
All subjects	1061 (39)	98(9.2)	963(90.8)	<0.01*
All subjects without comorbidity	349(32.9)	42(12)	307(88)	<0.01*
Diabetic	388(36.6)	22(5.7)	366(94.3)	<0.01*
Hypertensive	350(33)	22(6.3)	328(93.7)	<0.01*
Chronic kidney disease	57(5.4)	12(21.1)	45(78.9)	<0.01*
Ischemic heart disease	23(2.2)	Nil	23(100)	N.A
Obesity	198(18.7)	20(10.1)	178(89.9)	<0.01*

* Chi2 test applied between the groups

Discussion

We reported a hyperuricemia prevalence of 39% in the Pakistani population with a mean uric acid (MUA) level of 6.11 ± 1.7 mg/dl among all subjects while 7.67±1.26 mg/dl MUA level among hyperuricemic subjects. HU was found to be more prevalent in women than in men (49.3% vs. 27.9%). The proportion of clinically asymptomatic HU was 9.2%. Most of our HU sample had one or more comorbidities and was symptomatic. Most common comorbidity in our patients with HU was Diabetes Mellitus. Although Ischemic Heart Disease was the least common comorbidity, all patients of IHD were symptomatic. Except for chronic kidney disease and IHD, all other comorbidities were significantly related to SUA levels in our study.

This is the first report of hyperuricemia prevalence from Pakistan and helps determine the burden of this condition in the population. These latest prevalence estimates help determine the burden of the condition on the Pakistani healthcare system. As per our knowledge, no other study has been conducted on such a large sample including population from various cities of Pakistan. However, we have not utilized laboratory methods to measure uric acids levels which would have been more accurate but also expensive, and only utilized portable MultiSure kit (a validated test).[12]

Attempts have been made to assess the global burden of hyperuricemia and findings suggested widest range of prevalence in East Asia with Chinese prevalence of 6-25%, Taiwanese 10-52% and Indonesian prevalence of 18%. [1] Even in an Indian obese population, HU prevalence is 44.6%, however they report more hyperuricemic males. [13] Furthermore, as per The National Health and Nutrition Examination Survey 2007–2008, the prevalence of HU in the United States general population is 21.4%. [14] In a local study involving a relatively smaller sample, the frequency of elevated SUA levels was 47%. [15]

Consistent with our findings, prevalence of metabolic syndrome and its components increased significantly according to SUA concentration in both sexes in a Korean study. [16] Hyperuricemia has been studied to be somehow responsible for the proinflammatory endocrine imbalance in the adipose tissue, which is an underlying mechanism of inflammation and consequent insulin resistance. [17] UA levels have also been regarded as a metabolic biomarker in older adults for early detection and prevention of Metabolic Syndrome. [18]

A meta-analysis of 13 studies showed 1.3% incidence of ischemic heart disease in individuals with HU and an overall risk of IHD death increased by 12% for each increase of 1 mg/dl of serum uric acid level. [19] Another five year long Japanese cohort concluded asymptomatic HU to possess a significant risk for developing hypertension, dyslipidemia, obesity and chronic renal disease. [20]

As far as the studies on recent trend of chronic kidney diseases are concerned, it has been seen that both elevated SUA levels and metabolic syndrome are associated with increase in the prevalence of CKD. [21, 22] In a longitudinal cohort, the incidence of CKD was influenced by the presence of hyperuricemia, but not by that of metabolic syndrome. However, if complicated by metabolic syndrome, HU had an even detrimental effect. [23]

In view of the crucial role of HU and its incapacitating impacts on essential bodily systems and functions, it becomes vital to first assess its burden, recognize the targeted population and then make endeavours in bringing about relevant management strategies to detect hyperuricemia at an early stage and prevent its consequent complications. This study has taken the first step in this region. With such a high prevalence of hyperuricemia in Pakistan, this study leads other researchers to investigate more of this alarming issue.

Conclusion

The burden of hyperuricemia together with increasing burden of metabolic syndrome, obesity, ischemic heart disease and chronic kidney disease is becoming alarming. Hyperuricemia plays a pivotal role in initiating the vicious cycle of debilitating involvement of almost all vital body systems. The rising statistics further emphasize the significance and dire need for the development of proficient prevention and management strategies for hyperuricemia.

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Determinants of Tooth Brushing among Primary School Students

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Abstract

Background: Oral health is one of the main determinants impacting the quality of life. The aim of this study was to investigate determinants of tooth brushing among primary school students based on the Health Belief Model (HBM).

Methods: This cross-sectional study which was conducted in Shadegan city, in the south of Iran, where a total of 300 primary school students were randomly selected to participate voluntarily in the study. Participants filled out a self-administered questionnaire including the HBM constructs. Data were analyzed by SPSS version 16 using bivariate correlations, and logistic regression statistical tests at 95% significant level.

Results: The mean age of respondents was 9.91 years [SD: 1.26], and ranged from 7 to 12 years. Use of dental floss after each brushing was reported among 10.4% of the participants. Daily tooth brushing was reported by 30.6% of participants. Cues to action with odds ratio estimate of 1.371 [95% CI: 1.009, 1.865], and self-efficacy with odds ratio estimate of 1.291 [95% CI: 1.117, 1.492], were the best predictors of tooth brushing.

Conclusion: Cues to action and self-efficacy may be the most effective determinants of tooth brushing among primary school students.

Key words: Oral Health, Self-efficacy, Cues to Action, Health Belief Model.

Introduction

Oral health is one of the main determinants impacting the quality of life. In addition, oral diseases are highly prevalent in a way that tooth decay is the most common disease in humans and over 99 percent of individuals are somehow afflicted with this disease. Therefore, oral disease prevention is nowadays one of the health priorities of the society (1). Having a healthy mouth enables the individual to eat, talk, communicate and socialize. Over 50 million hours are wasted each year for problems caused by oral diseases that impact the individual's performance and activities (2). The human mouth is usually afflicted with disease more than other parts of the body and thus, it needs more care. In addition, as the general health of the body is directly related to oral health, oral health has a special importance in maintaining and improving individuals' health (3). The plaque in the mouth is reduced with the improvement of dental and oral health care behaviors and it can finally lead to oral health. In this regard, dentists believe that oral health in society can be improved with the change of conditions, behaviors and environment and with organization of care (4). Despite great advancements in fighting diseases globally, dental diseases, especially tooth decay, are among the most common diseases in the world, including Iran (5). Considering the clear impact of oral health on individuals' physical and mental health and the controllability of these diseases, many actions have been adopted in the developed countries for the prevention of these diseases including extensive use of fluoride in different forms, oral health improvement, change of healthy habits and sugary-material consumption and community-based health education programs (6). Education, prevention and treatment of oral and dental diseases are among the duties of the health system. And in this regard, before any health education planning and before any preventive act, it is necessary to survey the individuals we are dealing with, regarding their knowledge and finally, the factors that impact on their knowledge, attitudes and behaviors (7). Individuals' actions and healthy behaviors in society are impacted by their knowledge and attitudes and, in order to achieve preventive behaviors, making efforts for increasing people's knowledge level and improving their attitudes on the prevention of oral and dental diseases is necessary. Meanwhile one of the common models in predicting healthy behaviors such as oral health is HBM (7-11). The aim of this study was to investigate determinants of tooth brushing among primary school students based on HBM.

Methods

This cross-sectional study was conducted among 300 primary school students in Shadegan city, the south of Iran, during 2016. The sample size was calculated at 95% significance level according to the results of a pilot study and a sample of 300 was estimated. Subjects were informed about the goal of the research. In addition, they reported their willingness to attend the study. Of the population of 300, 288 (96%) signed the consent form

and voluntarily agreed to participate in this study, which has been approved by the institutional review board at the Abadan school of Medical Sciences, Abadan, Iran (IR. ABADANUMS.REC.1395.88).

Questionnaire
Questionnaire included three sections that comprised 38 questions and items: 7 questions for demographic factors, 3 items about oral health behavior and 28 items for HBM variable.
A: The background variables assessed in this study included: age, gender, age father and mother, father and mother educational level, number of family members.
B: Oral health care behavior questionnaire: to assess oral health behaviors among the participants, we used three items "do you do daily tooth brushing". In order to facilitate the participants' responses to the question we used a standardized scale, ranging from 0 (never), 1 (one brush), 2 (twice brush each day), 3 (after each meal).
C: HBM scale was designed based on standard items (7-11). Three items were designed to measure perceived susceptibility about oral disease (e.g. "may I also be suffering from oral diseases."). Four items were designed to measure perceived severity abut side effects of oral disease (e.g., "oral diseases cause stink of my mouth."). Five items were designed to perceived benefit of performing oral health behaviors (e.g., "if I had oral health I established better communication with my friends"). Seven items were designed to evaluate perceived barriers to performing oral health behaviors (e.g., "going to the dentist is too expensive for me"). Four items were designed to measure perceived self-efficacy in performing oral health behaviors (e.g. "how sure are you in your ability to do daily tooth brushing"). Six items were designed as cues to action for performing oral health behaviors (e.g., source of performing oral health behaviors were: family, teacher, friends, etc.). In order to facilitate the participants' responses to each item, susceptibility, severity, barrier, benefit, and self-efficacy were standardized to a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Cues to action items were standardized to yes or no scale. Alpha Cronbach's coefficient was used to estimate reliability of susceptibility, severity, barrier, benefit, self-efficacy and behaviors. Split-half was used to estimate reliability of cues to action. Constructs reliability were: perceived susceptibility ($\alpha=0.70$); perceived severity ($\alpha=0.71$); perceived benefit ($\alpha=0.74$); perceived barrier ($\alpha=0.77$); perceived self-efficacy ($\alpha=0.80$); and cues to action ($\alpha=0.79$).

Results

The mean age of respondents was 9.91 years [SD: 1.26], and ranged from 7 to 12 years. The mean age of fathers of respondents was 40.04 years [SD: 5.40], and mothers was 33.69 years [SD: 5.20]. In addition, 48.3% (139/288) of participants were male, and 51.7% (149/288) were female. Nearly 44.8% (129/288), 49.7% (143/288), and 5.6% (16/288) of the respondents reported that their fathers were under diploma, diploma and academic education, respectively.

In addition, 26.4% (76/288), 63.2% (182/288), and 10.4% (30/288) of the respondents reported that their mothers were under diploma, diploma and academic education, respectively.

Almost 39.6% (114/288) of the participants reported history of referred to the dentist in the last year at least once. Furthermore, use of dental floss after each brushing was reported among 10.4 % (30/288) of the participants. In addition, daily tooth brushing after each meal was reported 30.6 (88/288) among participants.

Our result indicated family (22.6% of participants), dentist (18.4% of participants), and health center stuff (17.7% of participants) as the most effective factors that persuaded them to perform oral health behaviors. A Backward step-wise model was used to determine predictors of background variables on tooth brushing among participants. As can be seen in Table 1, finally on the 6th step the procedure was stopped and the best model was selected. Among the background variables, sex, and mother education were the most influential predictive factors for tooth brushing (Table 1).

Table 1: Multiple logistic regression analysis for background variables on tooth brushing

Variables	Crude OR (95 % CI)	P value	Adjusted OR (95 % CI)	P value
Sex				
Male	1	-	1	-
Female	2.624 (1.547 – 4.453)	< 0.001	2.603 (1.506 – 5.400)	0.001
Mother Education				
Under Diploma	1	-	1	-
Diploma	2.814 (1.382 – 5.730)	0.004	2.766 (1.344 – 5.692)	0.006
Academic	8.727 (3.305 – 23.044)	< 0.001	8.571 (3.179 – 23.111)	< 0.001

Table 2 shows the correlations and significance levels at the 0.01 and 0.05 were the criteria for the analysis. Our results showed that for the sample, behavior was significantly related to cues to action (r=0.420), and self-efficacy (r=0.530). In addition, behavior was inversely correlated with barrier (r=-0.352). However there was no significant correlation between behavior with susceptibility (r=0.051), severity (r=0.111), and benefit (r=0.016). Self-efficacy was significantly related to susceptibility (r=0.328), severity (r=0.337), benefit (r=0.232), and cues to action (r=0.327). Furthermore, self-efficacy was inversely significant correlated with barrier (r=-0.246). In addition, cues to action was significantly related to susceptibility (r=0.212). However there was no significant correlation between cues to action with severity (r=0.030), barrier (r=-0.027), and benefit (r=0.054). Benefit was significantly related to susceptibility (r=0.208), severity (r=0.445), and inversely correlated with barrier (r=-0.199). Also, severity was significantly related to susceptibility (r=0.546). Finally, there was no significant correlation between barrier with severity (r=0.032), and susceptibility (r=-0.066).

Table 2: Correlation between HBM constructs

Component	Mean (SD)	Range	X1	X2	X3	X4	X5	X6
X1. Susceptibility	11.54 (2.30)	3-15	1					
X2. Severity	15.66 (2.82)	4-20	0.546**	1				
X3. Barrier	19.21 (6.03)	7-35	0.032	-0.066	1			
X4. Benefit	19.13 (3.83)	5-25	0.208**	0.445**	-0.199**	1		
X5. Cues to action	2.93 (2.06)	0-6	0.212*	0.030	-0.027	0.054	1	
X6. Self-efficacy	11.65 (4.65)	4-20	0.328**	0.337**	-0.246**	0.232**	0.327**	1
X7. Behaviors	2.85 (1.65)	0-7	0.051	0.111	-0.352**	0.016	0.420**	0.530**

* Correlation is Significant at the 0.05 Level (2-Tailed). ** Correlation is Significant at the 0.01 Level (2-Tailed).

Logistic regression analysis and backward stepwise method was calculated for predictability of HBM variables on tooth brushing. As mentioned in statistical analyses, a step-wise model procedure was conducted and finally on the 5th step the procedure stopped and the best model was selected, among the HBM variables: Cues to action with odds ratio estimate of 1.371 [95% CI: 1.009, 1.865], and self-efficacy with odds ratio estimate of 1.291 [95% CI: 1.117, 1.492], were more influential predictors of tooth brushing (Table 3).

Table 3: Logistic regression analysis for HBM variables related to tooth brushing

Variables	B	S.E.	Odds Ratio	95% Confidence Intervals		P-value
Final Model, Step 3				Lower	Upper	
Self-efficacy	0.255	0.074	1.291	1.117	1.492	0.001
Cues to action	0.316	0.157	1.371	1.009	1.865	0.044

Discussion

The findings of the present study indicated that 30.6% and 10.4% of the participants used brush and dental floss respectively after each meal. In addition, 25% of them said that they would use sodium fluoride mouth rinse at least once a day. In this regard, in the study by Mazloomi et al 37.5% of the students used dental floss daily and 11.1% had visited dentists once each six months (7). In the study by Varenne et al the findings indicated that 58% of the rural and urban children aged 12 in Burkina Faso did not brush at all (12). In the study by Keikhaee et al 4.2% of the students used sodium fluoride mouth rinse (13). Considering the importance of the use of fluoride for the prevention of tooth decay and free distribution of sodium fluoride rinse in schools, the need for more efforts for education in this regard is felt. Overall, these findings indicate that status of the adoption of behaviors that improve oral health is not favorable in Iran and there is a necessity to pay more attention to this issue and to provide appropriate education in this regard.

The findings indicated that, among background factors, being a female and mother's education were very important factors in predicting brushing after meal. In this regard, Mehri and Morowatisharifabad showed significant statistical difference between the means of dental and oral health behaviors based on the parents' education (14). In addition, Kawamura et al conducted a study on Japanese students and their findings indicated that female students adopted oral health care behavior more than male students (15). These findings show the necessity of providing males with more education.

Paying attention to oral health is a school health priority and the first step in planning for dental and oral health is determining the factors that impact it. This study was conducted with the aim of determining the status of performing oral health behaviors (daily brushing after each meal, the use of dental floss, the use of fluoride mouth rinse and visiting a dentist) and the beliefs related to observing oral health using HBM. Our findings indicated that self-efficacy and cues to action were the strongest predictors. These findings are highly consistent with other studies on this subject. For example, Mehri and Morowatisharifabad pointed out in their study that the direct effect of self-efficacy on oral health behaviors had been more than that of other variables. Also, in their study employing HBM, Buglar et al explored beliefs on dental care including brushing and flossing. Their study was conducted on 92 individuals visiting dental clinics in Australia. Their findings indicated that barriers and self-efficacy significantly predicted oral health behaviors in the participants (9). In another study, Anagnostopoulos used HBM to analyze brushing behavior. Their study was conducted on 125 patients at dentist offices and their findings indicated that self-efficacy and perceived severity were strong predictors of brushing behaviors in the participants (10). The study by Karami et al also indicated that self-efficacy was the strongest predictor of performing oral health behaviors in students at elementary schools in Ahvaz (11). Self-efficacy is recognized as an important factor in adopting preventive behaviors and it is a behavioral perception that increases the probability of adhering to a work plan and health-improving behaviors (16). In this study too, the mental perception of the students in performing behaviors that improve oral health as self-efficacy was explored and the results indicated that the sense of self-efficacy has a significant role in performing oral health care behaviors.

Our findings indicated that the behaviors that improve oral health did have a significant correlation with perceived susceptibility, severity and benefits. These findings are consistent with the findings obtained by Mazloomi et al (7). In this regard, it can be said that individuals, especially children and adolescents, may perceive the seriousness of health issues but they do not probably see themselves as susceptible to the risk and have few susceptibility beliefs regarding the risks around them. In other words, they view themselves as immune to the health risks and threats (17,18). Children's and adolescents' encounter with their peers who are dealing with oral and dental disease problems may impact their beliefs and may encourage them to adopt behaviors related to oral health .

Our findings indicated that family was the main source of information for students regarding behaviors that promote oral health. In this regard, Karami et al too showed that parents were the students' main source of information in oral health behaviors (11). Also, in many studies on different healthy behaviors the role of external supports and incentives has been shown to be positive in a way that reminding by acquaintances is an important determinant in adopting oral health care impacts on the behavior of children. In addition, family forms the cognitive and social dimensions in individuals and results in the improvement of favorable and reminding behaviors and key signs for creation of favorable behaviors; therefore the role of family especially that of parents should be paid attention to in interventional programs for oral health behaviors.

Limitations
The low number of samples that reduces the generalizability of the results is one limitation . Also, the collection of data through questionnaire can be accompanied by a percentage of error. In addition, the lack of exploring missing teeth and dental plaques was another limitation of the present study.

Conclusion

Cues to action and self-efficacy may be the most effective determinants of tooth brushing among primary school students.

Acknowledgement

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Depression in patients suffering from gender dysphoria: The hospitalized patients of Legal Medicine Center in Southwest of Iran

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Abstract

Background and Aims: Sexual identity is a kind of cognitive phenomenon which shows an individual as a male or female. The main problem regarding this issue is the violation of gender identity through which the patients are to change their behaviors based on their gender identity. In this case, the patients are not understood by their friends and family. Consequently, they are overlooked by other people and will be disappointed. This issue may lead them to be hopeless and lose their confidence and finally become depressed. This research was to compare the patients who became depressed before and after surgery of gender dysphoria in the southwest of Iran, Fars Province.

Method: This study is a survey research which has studied all the population with gender dysphoria who were referred to Legal Medicine Center in Fars province in the southwest of Iran. The research sample included the 66 patients who were selected based on convenience sampling method. Data were collected through Becks' (1961) Depression Questionnaire. Data were analyzed through Mann Whitney U test, Pearson correlation analysis, and convenience sampling method through SPSS' version 21 at the significance level (p<0.05).

Results: Findings showed that the participants were between 18 and 36 years old and mainly had non-governmental jobs (i.e., free job) about (60.7%). Their educational level was mainly below the diploma (i.e., about 55%). The amount of depression was in potential status (51.97±7.39) and in actual status was (51.35±6.91) regarding a severe condition. The Mann Whitney analysis showed that there was not a significant difference between before and after surgery of the patients with gender dysphoria (p = 0.67). There was a correlation between age and depression (r= .389) after the surgery. However, there was not a correlation between depression and other demographic variables (i.e., age, Gender, Occupation, Educational level) in both groups (p<0.05)

Conclusion: In conclusion, results showed that gender dysphoria patients face many challenges like isolation, family conflict, finding jobs or partner after surgery which are due to Iranian cultural, social and religious beliefs. They become isolated and depressed and they have the same situation like before the treatment and surgery.

Key words: Gender dysphoria, depression, sex reassignment surgery

Introduction

Sex is an everlasting phenomenon which is with human beings to the end of life. In social processes, the individuals learn how to behave and feel, based on their sex and become a member of the society. They learn how to behave based on social expectations. Being successful in the process, the individuals can shape their gender identity and adapted it to society (Ceglie, 2000). Sociologists believe that gender is a phenomenon which is unique and it is affected by social and cultural learning (Correll, 2001); however, it is violated when it istreated prejudicially. In other words, the individuals may physically have a specific sex but they do not feel they belong to that sex spiritually or physically. These people may behave or feel like the opposite sex. Indeed, this bisexual situation may affect their psychological condition and weaken their appropriate performance (Ceglie, 2000).

Sexual identity is a cognitive phenomenon which shows that an individual is male or female (Saddock, 2009). In fact, individuals have a kind of sexual identity which shapes their beliefs, attitudes and behaviors in a stereotyped fashion (Tavassoli, 2014). Freud believes that the sexual malbehaviors are rooted in people's childhood which is experienced by children's Oedipal Triangle. It means, the children experience the behaviors of their parents and they try to adapt to the same situation (Utnam, 2003).

The patients of gender dysphoria are the people whose appearance is different to what they view as their actual sex. They need to change their appearance to their gender identity (Veale, 2010). Some of these patients are the people with male appearance but have female gender identity (Male to Female). The other group may be the opposite. They are female in appearance but their gender identity is male (Female to Male). This phenomenon is seen among males (Sohn, 2007).

The social pressure on patients with gender dysphoria is too severe since they cannot manage their behaviors in a cooperative way with their counter parts (Matsomoto, 2009). The main form of this problem is called appealing to sex reassignment surgery based on IV DSM that shows 1 person per 30,000 males and 1 person per 100,000 females wish to change their sex (APA, 2000). Therefore, these patients face many sexual problems since they have some limitations (i. e., physical, sexual and job condition) which cause conflicts with their family and society. They also face isolation and ignorance imposed by their family and society. In fact, they suffer from affective ties which make them isolated. This can cause loneliness, lack of self-confidence, fear of judgment and feeling unattractive (Gomez, 2012).

Regarding, Iranian culture, the patients of gender dysphoria were not recognized as real patients but they were known as criminal persons and they cannot be accepted by many people. This creates stress and psychological problems for these people (Rahimi, 2016).

One of the main problems with gender dysphoria could be depression and suicide which are due to other people's negligence and ignorance. People also blame the individuals with this problem and do not see them as patients (Cook, 2004). Gorin- Lazard (2012) studied these people and concluded that these people have a shorter life than others since they experience depression which shortens their life. The research on 298 women with gender dysphoria in Boston, the USA in 2012-2015 showed that 35.4 percent were severely depressed and 14.7 present had a suicide history (Reisner, 2016).

The treatment of gender dysphoria could be a combination of surgery and taking hormone medicine which changes the physical appearance. This can assist in helping the patients to adapt. The permission for sex reassignment surgery can be issued 12 months after experiencing the real new life and 6 months after taking hormone treatment (Lothstein, 1980).

Family affective support is the main factor for successful sex reassignment surgery (Besharat, 2012). They hope that these patients can regain their self- confidence and reduce their depression and anxiety to have a better life. Although there are some reports which has noted that sex reassignment surgery has positive effects on the patients' lives, their sexual activities may cause complicated sexual problems since they activate their sexual activities more than before the surgery. This shows that these changes are just limited to their physical appearance (Ainsworth, 2010; Gorin, 2012; Life, 1993; Pakic, 1996). In this case, some patients after the surgery remain weakened and sensitive (De Cuypere, 2006). In a study, it was seen that 30 percent of males and 20 percent of females who had undergone surgery never experienced satisfaction (Asgari, 2007).

Therefore, the present study investigated the patients before and after surgery in Fars Province, Southwest of Iran. This surgery costs much for the patients who have to pass a problematic process to receive permission. Thus the aim is to know whether this treatment can free them from depression.

Methods

This study was designed based on a survey research on the cases of gender dysphoria in the legal medicine Organization in Fars province. They received permission and were classified into two groups:

A) The patients who were referred to Fars legal medicine organization or the psychotherapy clinics received some advice and they were recognized as candidates for the surgery based on (DSM-IV). Diagnostic and statistical manual of mental disorders- 4th edition.

B) The patients who had an operation two or ten years ago based on the recognition of the Fars psychiatrics of Legal Medicine Organization (LMO) International classification of disease – 10th revision (ICD-10, 1988, and DSM-IV, 1994).

The research population included 80 patients who were referred to LMO or the psychiatrics offices in Fars province. Following the Morgan table, the research sample included 66 patients who were selected through non-random convenience sampling method. They were selected among those patients who accepted to participate in the research process. Thus all patients included males and females who were not equal in one group and 38 patients in the second group were selected.

The criterion for selection was the recognition based on DSM-IV-TR. The other criterion included the patients' cooperation, their profile, the reports of their surgery, psychological status, and some ethical issues like patients' privacy. Sampling process took four months.

The explanation was given to all patients and they were required to fill in the questionnaires. In this process, their privacy, ethical values and cooperation were followed based on the Helsinki treaty (Javaheri, 2006). Finally, after completing the questionnaires, the researchers collected the data. The inventory was Beck's (1961) Depression questionnaire which included demographic information. Beck Depression Inventory (BDI-II) includes 21 multiple choice items and each item holds the scores from zero (mental health) to 3 (severe depression) and every respondent receives a score from zero to 64. The inventory items include depression factors of sadness, pessimism, lack of enjoyment, lack of self-confidence, sensitivity, lack of concentration, etc. The scores between 0-4 is low level and it means there is no depression. From 5 to 7 there is a minimum level of depression. The scores from 8 to 15 is medium depression and the score above 16 shows the highest level of depression.

Beck and colleagues reported the internal consistency of this instrument as (r=.73) to (r=.92) with the average of (r=.86) and Alpha level (a=.86) for the patients and (r=.81) for healthy people. This reliability has been reported in some studies (e.g., Beck, 1984, 2000; Alto, 2012; Shafer, 2006; Nuevo, 2009).

Data were analyzed through descriptive statistics (i. e., Frequency, mean and standard deviation) and inferential statistics (i. e. Pearson correlation coefficient, and Mann U Whitney) through Statistical Package for Social Sciences (SPSS), version 21. In the present study Beck's questionnaire was given to 21 participants and its Cronbach alpha was (0.733) at the significant level (p<0.05).

Results

Sixty six participants participated in the present study. 28 participants received surgery and 38 did not receive an operation. The mean of age among the before surgery group was 22.84 ±3.636 and among the after surgery group it was 24.46±4.435. Totally, 31 females and 35 males participated in the present study. In the operated group the highest frequency included 13 (46.4%) participants with diploma at the educational level and 17 (60.7%) participants who had non-governmental jobs. The range

of their age was from 19 to 36 years old. 21 non-operated highest frequency participants who held diploma included 21 (55.3%) participants (55.3%) and 19 (49%) participants had non- governmental jobs. Their age ranged from 18 to 32 years old (see Table 1).

In the present the amount of depression showed no significant difference between the two groups and the results showed that the patients with gender dysphoria in both operated and non-operated group were suffering from severe depression (p=0.691). The results are shown in Tables 2 and 3.

Moreover, the correlation between the amount of depression with the demographic variable like age, gender, job, and educational level in both groups was analyzed. In the operated group, there was a significant correlation between depression and age (r=.389) but the correlation between depression and other demographic variables was not significantly seen (p<0.05). Table 4 shows the results.

Since the data were not normally distributed, the analysis of Mann Whitney U test was used to compare the difference of depression in the two groups. Table 2 shows that there is not a significant difference between the two groups' depression (P=0.691) although the difference exists, it does not reach significant level (p<0.05).

To calculate the correlation between depression and age, Pearson correlation was used. Table 4 shows that the correlation of depression and age is significant (0.389) in the operated group at the significant level (p<0.05). The eta square was used to measure the correlation of depression and other demographic variables. Results show that there is not a significant correlation between depression and demographic variables like gender, occupation and educational level.

Discussion and Conclusion

The findings of this study showed that the difference between the two groups' depression was not significant. The amount of depression was severe in both groups. This may be explained in terms of the cost that the patients have to pay for the operation and the processes which are very difficult (Michel, 2002). These patients face the opposition of their families. They are often jobless or work in non-governmental institutes. Thus they cannot afford the operation cost. This may make them depressed. These patients are dealing with physical, mental and social problems and look at the operation as the way they can be free from these problems. Sometimes, the presence of their names in the operation list can help them to overcome depression (Michel, 2002).

The results of the present study are in line with Reisner (2016) who studied 298 females with dysphoria in Boston, US. From 2012 to 2015. The results showed that 35.4% of them had severe depression and 14.7% of them had suicide history. The results are also matched with De Cuyopere (2006) who conducted a longitudinal study on

Table 1: Demographic variable (i.e., age, gender and educational level) among operated and non-operated participants

Demographic		Operated participant with gender dysphoria	Non-Operated participant with gender dysphoria	Significance level based on Mann Whitney
Age	Average	19-36	18-32	0.133
	mean	24.46	22.84	
	SD	4.435	3.636	
Gender	Male	18(64.3%)	17(44.7%)	0.119
	Female	10(35.7%)	21(55.3%)	
Occupation	Unemployed	8(28.6 %)	13(24.2%)	0.162
	Student	3(10.7%)	6(15.8%)	
	Non-governmental	17(60.7%)	19(49%)	
Educational level	Under diploma	11(39.3%)	21(55.3%)	0.280
	Diploma	13(46.4%)	10(26.3%)	
	Two years after Diploma	1(3.6%)	3(7.9%)	
	Bachelor	3(10.7%)	4(10.5%)	
Total		28(100%)	38(100%)	

Table 2. Descriptive statistics of depression among operated and non- operated participants

	Operated	Non-Operated
Depression	**51.35±6.91**	**50.97±7.39**

Table 3. The Mean of depression in operated and non-operated participants

Mann Whitney U Test of Depression				
	Mann Whitney	Sig.	Mean of operated participants	Mean of non-operated participants
Depression	499.500	.672	34.66	32.64

Table 4. The correlation coefficient of depression with demographic variable

		Occupation	Educational level	Gender	Age
Depression	Operated	.189	.105	.090	.389*
	Non-operated	.251	.186	.012	.192–

60 patients with gender dysphoria and noted that they faced high level of anxiety and depression. Several studies (e. g. ., Hepp, 2005), reported the highest correlation between gender dysphoria and other mental disorders. Campo (2003) in a study reports that gender dysphoria is correlated to personality disorder (79%) and ill-mannered behavior (20%).

Katz and colleagues (1985) studied the patients who were suffering from gender dysphoria. They found that the children with gender dysphoria were suffering from anxiety, depression, and behavioral affective problems. Some of these patients experienced learning problems and failure in schools. Committing suicide was also seen among these patients.

The results of this study, however, were not matched with several studies (i, e., Cardoso, 2016). For example, in the study, conducted by Cardoso (2016), results showed that 47 patients with operation (MTF) showed better mental health in social and psychological relations after a year of operation. But they faced physical problems and self-independent relations.

Farner and Cocust found that the patients after operation overcome their depression, lack of stability, sexual and social problems (cited in Moshtagh, 2007).

Hess et al (2014) examined 119 females in Germany and 65.7% of those female patients were satisfied with their life five years after the operation. In another study Tiffiny (2010) worked on 247 (MTF) patients and found that their quality of life was developed and significantly improved. Ruppin (2015) conducted a follow-up study and found that 71 patients with gender dysphoria after 10 to 24 years could develop their social welfare and found a job. Thus their life was comfortable and they were satisfied with their interpersonal and sexual relations. These patients are satisfied when they have the operation since their physical and mental situations become parallel and enjoy having their identity and self-confidence (Ceglie, 2000). However, there are some reasons why they did not reach satisfaction, they may face some physical problems like the operation and physical pain, and not having an altered face or voice can affect their behaviors. These problems may limit their life and bring them depression (Michel, 2002). Moreover, after the surgery, they may face lack of beauty which is the goal for female patients (DeCupere, 2006). Other problems like lack of relationships with the family members and the other people and isolation may affect their life and make them depressed. Some families do not understand these patients. Studies (e.g., Cohen, 1999) show that they have strict and disciplined parents who reject these patients. In Iran, about 70% of families are angry with their children who want to talk about their gender dysphoria (Rahimi Ahmadabadi, 2016). This may affect the patients' mental status. Lack of family and friends' support with the lack of medical treatment depresses these patients even after the operation. Family should believe their problems since their family may have some wrong pre-supposed ideas (Parola, 2010). This can be improved through family and social support which help the patients to overcome their gender problems (Besharat, 2012).

The other problem is that the patients may not receive what they perceived before. The patients who are married and then do the operation may be divorced and lose their children. This causes them to feel stress, anxiety and disappointed status (Mohr, 2008). This situation can be worse since Iran is a religious country which follows some cultural values (Asgari, 2007).

This study dealt with the variable of patients' gender, education and occupation which showed no significant difference between the operated and non-operated patients. But there is a significant relationship between age and depression among the operated participants. In other words, the patients who had the operation faced higher levels of depression in accordance with their age. This may be due to Iranian cultural and social situations which affect the patients' lives. Social and cultural positions may affect their educational and social activities in a very limited manner. They also cannot find their partner easily and the lack of stability, especially when they become older may make the depression more severe.

In fact, people's negative view on gender dysphoria in Iran causes these problems at the social and cultural level. Thus these patients are depressed and mentally retarded. Lack of family and social support after the treatment may be the main reason for the stability of the depression even after the operation. Thus operation is not enough by itself. There is a need for consultants, social and family support, cultural and religious acceptance. Psychoanalysis and psychological treatment are also needed (Michel, 2002). The investigation of such problems mentioned above can improve the patients' feelings before and after the operation (Norian, 2008). This can give them an ordinary life which helps them to be active in the physical, mental and social activities like other people in the society.

Acknowledgment

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An epidemiological study of suicide attempts and to determine the correlation between attempted suicide causes and demographic characteristics of people in Kermanshah Province during a year

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Abstract

Introduction: Suicide is a hidden problem, avoidable and tragic in the public health community. Suicide is due to consequences of social, economic and psychological damages imposed by the community. The suicide rate in Kermanshah province is very high and alarming. This study was carried out with the aim to evaluate the personal characteristics and risk factors of suicide attempts.

Materials and Methods: The population of this descriptive and analytical study was people who committed suicide in 2014 and have been transferred to hospitals in Kermanshah and this study examined people who had acknowledged individually or =through companions, their wish to suicide. To collect information the Check list consisting of information regarding suicide and social effective factors in suicide, was used.

Findings: A total of 2,501 people who had committed suicide were studied. Most suicide attempts in both genders were seen in the category less than 20 years and a total of 74.4 percent of people who commit suicided were below 30 years. In all age groups more women than men had committed suicide. Statistics on suicide in marriedwomen was twice that of single women. More unmarried men than married men had attempted suicide. In most of them, the most common cause was conflict with parents and conflict with their wife and so it was due to psychological problems. Relationships causing suicides, by individual characteristics of suicide attempters, was significant.

Discussion and Conclusion: Identifying some factors for predicting the risk of suicide from looking at epidemiological studies on people who have attempted suicide can be a good practice for prevention by social planners, and health officers.

Key words: attempted suicide, causes of attempted suicide

Introduction

Nowadays, suicide is being considered as a general problem of Public health in all communities, meanwhile it is a sad and preventable problem of public health(1). Suicide due to social, economic and mental consequences imposes great damage to society(2). Suicide isn't an accidental and meaningful action, rather it is a way to get out of a predicament or crisis that causes a person extreme suffering, without exception(3). However it seems that suicide is a personal action but social bonds have an important role in causing it and suicide is followed by grave consequences. In Iran, suicide is in tenth place in cause of death classifications and almost 11 persons daily and more than 4000 persons annually are dying because of suicide. According to official statistics the suicide rate is about 6 persons per 100,000 persons yearly(5). In Ilam, Boshehr, Khuzestan, Kohgiloyeh Va Boyer Ahmad, Fars and Kerman provinces the suicide rate is higher in women than men(3). However there is much progress in identification of causes and risk factors and persons at risk, but there is a significant gap in knowledge relevant to suicide and acting upon that(6). Results of Naghavi and et al (1379) showed that suicide in ages 10 to 80 is more than rage, in ages 15 to 29 more than cancer, in ages 10 to 40 more than infectious diseases, in ages 15 to 24 more than death caused by cardiovascular diseases and this shows shows it is a real health problem(7). A study has been done by Tanomand (1378) in Maragheh city and results show that the most important reason for attempted suicide was family and marital problems(8).

Based on Yusofi et al (2001 those in stress prior to suicide were 86.2% and Family involvement was found in 83.1% of the highest numbers of suicide attempts(9). Khazayi and Parvizi Fard (1382) showed in a study that the highest rate of suicide attempts was in singles, housewives, unemployed people and persons with secondary school education10. Sayad Rezayi et al's study concluded that the highest successful suicide attempts was in the age of 15 to 24 (34.8%), in females (62.5%) in the married (57.8%) and in urban society (65.6)(11). Heydari Pahlavian showed in a study that the most important reasons for suicide are family conflict, spouse involvement, mental illness and unemployment in men. Depression is the most common psychiatric disorder in suicide attempters(12). Tuckman and his colleague showed in a study that between age, gender and racial groups, persons who are 45 years old and older, men and caucasians have the higher suicide risk(13). Gouda et al in a study concluded that 75% of all suicide attempters were farmers, housewives and normal workers(14). Findings of Milner et al are claiming that male and female suicide rates correspond increasingly in women's workforce participation, unemployment and people above 65 years old proportionately. Reduction in suicide rate of both men and women is related to increasing per capita health expenditure and higher fertility is related to reducing the male suicide rate. This study showed that participation of women in the workforce is a more effective factor in men's suicide rate(15). In Haw et al's study, potential risk factors for suicide consist of male gender as a teenager abusing drugs or alcohol and history of self-harm (16). In Gunter et al's study results showed that mental and psychiciatric disorders are the most important predictive factors for suicidal thoughts and self-harm without attempt to kill(17). Based on Xia et al study results, family conflicts, chronic diseases and economic problems are the most important risk events of suicide attempts in middle aged people(18).

Materials and Methods

This is a descriptive analytical study. Studying society consists of all people who attempted suicide during a one year period by self confession or reports from their companions, who visited hospitals in Kermanshah province. For data gathering, a check list including suicide attempters' demographic information and effective social factors in acting on suicide was used. Content Validity of this check list was confirmed by professors. Data was entered into the checklist from questionnaires in each hospital after identification of suicide attempters through interviewing the client or the aware companion. The data was entered into SPSS 16 program after gathering, and correction and coding and it was analyzed using descriptive statistics indexes including Frequency distribution tables, two dimensional tables and statistical tests including square K test.

Findings

In the recent survey, the number of suicide attempters who came to Educational Therapy centers and hospitals of Kermanshah province during 2014 was 2,501, that 1,406 were female and 1,095 were men. Average age in male suicide attempts was 28.77 and in females was 28.92. Imposing t test on average age didn't provide a meaningful difference between the two sides from the age aspect. Totally, 74.4% of suicide attempters were below 30 years old and the most attempts to suicide in both sexual groups in age classification is found below 20 years old (58.3%). In all age groups, the female number is significantly more than male attempters. In single men (29.7%) and in married women (29.5%) rate of suicide washigher.

By using X^2 test between gender and cause of attempt to suicide, age and reason for attempting suicide there was a meaningful connection. The most common reason to suicide in men was conflict with parents (21.8%) and in women was conflict with husband (17.9%). In age group below 30 years old the most common cause for taking action to suicide was conflict with parents (below 20 years old 16.4% and for 20 – 29 years old 18.2%) and in the age group above 30 years old conflict with husband (9.9%) was the most common reason to suicide. Relationship between living area and suicide attempt cause became meaningful. The highest number of attempts to suicide (78.8). was observed in city residents. The highest number of attempts to suicide in both urban and country areas was attributed to family conflict with parents.

Relationship between education and the reason for suicide attempt became meaningful. The most common reason for suicide attempt in illiterates was marital conflict (2.7%) and in other people with educational level below high school diploma and above that was conflict with family (below diploma 23.6%, diploma 11.8%, above diploma 3.2%). Relationship between occupation and the reason to suicide attempt became meaningful. The most common reason for suicide attempt in working people (3.4%), school and college student (8.6%), unemployed (18.4%) and the other (2.3%) was conflict with parents and in housekeeping people (16.6%) was marital conflict. In women the highest number of suicide attempts was in housekeepers in (34%) and in men the highest number of suicide attempts was in unemployed people (21.9%) and the least number were observed in retired people (0.2%).

In total, the highest and the least number of suicide attempts took place in summer and in winter, respectively. Rate of suicide attempts in men was observed more than women in autumn (13.2%). The result of this study has shown totally 4.1% of participants in suicide action, had a successful outcome and 64.1% of them were for women and 35.9% were men. The mortality rate due to suicide in women was 1.7 times more than men. Burning Self-immolation (58.3%) was the most method taken to suicide that led to death. As you see in Table and Diagram 1, in both male and female groups suicide attempt was made by taking pills and using poison and the biggest causes were conflict with parents and spouse and after that mental health problems and then family and economic problems. Connection between suicide attempt causes with personal features of people who attempted suicide became meaningful. Using burning/self-immolation was the most painful and the most excruciating suicide ways that were common in women and in ages 20 – 29.

Discussion

Suicide problems originate from different aspects and it is a multi-cause phenomenon. These people feel the only way out of their problems is to suicide. Most studies showed that most cases of suicide attempts happened in people below 20 years old (2, 19 and 20). In this study, the most common reason to suicide was seen below 20 years old which indicates the vulnerability of people in adolescence to the teenager period, to suicide attempts(2). Higher rates of suicide in teenagers and recognition and paying attention to counteracting factors and reasons to suicide must be considered as a serious and important health issue.

The result of previous studies showed that women attempt to suicide more than the other gender (12, 21, 23). In this study, women attempted to suicide significantly in all age groups. Totally the proportion of women to men was almost 1.3. The idea of "Successful suicide in men is more than in women" didn't prove to be the result of this study and the proportion of successful suicides in women was more than in men. The result of study shows that married women take action more than single ones. This is despite the fact that in bachelor men the suicide rate was more than

married ones. This result matches with recent results(12, 20, and 24). The reason that married women attempt to suicide more than singles must be found in post-marriage problems and their spouses' behavior. About women, the highest number of suicide attempts in was observed in housekeepers while in men, the highest number was seen in unemployed men. This study's result matches recent results in Iran(2, 12, 20, and 25). There is a meaningful connection between not having a job and suicide attempt that matches Nojumi et al (22). The most common reason of suicide attempt in men, unemployed and age below 30 was conflict with parents and in women, housekeepers and ages above 30 was conflict with spouse. This result matches the studies(12, 20).

In the current study, most suicide attempt cases were seen in urban residents and the biggest reason for suicide attempts in both urban and rural groups was family conflict which matches the study result(3); but Xia et al who showed that suicide rate in rural middle aged people in China is three to five time more than urban middle aged people didn't match(18). Most women who attempted suicide had the wife role and in men had the child role in the family. In people with Head of the family and spouse role, the most common cause for taking action to suicide was marital conflict and in children the most common reason to suicide was conflict with parents. The most common reason to suicide attempt in single people was conflict with parent, in married and divorced people was conflict with spouse and in widows was mental health problems. Most suicide attempt cases were in men and women with education less than diploma and the least that were seen were within academic educated men and women which is matched with previous results(2, 12, 20). Illiteracy and low educational level are from the factors that are known risk factors for suicide attempt.

In this study most suicide attempt causes were conflict with parents, family and then mental health problems. Shakeri concluded in his study that female suicide attempters had experienced distresses like marital struggles, family conflicts, emotional problems and failure in education as factors more than other mental, social and psychosocial stress factors, while in men occupational and economic problems had effects more than mental, or social factors(20). Recognition of some risk predictive factors after doing epidemiological studies on people attempting to suicide can present a proper way for prevention for social, and health care planners.

Teenagers, especially young women and probably people who have more marital, domestic and educational problems are the more vulnerable groups(21). Young ages between 15-24 years old, female gender, lack of education, unemployment, single life and history of social and economic deprivation are potential suicide risk factors(14). In our study, most common way to suicide in married women was burning by self-immolation and the reason was marital conflict which matches the study of Amir Moradi and et al (26). In this survey it has been cleared that the suicide proportion that led to death in

Demographic features		Family conflicts with parents Count	Percent	Family Conflict with Spouse Count	Percent	Family conflicts with children and others Count	Percent	Divorce and forced marriage Count	Percent	Physical and mental illness Count	Percent	Individual Addictions, Parents and Spouse Count	Percent	Family problems and economic poverty and academic failure Count	Percent	Other and unknown Count	Percent	P value
Gender	Male	543	21.8	154	6.2	36	1.4	5	0.2	193	7.7	32	1.3	89	3.6	41	1.6	<0.0005
	female	472	18.9	447	17.9	78	3.1	11	0.4	241	9.6	16	0.6	99	4	42	1.7	
Age	Under 20 years old	410	16.4	93	3.7	25	1	2	0.1	141	5.6	7	0.3	59	2.4	33	1.3	<0.0005
	20 to 29 years	456	18.2	260	10.4	37	1.5	13	0.5	187	7.5	27	1.1	80	3.2	30	1.2	
	30 to 39 years old	109	4.4	150	6	12	0.5	1	0.039	56	2.2	7	0.3	28	1.1	10	0.4	
	400 to 49 years old	34	1.4	61	2.4	12	0.5	0	0	28	1.1	4	0.2	10	0.4	5	0.2	
	50 and above	8	0.3	37	1.5	28	1.1	0	0	22	0.9	3	0.1	11	0.4	5	0.2	
Married	Single	840	33.6	47	1.9	42	1.7	7	0.3	250	10	27	1.1	120	4.8	49	2	<0.0005
	Married	158	6.3	551	22	68	2.7	6	0.2	171	6.8	19	0.8	60	2.4	28	1.1	
	Wife died	11	0.4	0	0	3	0.1	0	0	7	0.3	1	0.039	0	0	1	0.039	
	divorced	8	0.3	3	0.1	1	0.039	3	0.1	6	0.2	1	0.039	8	0.3	5	0.2	
Level of Education	illiterate	25	1	67	2.7	30	1.2	0	0	33	1.3	4	0.2	9	0.4	8	0.3	<0.0005
	Under the diploma	591	23.6	346	13.8	48	1.9	11	0.4	209	8.4	27	1.1	105	4.2	36	1.4	
	Diploma	294	11.8	126	5	17	0.7	2	0.1	123	4.9	12	0.5	46	1.8	21	0.8	
	Super-diploma and higher	79	3.2	50	2	16	0.6	3	0.1	48	1.9	2	0.1	22	0.9	7	0.3	
	Unknown	28	1.1	12	0.5	3	0.1	0	0	20	0.8	3	0.1	6	0.2	11	0.4	

Table 1 shows connection between demographic features of people who attempted to suicide and the cause

Diagram 1 - Connection between demographic features of people who attempted to suicide and the cause

Diagram 1: Distribution of suicide attempters by type of device
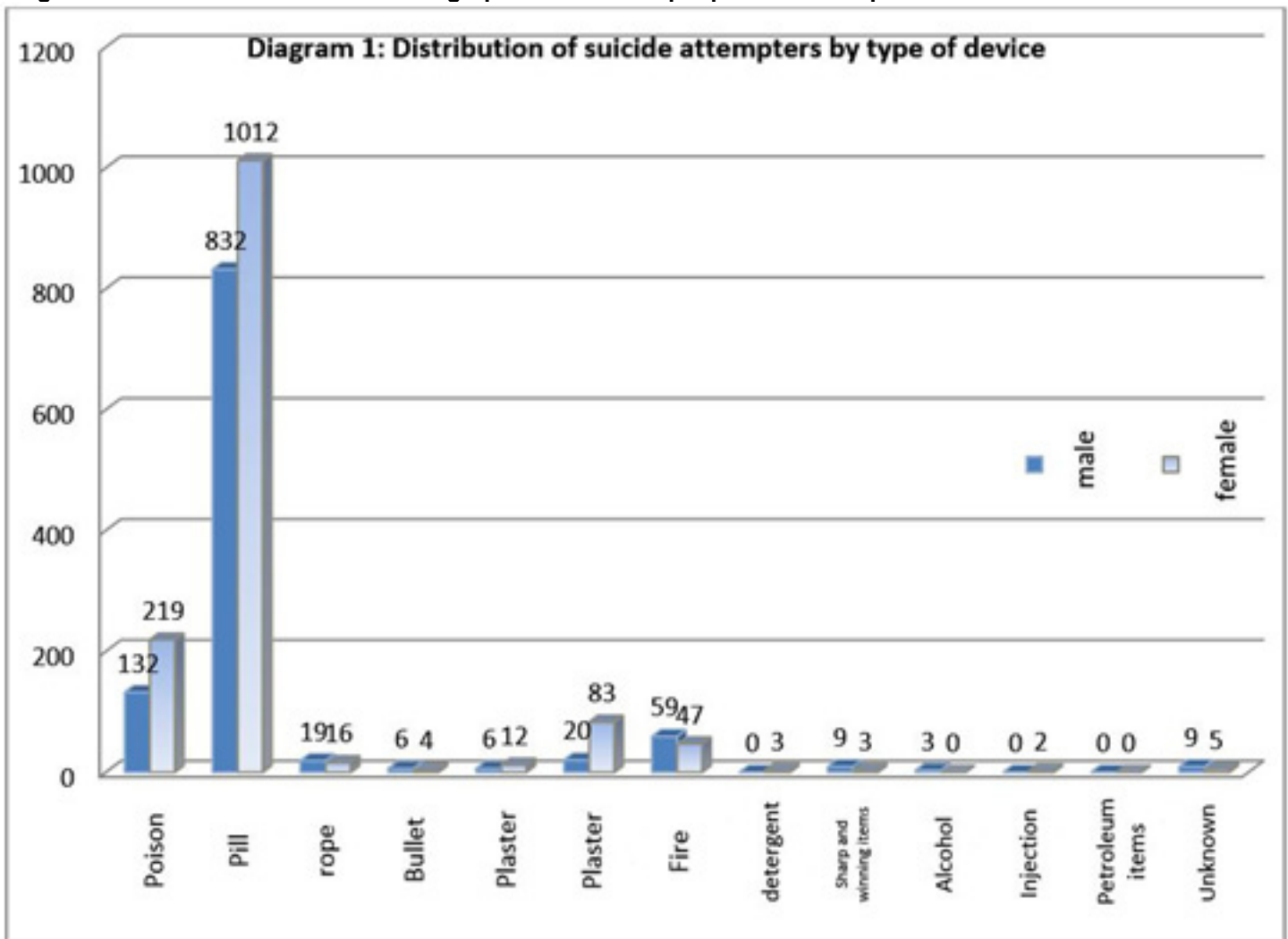
men and burning self-immolation is the most common way. 49.5% were housekeepers and 28.2% were unemployed.

In the study of Judd et al study that checked the dead people due to suicide, one third of them were married and more than one third of them were working (39.2%) and one fifth of them were unemployed (20.8%)27. In this study, motive and reason to suicide of 1.9% was due to addiction to drugs and 1.5% of surveyed people attempted to suicide because of that reason. In the study of Skala et al the suicidal thoughts in teenagers with Alcohol dependence problems, illicit consumers of drugs and teenagers with low education have been reported (28). As the Haw et al study reported, potential risk factors for male gender suicide attempts are being a teenager or young, drugs or alcohol abuse and history of self-harm(16). It seems that addiction and drug overuse problems lead to suicide attempts more than is reported and it may be not mentioned in suicide attempters self-reporting or their aware companions due to social considerations.

Conclusion

This study's result showed that being young, female gender, low educational level, unemployment in men and domestic conflicts and mental problems especially married status,

and domestic conflicts with husband in women are important factors of suicide attempts in surveyed people. Married and housekeeper women, unemployed bachelor men and teenager, and less than 30 years old are the most vulnerable social strata in this case. It seems that work is a protective factor against suicide. Unemployed people have a higher rate of suicide, probably due to stressful life, creation of a mental illness background and economic – social matters are unemployment consequences. Social and government support for married women against husband's misbehavior can reduce suicide rate in these women.

Since most reasons for suicide attempts is domestic conflict and psychological-mental health problems, developing governmental and publicly available counseling centers and encouraging families to visit there for solving domestic and psychological-mental problems can be an effective way to manage family problems and stresses that lead to suicide. Also education through media is an important factor that will lead to awareness and suicide rate reduction. Stemming social problems and difficulties and trying to resolve them are the factors that can lead to decreasing suicide.

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The effectiveness of life skills training on happiness, mental health, and marital satisfaction in wives of Iran-Iraq war veterans

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Abstract

Background: Injury due to war or accidents causes numerous mental, physical, and social adverse effects on affected individuals and their family.

Aims: This study was conducted to determine the effectiveness of life skills training on happiness, mental health, and marital satisfaction in wives of Iran-Iraq war veterans.

Methods and Material: In this semi experimental, controlled study with pretest-post-test, 102 veterans in Shahrekord, southwest Iran were randomly assigned to two groups, intervention and control, after they filled out a written consent form. The intervention group alone received training on four domains of life skills, coping with stress, problem solving, decision-making, and communication skills, for eight weeks. Oxford Happiness Questionnaire, General Health Questionnaire (GHQ-28), and ENRICH Marital Satisfaction Scale were administered at three steps, before intervention, immediately after intervention, and six months after intervention (as follow-up). The data were analyzed by analysis of covariance in SPSS 23.

Results: The mean scores of happiness and mental health indicated a significant difference between the two groups at posttest (P<001). But in follow-up, the difference was significant for neither of the variables (P>0.05). Mean scores of marital satisfaction exhibited significant difference at both posttest (P<001) and follow-up (P=0.001) between the two groups.

Conclusion: Life skills training for veterans' wives can help them promote their mental, physical health, and marital satisfaction, but the findings on follow-up indicate that this effect is not lasting. Therefore, life skills training should be done continuously particularly to promote mental health and happiness.

Key words: Mental Health, Happiness, Life, War veterans

Introduction

World Health Organization (WHO), with UNICEF coordination, has launched Life Skills Training Program as a primary prevention and comprehensive project of health promotion in children and adolescents. WHO defines life skills as "the ability to behave adaptively and positively to be capable of coping with life necessities and challenges". Furthermore, WHO has introduced ten skills as main life skills including decision-making, problem solving, creative thinking, critical thinking, effective communication skills, interpersonal relationships skills, self-awareness, empathy, and coping with stress and emotions (1). Chronic diseases can cause negative effects on quality of life and various aspects of health (2-9).

Making attempts to understand and assist the psychiatric victims of wars and accidents requires psychiatric and psychological interventions to promote and maintain their health (10). Studies have shown that posttraumatic stress disorder (PTSD) affects not only the patients but also their family function such as family cohesion, parents' satisfaction, relationship with spouse, spouse self-identification, and children's emotional and functional safety (11-14). The veterans of Iran-Iraq War suffer from different complications and trauma, decrease in libido, offensive disorder, conflict, and psychotic symptoms (15, 16) which can influence the happiness, mental health, and marital satisfaction in them and their families.

Happiness is a kind of feeling positive. Happiness means increase in positive feelings, high life satisfaction, and relief of negative feelings (17). Experiences of happiness depend on self-concept. People with low self-esteem and self-worth are often unhappy (18). Happiness rate is likely to increase through training in the ten life skills.

Mental health is a state of well-being in which people realize their potential, cope with routine life stresses, can function usefully and efficiently, and help community (WHO, 2005), and marital satisfaction refers to individual experiences of marriage that are only measured by response to the degree of the pleasure derived from marriage (19). Studies have indicated that dissatisfaction with married life is associated with development of depression (20, 21), and marriage compatibility is lower in the wives of the veterans with PTSD.

Moreover, marriage compatibility was considerably lower in the couples both with PTSD than those with only the veteran suffering from PTSD (22). A study has shown that the chemical veterans of the Iran-Iraq War are dependent on others, particularly their wives, and cannot do even their daily activities and hence are under stress (23).

Many studies have been conducted on the effect of life skills training on different populations with different problems indicating the efficiency of this method. The effect of life skills training on relief of stress, prevention of high risk sexual behaviors, and abuse of alcohol and substances in adolescents has been reported (24-27).

Codony et al found that life skills training for adolescents caused increase in self-confidence, life satisfaction, and improvement of problem solving (28). In a study in Mexico, life skills training for girls led to increased self-efficacy and self-esteem after training (29).

The soldiers with PTSD have been reported to be involved in family aggression more frequently than those without PTSD (30). The studies have shown that the families of the war-afflicted people suffer from many problems requiring therapeutic interventions. Accordingly, a significant decrease in severe psychiatric disorders was seen in the war-afflicted families following psychological training (31). The studies of the people injured due to war or trauma (psychiatric and physical injuries) and their families have indicated that it causes not only psychological, physical, and social impacts on the injured people but also affects their family members, particularly wives, indirectly, and is associated with many adverse effects in different domains, including marital, family, and interpersonal, as well as psychiatric disorders, depression, and anxiety. Previous studies have mainly described the problems in these families and less frequently investigated the educative and therapeutic interventions.

The training on managing anger and stress, decision making, problem solving, and communication skills delivered to the relatives of this subpopulation of the community is likely to contribute to both prevention and resolution of the current problems.

Therefore, the present study was conducted to investigate and follow up the effect of life skills training on happiness, mental health, and marital satisfaction in the veterans' wives in southwest Iran. The findings of this study can help plan for mental health promotion in the veterans' wives to resolve the marital and familial problems and increase the rate of life satisfaction in these families.

Materials and Methods

In this controlled, quasi-experimental study with pretest and posttest, the study population consisted of the wives of all veterans with 25-70% physical and psychiatric injuries due to war in Shahrekord, southwest Iran. Sampling was random and convenience. Because the participants were selected from the Martyrs Foundation, primary sampling was convenience. Then, as the list of veterans with 25-70% injuries was provided, 102 veterans were selected according to convenience sampling and then their wives were enrolled in the study. Regarding first type error=0.05, power=0.80, happiness mean score of 13.20 in a previous study (32), and 87.2 difference in effect size (delta=2.87), 48 people were assigned to each group. To further the rigor of the study and deal with possible attrition, 51 people were included in each group and totally 102 people were investigated. The participants were randomly assigned to two 51- people groups, case and control. The research protocol was registered as 89-5-10 by the ethics committee of the university.

The participants in the intervention group attended eight sessions of life skills training on four domains, stress management, problem solving, decision making, and communication skills. The control group underwent no treatment.

The protocol of life skills training
The intervention group received life skills training on four domains consisting of stress management, problem solving, decision making, and communication skills within eight sessions, and the control group underwent no intervention. To increase the efficiency of training, the intervention group was subdivided into three groups of 17 each and the training was conducted within one 2-hour session per week separately for each subgroup.

In each of these sessions, a skill was discussed and the homework, including special forms appropriate for the session content, was developed prior to that session and assigned to be done at home, in addition to the assignments within sessions. This training was conducted by a trained and experienced clinical psychologist. At the beginning of any session, the previous session was examined and assessed and then the new subject was introduced. The subjects for stress management were an introduction to stress, positive and negative stress, stress impacts and consequences (physiological, psychological, and behavioural), different methods of coping with the problems specific to the veterans' families, and assigning homework.

For problem solving skill, the sessions included introduction to problem, steps of problem solving, the ways of gathering data to arrive at solutions, detecting different solutions in coping with life problems and adopting the best one, the ways of clear thinking and problem solving in critical conditions, regulation and control and precision, reconciliation to resolve conflicts, the effect of problem solving on solving the daily problems of the veterans' families, and assigning homework.

For decision making skill, the sessions included the introduction to decision making, the significance of decision making in life, steps of decision making, gathering data as much as possible in decision making, decision making precisely based on the situations, planning for life, acceptance of decision making consequences, and assigning homework.

For communication skills, the sessions included the introduction to communication, definition of communication and associated factors, the process of establishing communication, being a good listener and the required skills for listening efficiently, verbal and nonverbal communication (features), effective methods of communicating with others, assertiveness, understanding others' feelings, respect for others' ideas, the methods of saying no to insensible requests, and assigning homework.

The study was conducted at three steps, i.e. pretest, posttest after two months of life skills training, and follow-up (six months after the last intervention). The two groups were assessed at each step of the study by administration of the research instruments. Follow-up was considered to assess the stability of the training in the intervention group.

Methods of data collection:
The data were gathered by three questionnaires as follows:
1. Oxford Happiness Questionnaire
This questionnaire, developed by Argyle et al, consists of 29 four-choice items. Each item is aimed to judge the happiness level of respondents. Argyle et al (1989) reported the reliability of this questionnaire 0.90 by Cronbach's alpha and 0.78 by test-retest with a seven-week interval (33). This questionnaire was translated into Persian by Alipoor and Noorbala and its reliability has been reported 0.98 by Cronbach's alpha, 0.92 by split-half reliability, and 0.79 by test-retest with a three-week interval. Furthermore, the face validity of the questionnaire has already been confirmed (34).
2. General Health Questionaire-28
This 28-item questionnaire investigates the illness, medical diseases, and general and mental health within the past month with minimal and maximal score of 0 and 56, respectively. This questionnaire was developed by Goldberg in 1972 and has been translated into 38 languages and is being administered in 70 countries. Its subscales are physical symptoms, anxiety symptoms and sleep disorder, social functioning, and depression symptoms. High reliability and reliability have been reported for different versions of this questionnaire (35-37). Williams et al in a study in England reported the reliability of this questionnaire as approximately 80% (37). Furthermore, its reliability has been confirmed for an Iranian population with Cronbach's alpha 0.97 (38).
3. ENRICH Marital Satisfaction Scale:
The original version of this scale consists of 115 items and 12 subscales. Given the large number of the scale's items and the participants' tiredness, a shortened, 47-item version of the original scale was developed. The subscales of this scale were personality issues, marital relationship, resolution of conflict, financial management, leisure activities, sexual intercourse, marriage and children, relatives and friends, and religious orientation. The replies to the scale's items were scored by a five-point Likert scale consisting of severely dissatisfied, moderately dissatisfied, very satisfied, and extraordinarily satisfied. The reliability and validity of this Scale have already been confirmed (39).

The demographic data of the participants (marital status, education level, age, place of residence, occupation, disability percentage of the veterans, and disability type) were recorded in a separate checklist. To study the association of happiness in the veterans wives, the mean (SD) scores of the two groups at three steps of the study were compared and the effect of difference on happiness was investigated in the intervention group by analysis of covariance. The data were analyzed by SPSSv23.

Results

The mean age of the participants was 40.61±5.49 years. 97.06% of the participants had at least elementary education. The highest frequency of education level was obtained for guidance education completion. 63.7% of the participants were living in cities and the rest in villages. 90.2% were housewives and only 9.8% were employed (mainly civil servants). Regarding the types of veterans' injuries, 26.5% were neurologically injured, 18.6% were injured by chemical weapons, 22.5% were physically injured, and 32.4% had combined injury. 85% of the veterans were 25-40% disabled (Table 1).

Table 1: The types of the injuries of participants' spouses

Type of injury Statistical index	Neurological	Chemical	Physical	Combined
Frequency	27	19	23	33
Percentage	26.5	18.6	22.5	32.4

Table 2 shows both frequency and percentage of injuries of the participants' spouses. As shown, the percentage of the injuries of most participants' spouses was 40% and the percentage of the least number of participants' injuries was 45%-55%.

Table 2: The frequency and percentage of injuries of the participants' spouses

Percentage of injury Statistical index	25	30	35	40	45	50	55	60
Frequency	24	11	21	31	2	2	5	6
Percentage	23.5	10.8	20.6	30.4	2	2	4.9	5.9

The mean score of happiness in the intervention group (49.39) increased more markedly than the control group (36.98) at follow-up (Table 3). Furthermore, Table 4 indicates a significant difference was seen in happiness mean scores between the two groups at posttest so that the mean difference was not significant after controlling for pretest scores as covariate.

Table 3: Statistical indexes of crude scores of happiness in participants of two groups

groups	Steps of study	Mean	Standard deviation	Standard error	Minimum	Maximum
intervention group	Pretest	34.33	12.17	1.705	33.51	35.15
	Posttest	49.39	12.69	1.759	45.85	52.83
	Follow-up	41.54	13.41	1.765	38.04	45.04
control group	Pretest	36.3	11.04	1.705	34.73	37.87
	Posttest	36.98	13.17	1.759	33.53	40.52
	Follow-up	37.96	11.61	1.765	34.46	41.46

Statistical power (0.998) indicated that the sample size was adequately large. Therefore, the difference between the two groups at posttest was confirmed and life skills training resulted in increased happiness in the veterans' wives at posttest, but no significant difference was seen in the mean scores of happiness between the two groups at follow-up, so that after controlling for pretest scores, the mean difference was not derived as significant (Table 2). Therefore, life skills training had no stable effect on happiness and the happiness rate decreased over time in the participants.

Table 4: Results of analysis of covariance for effect of life skills training on happiness in participants at posttest and follow-up

Statistical indexes Sources		F	P-value	Eta coefficient
posttest	Pretest	7.04	0.009	0.066
	Group membership	24.49	0.000	0.198
follow-up	Pretest	0.117	0.733	0.001
	Group membership	2.05	0.155	0.02

The mean score of mental health decreased markedly at follow-up in the intervention group (22.96). This means that after life skill training, mental health in the intervention group improved but did not change in the control group (37.57) (Table 5). Table 6 indicates that there is a significant difference in the mean scores of mental health between the two groups at posttest. Eta coefficient (0.635) indicated that 63% of the observed difference was explained by life skills training. Therefore, life skills training led to improvement of mental health in the veterans' wives at posttest. The mean scores of mental health were not significantly different between the two groups at follow-up (Table 7). In other words, life skills training had no stable effect on mental health in the veterans' wives and the mean score of the two groups was approximately equal six months after the last intervention.

Table 5: Statistical indexes of crude scores of mental health in the participants of two groups

groups	Steps of study	Mean	Standard deviation	Standard error	minimum	maximum
intervention group	Pretest	36.23	6.53	0.985	33.55	38.92
	Posttest	22.96	5.26	0.796	21.08	24.23
	Follow-up	34.57	6.44	0.932	32.72	36.42
control group	Pretest	35.57	5.79	0.985	32.73	38.41
	Posttest	37.57	6.31	0.796	35.99	39.15
	Follow-up	36.42	6.59	0.932	34.57	38.27

Table 6: Results of analysis of covariance for effect of life skills training on mental health in participants at posttest and follow-up

Statistical indexes Sources		F	P-value	Eta coefficient
posttest	Pretest	7.67	0.007	0.072
	Group membership	172.5	0.000	0.635
follow-up	Pretest	0.017	0.897	0.000
	Group membership	1.947	1.666	0.019

Table 7: Statistical indexes of crude scores of marital satisfaction in the participants of two groups

groups	Steps of study	Mean	Standard deviation	Standard error	Minimum	Maximum
intervention group	Pretest	135.68	25.53	3.74	132.53	138.84
	Posttest	176.77	27.66	4.05	168.73	184.81
	Follow-up	159.20	26.82	3.67	151.91	166.48
control group	Pretest	136.43	27.85	3.74	134.01	138.85
	Posttest	141.05	28.03	4.05	133.01	149.09
	Follow-up	140.70	24.49	3.67	133.41	147.98

The mean scores of marital satisfaction in the intervention group at pretest, posttest, and follow-up (135.68, 176.77, and 159.20, respectively) increased markedly compared to the control group (136.43, 141.05, and 140.70, respectively). This indicates increase in marital satisfaction in the participants (Table 7).

Table 8 indicates that a significant difference is seen in mean score of marital satisfaction between the two groups at posttest. In other words, life skills training led to increased marital satisfaction in the veterans' wives in the intervention group at posttest but this difference was not notable in the control group.

Furthermore, a significant difference in mean score of marital satisfaction was seen between the two groups at follow-up. Therefore, the significant difference in marital satisfaction between the two groups was confirmed at follow-up, and life skills training had a stable effect on marital satisfaction in the veterans' wives.

Table 8: Results of analysis of covariance for effect of life skills training on marital satisfaction in participants at posttest and follow-up

Statistical indexes Sources		F	P-value	Eta coefficient
posttest	Pretest	1.497	0.224	0.015
	Group membership	36.04	0.000	0.267
follow-up	Pretest	5.10	0.026	0.049
	Group membership	11.77	0.001	0.106

Discussion

Obviously, the veterans' families are affected with certain psychological and marriage incompatibility-associated problems and therefore their quality of life is affected (32). Meanwhile, veterans' wives are likely to experience greater levels of stress with mental health and life satisfaction being at higher risk than other family members (33).

These findings indicate that these problems have many negative effects on the veterans' family members particularly their wives, and life skills training can greatly enhance the methods of coping with these problems and their happiness. The present study indicated that the life skills training on four domains of coping with stress, decision making, problem solving, and interpersonal and social relationships could result in the relief of the problems in these families. More clearly, life skills training had no long-term effect on happiness in the veterans' wives. Carroll et al study demonstrated that training life skills can promote coping skills in the families of military staff to deal with adverse and unexpected circumstances (34).

Life skills training like mental health and resilience intervention for military staff's wives can reduce negative mental health symptoms, enhance resiliency, and improve coping skills (40).

Elliott et al's study found that training of problem solving as a life skill was effective in relieving depression in the family caregivers of disabled women (41).
The wives of war-afflicted people were mainly responsible for both caring for the veterans and the related problems and looking after children. This leads to heavy psychological and physical consequences in people under such circumstances. Therefore, the treatment of these people is far more complex.

Naturally, the problems in these families are much more complicated, representing that they require continuous training to cope with the problems, and no training and failure to support them leads to incidence and exacerbation of the problems.

In the present study, life skills training caused promotion of mental health in the veterans' wives. Similarly, Weines et al indicated that psychological education of Kosovo War-afflicted families suffering from severe psychiatric disorders led to remarkable relief of symptoms and improvement of mental health (31). Consistent with the present study, Layne et al reported a 58% decrease in PTSD and 20% decrease in depression after interventions (42).

However, in the present study, no significant difference was observed in the mean score of mental health between the two groups at follow-up. In other words, life skills training had no continuous and long-term effect in treating symptoms and promoting mental health in the veterans' wives, which is partially inconsistent with the study of Layne et al that reported an 81% decrease in PTSD symptoms and 61% decrease in depression symptoms four months after the last intervention (at follow-up) in war-afflicted adolescents (42). As previously argued, this inconsistency could be due to differences in the participants' experiences.

The results of marital satisfaction indicated that life skills training led to a stable increase in marital satisfaction in the veterans' wives. The findings of the present study are consistent with the study of Hojjat et al of PTSD effect on the spouses of veterans with PTSD. They conclude that education of coping with stress was effective in increasing the marital satisfaction in these women (43).

The researchers of this study argued that the symptoms of emotional indifference and anger should be especially

addressed in such people and treatment of the patients with PTSD should be based on life skills training and support for family (44).

The present study can demonstrate that the families of military staff with PTSD suffer from some problems that may be transferred even from one generation to another, including the problems related to intimacy and sociability, marriage incompatibility, adaptive communication and physical aggressiveness, disorders of interpersonal skills, and marital issues (45-47).

The life skills training used in the present study could relieve the above problems and strengthen adaptation to life circumstances, and lead to individual and interpersonal improvement and increased satisfaction with marriage and family life in these families.

Life skills training could lead to positive effects on mental and physical status and marital satisfaction in veterans' wives. The important implication of the present study was that life skills should be educated continuously for veterans and their families because the participants had recurrent symptoms and problems in the follow-up. Unfortunately, veterans' families have been recently abandoned unaided and only Counseling Center of Martyr Foundation is delivering individual and voluntary services to these families. In contrast, most of the necessary training for such families should be conducted in a group, continuously, and depending on the type of disability. This issue is more urgent for the families with veterans with more severe disability and neurological problems. Further studies are recommended to study the effect of psychological interventions on veterans' wives and other family members depending on the type of their injuries.

Conclusion

Veterans suffer from different types of handicaps and therefore their families, including wives, are variously affected. For example, the effects on the family of a veteran with PTSD may be widely different from those on the family of a veteran with a handicap from shooting. However, we decided to enroll veterans with different types of handicaps to have an adequate sample size. Consequently, the findings should be cautiously interpreted and generalized.

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The Role of Self-Compassion Factors in Predicting the Marital Satisfaction of Staff at Kermanshah University of Medical Sciences

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Abstract

Introduction: Marital satisfaction is one of the effective factors in job satisfaction. Therefore, the present study aimed to investigate the role of self-compassion factors in predicting the marital satisfaction of staff at Kermanshah University of Medical Sciences.

Material and Methods: In this descriptive, correlational and analytical study, the statistical population consisted of all staff at Kermanshah University of Medical Sciences, of which 280 staff (140 males and 140 females) were selected from both morning and evening shifts through convenience sampling according to the inclusion and exclusion criteria. Further, for data collection, a demographic questionnaire, the Enrich marital satisfaction scale and Neff self-compassion scale were utilized. Then data were analyzed through the descriptive and inferential statistics in the SPSS Statistics Software Version 21.0.

Results: The results of the present study revealed that marital satisfaction correlated with self-kindness (0.89), common humanity and mindfulness (0.89), isolation (-0.85) and over-identified items (-0.42) (p<0.01). The results of regression analysis also demonstrated that the items of self-kindness (β=0.89), common humanity and mindfulness (β=0.45) and isolation (β=0.37) could predict marital satisfaction, while the over-identified items could not (β=0.04).

Conclusion: Some effective steps can be taken towards improving marital satisfaction among staff using the results of studies and their application in relations between spouses, thereby resulting in satisfaction with life, improved quality of life, and job satisfaction.

Key words: marital satisfaction, Self-Compassion, University of Medical Sciences, Kermanshah

Introduction

Family has been introduced as a social institution or entity ensuing from the matrimonial bond between men and women. The presence of healthy and constructive interaction between humans and expressing love and intimacy to each other are the manifestations of social life. One's satisfaction with matrimonial life is regarded as one's satisfaction with family. On the other hand, one's satisfaction with family is regarded as one's satisfaction with life, thereby facilitating the growth and development of material and spiritual progress of societies. Moreover, marital relationship has been described as the most important and most fundamental human relationship since it provides a basic structure for building familial bonds and training next generations (1). Marital satisfaction is a major and intricate aspect of matrimonial relationships, that is, one of the vital aspects of marital satisfaction is the one experienced and felt by couples (2). The term 'marital satisfaction' denotes one's overall happiness and satisfaction with matrimonial life. Further, satisfied couples are normally in agreement, are satisfied with the type and level of their relationships and leisure time, and exercise good management in terms of time and financial issues (3).

On the other hand, self-compassion is related with self-kindness and common humanity and mindfulness, but it does not mean self-centeredness or preference of one's needs over other's (4). Having a compassionate attitude towards oneself, which balances one's mental outlook, is called 'mindfulness (5, 6). Mindfulness denotes one's non-judgmental and receptive attitudes towards oneself, so that one's thoughts and feelings are regarded in a way that there will be no need for them to be altered or excluded. In order for a person to experience self-compassion, it is necessary that he/she keeps his/her conscious mind in perspective. In other words, painful experiences are to be avoided because it is necessary for understanding one's feelings towards self-compassion (7). Neff (2011) proposed the structure of self-compassion in the form of self-acceptance health (4). Self-compassion, a loving and receptive stance towards one's undesirable aspects and life, encompasses three main components: self-kindness and one's understanding of difficulties, or in the event of inadequacies. Self-compassion has some shared human features in which sufferings and failures are the inevitable aspects of common human experiences. Furthermore, self-compassion encompasses balanced awareness of one's feelings. i.e. the ability to face painful thoughts and feelings instead of avoiding them without exaggeration or feeling pity for oneself (8). Not only does self-compassion protect one against negative psychological states, it also plays a vital role in positive emotional states. For instance, self-compassion correlates with feelings such as social bonds and life satisfaction (9, 7). Additionally, self-compassion helps with meeting basic needs of autonomy, competence and the need to communicate which are essential for human well-being based on the theory of Desai et al (2002)(10) and this attitude is related to many positive psychological consequences such as stronger

incentives for coping with personal and inter-personal conflicts, constructive problem solving and the stability of married life (11). The results of other studies have also indicated that self-judgment, isolation and mindfulness are directly related to reduced married life satisfaction and marriage instability (12). Neff &Beretvas (2013) found out that not only did self-compassion make people happier and healthier, it was also a good predictor of improving romantic relationships, thereby leading to the marital satisfaction of couples. Although the effects of self-compassion on personal performance have been addressed in some studies (Neff, 2009), very few studies have dealt with the role of self-compassion in inter-personal relationships and marital satisfaction (13, 14). On the other hand, in today's complex world, marital satisfaction and job satisfaction are seen as two important factors in human life, which are inextricably intertwined. Furthermore, the employees at medical universities, as custodians of improving health from the dimensions of physical, mental, improving quality and life satisfaction, have a special place. Therefore, the present study aimed to investigate the role of self-compassion factors in predicting the marital satisfaction of staff at Kermanshah University of Medical Sciences.

Materials and Methods

In this descriptive, correlational and analytical study, the statistical population consisted of all staff at Kermanshah University of Medical Sciences, of which 280 staff (140 males and 140 females) were selected from both morning and evening shifts through convenience sampling according to the inclusion and exclusion criteria. Further, for data collection, a demographic questionnaire, the Enrich marital satisfaction scale and Neff Self-compassion scale (Neff, 2003) were utilized (9).

Enrich Marital Satisfaction Scale (Short-Form): This 115-item scale was developed by Olson, Derankman and Forniro (1978, 1987). Soleymanian (1994) provided a short form of the questionnaire with 47 questions whose reliability was calculated by a panel of 11 experts through Alpha coefficient ($\alpha=0.95$), and this 47-item scale was employed in the present study (15). The reliability of this questionnaire was reported 0.95 by Olson (1989) and Soleymanian (1994) (Hamidi, 2007)(16, 15, 17). Sanaei (2008) expressed that the Alpha coefficients for the items of this questionnaire were as follows: marital satisfaction (0.9), personality issues (0.81), couple closeness (0.72), conflict resolution (0.68), financial management (0.75), leisure activities (0.74), sexual relationship (0.76), children and parenting (0.48), and equality between men and women (0.72)(18). Moreover, the reliability of this scale was measured 0.95 in a study done by Alidadi Thaeme et al (2014)(19).

Self-Compassion Scale (SCS): This 26-item self-reporting instrument was developed and validated by Kristin Neff (2003a) to measure self-compassion. This scale consists of six subscales: self-kindness (five items), self-judgment (five items), common humanity (four items), isolation (four items), mindfulness (four items), over-

identified (four items). The results of studies performed by Kristin Neff (2003a) on a sample of 391 university students were indicative of the high reliability and validity of this scale. Moreover, the internal consistency of the scale was calculated by Cronbach's alpha (α=0.92 for the whole scale)(9). Also, Cronbach's alpha for the subscales was as follows: self-kindness (0.78), self-judgment (0.77), common humanity (0.80), isolation (0.79), mindfulness (0.75), over-identified (0.81). Two weeks after the tests, the subjects were retested, and the test-retest reliability measured 0.93. In addition, to examine the convergent validity, the Rosenberg Self-Esteem Scale (RSES) was utilized which measured 0.59. To calculate the discriminant validity or divergent validity, the Narcissistic Personality Inventory (NPI) was employed, and no significant correlation was found between the two scales, an indication of its high discriminant validity. The concurrent validity was assessed through Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI), and the results were indicative of good validity. In a study conducted by Momeni & et al (2013), four factors (common humanity and mindfulness, self-kindness, isolation, and over-identified) were extracted from the questionnaire, and the internal consistency of the scale was examined through Cronbach's alpha (α=0.70 for the whole scale)(20). Additionally, Cronbach's alpha for the subscales were as follows: common humanity and mindfulness (0.71), self-kindness (0.75), isolation (0.72), and over-identified (0.65). Furthermore, the reliability of the whole questionnaire measured 0.72 in the present study. Then data were analyzed through the descriptive and inferential statistics in SPSS Statistics Software Version 21.0.

To commence the study, the Kermanshah-based hospitals were visited, the objectives of the study were explained to the employees of Kermanshah University of Medical Sciences, and then the questionnaires were distributed to them. According to the inclusion criteria, 280 employees were included in the study, and those who were unwilling to participate in the study as well as those who were suffering from physical diseases (heart disease, sexual disorders, etc.) were excluded from the study, and their questionnaires were given to others. To this end, the target subjects were assured that their information would be kept confidential.

Results

Of the total of 280 subjects of the present study, 140 students (50%) were male and 140 (50%) were female. The average age of the subjects was 33.41± 6.59, and in terms of education, the majority of students were studying B.A. (165 or 59%), 101 subjects were doing M.A. (35.6%), and there were 14 Ph.D. students (5.3%). In addition, the majority of participants had incomes between 8000,000 Rial and 15,000,000 Rial (110 or 39.5%), and those with incomes lower than 8000,000 Rial accounted for 4.8% (14 subjects). Moreover, the majority of subjects had been married for nearly one year (47 subjects or 16.8%), and most of them had one child (101 subjects or 35.9%). Also, the spouses of the majority of subjects were clerks

(157 subject or 56.3%) and had university education (198 subjects or 70.7%).

As shown in Table 1, the mean score and standard deviation of marital satisfaction were 118.87 and 19.81, an indication that the status of the marital satisfaction of the employees of Kermanshah University of Medical Sciences was average. Further, the mean score and standard deviation of self-Compassion measured 51.52 and 21.76, indicating that the status of this feature was above average (see Table 1).

The results of Table 2 showed that there were correlations between marital satisfaction and each of self-kindness (0.89), common humanity and mindfulness (0.89), isolation (-0.85), and over-identified items (-0.42). This result was indicative of the significant relationship between the variables (p<0.01). The results of the correlation coefficient of self-compassion with marital satisfaction are shown in Table 2.

The results of Table 3 shows that f=66.47, and this value is significant at 0.0001, and the items of self-compassion can predict Marital Satisfaction

The results of regression analysis demonstrated that the factors of self-kindness, common humanity and mindfulness and isolation could predict marital satisfaction with β coefficients of 0.89, 0.45, and -0.37, respectively. However, over-identified items could not predict marital satisfaction (β=0.04) (see Table 4).

Conclusion

The present study aimed to investigate the role of self-compassion factors in predicting the marital satisfaction of staff at Kermanshah University of Medical Sciences. The findings of the present study demonstrated that marital satisfaction positively correlated with self-kindness, common humanity and mindfulness and isolation, while marital satisfaction and over-identified items were negatively related. Further, self-kindness, common humanity and mindfulness, isolation and over-identified items could predict marital satisfaction. This finding was consistent with the results of studies conducted by Neff &Beretvas (2013), Baker & McNulty (2011), Yarnell & Neff (2013), and Ghezelsefloo, Jazayeri, Bahrami, and Mohammadi. (2016)(13, 11, 21, 22). To further explicate this finding, it can be expressed that self-compassion is accompanied by senses of originality, happiness, and value, and those with this feature are able to express themselves in their romantic relationships. Neff & Beretvas (2013) showed that there was a relationship between self-kindness and showing kindness to partners, and they also found out that the higher one's self-compassion would be, the higher the possibly for his/her spouse to consider him/her a protector (kind and affectionate, warm, and considerate) (13). The self-compassionate ones are able to have intimate relationships with others, thereby providing their spouses with more autonomy and independence (23). Additionally, the self-compassionate people see themselves as ones

Table 1. Mean and Standard Deviation of Variables in the Sample under Study

	Variables	Min.	Max.	Mean	STDEV
Self-Compassion	The Total Score of Marital Satisfaction	47	235	118.87	19.81
	Common Humanity and Mindfulness	7	35	19.17	7.10
	Self-kindness	5	25	11.06	7.02
	Isolation	4	20	10.57	4.52
	Over-identified Items	4	20	12.74	5.03
	The Total Score of Self-Compassion	20	100	51.52	21.76

Table 2: The Correlation Coefficient of Self-compassion with Marital Satisfaction

Variable	Self-compassion								Total score	
	Self-kindness		Common Humanity and Mindfulness		Isolation		Over-identified Items			
	Correlation	Sig.	Correlation	Sig.	Correlation	Sig.	Correlation	Sig.	Correlation	Sig.
Marital Satisfaction	0.000	0.89	0.000	0.89	0.000	-0.85	0.000	-0.42	0.95	0.000

Table 3. The Results of Regression Analysis for Predicting Marital Satisfaction Based on the Items of Self-Compassion

Sources	Sum of Squares	df	Mean Square	f	R	R^2	Sig
Regression	3739.19	1	66.47	66.47	0.89	0.80	0.0001
Remaining	91179.78	162	56.838				
Total	46517.97	163					

Table 4. The Regression Coefficients for the Prediction of Marital Satisfaction Based on the Components of Self-Compassion

Predictor Variables	B	β	t	Sig.
Self-kindness	6.81	0.89	25.77	0.0001
Common Humanity and Mindfulness	3.41	0.45	5.05	0.0001
Isolation	4.44	-0.37	8	0.0001
Over-Identified Items	0.44	-0.04	1.34	0.18

with defects, are aware of and accept their defects, can accept the limitations and defects of their spouses, and eventually have higher marital satisfaction (13). Breines & Chen (2012) showed that when the conflicts of self-compassionate people with their spouses were resolved, their self-confidence and sense of well-being would rise, while they would experience less distress in their relations, apologize to their spouses and improve the traumatic aspects of their relationships (24). On the other hand, the results of other studies have shown that the ones without self-compassion show more verbal aggression to their spouses, thereby overreacting in the event of anger or conflicts with their spouses with the aim of stabilizing their negative emotions (25, 9). Ryan and Desy (2000) were quoted by Neff & Beretvas (2013) as saying that the emotional flexibility

and balance developed by self-compassion would make one show a more constructive response, thereby resulting in the growth of cognitive health in interpersonal relations, and since self-compassion requires one's conscious awareness of emotions, he/she would avoid painful and uncomfortable feelings and approach them with kindness, understanding and common humanity, and eventually change negative emotion into pleasant states and positive emotions (26). Additionally, the results of the present study demonstrated that marital satisfaction correlated with common humanity and mindfulness. This result was concurrent with the results of studies conducted by Walsh et al, (2009) and Gambrel and Keeling, (2010) (27,28). To further explain this part, it can be expressed that self-compassionate people are more conscious

about their thoughts, feelings, and strengths and weaknesses of their married lives. As a result, according to Burpee & Langer (2005), this awareness creates a conceptual harmony for couples resulting in marital satisfaction (29). Ryan and Desey (2000) expressed that mindfulness helps one modify one's negative behavior patterns and automatic thoughts and adjust positive behaviors related to health (30). In other words, mindfulness can cause positive changes in one's happiness, wellbeing and satisfaction with life through combining liveliness and experience. The people with high levels of mindfulness develop constantly dynamic and flexible environments in their lives due to time management and no fear of changes, and these dynamic and flexible environments prevent the growth of chronic conflicts and long-term psychological and emotional distances between couples (29). Other results indicated that there was a negative relationship between isolation and marital satisfaction. In other words, the more isolated a person, the lower his/her marital satisfaction will be. To further explicate the matter, it can be expressed that one of the effective factors in marital satisfaction is communication patterns among couples, so that a healthy and constructive communication pattern is regarded as a major factor in marital satisfaction (31). Also, the type of interactions between couples within the living environment has a direct relationship with their happiness or misery. Couples who experience deep, reasonable, friendly and intimate emotional relationships are usually successful, positive and happy people. Conversely, couples without good emotional relationships are isolated, bad-tempered, have low adaptability in society, and feel miserable (32).

Acknowledgement

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Mediating role of irrational beliefs in the relationship between the quality of family communication and marital satisfaction

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Abstract

Introduction: Considering the importance of the family institution and that marital satisfaction plays the most important role in sustainability of marital life, this study aimed to investigate the mediating role of irrational beliefs in the relationship between family relationship quality and marital satisfaction.

Material and Methods: It was a correlation exploratory research. The statistical population of the study included employee women in Kermanshah University of Medical Sciences. 250 samples were available selected. Questionnaire by McKeon Family Crisis Assessment, Irrational Beliefs Questionnaire and Enrich Marital Satisfaction Questionnaire were used to collect the required data. Data were analyzed using SPSS-19 software and descriptive statistics, Pearson correlation coefficient and path analysis.

Results: The results of this study suggested a positive relationship between quality of family communication and marital satisfaction. Also, the results showed a negative relationship between irrational beliefs and marital satisfaction. Other results reported a significant direct relation between irrational beliefs and family movement for achieving help for marital satisfaction as 0.19 and -0.21, respectively, and there was a direct correlation between passive evaluation and irrational beliefs as 0.24, in which the coefficients were significant at level $p<0.01$, however no direct and significant relationships were found between other variables in the study.

Conclusion: Irrational beliefs to the relationship between the quality of family communication and marital satisfaction act as a mediator, and can be an advocate of family counseling in pre-marital counseling and marital interventions.

Key words: Irrational beliefs, family relationship quality, marital satisfaction, women

Introduction

Family has been introduced as an institution or social institution, which results from a marriage between men and women. Healthy, constructive engagement between humans and the establishment of love to others and the intimacy to one another are some examples of manifestations of human social life. An individual's satisfaction with marital life is considered as family satisfaction, which in turn guarantees the concept of life satisfaction, and facilitates the growth and excellence, and material and spiritual progress of society. Marital relationship has been described as the most important human relationship, since it provides the initial structure for establishing a family relationship and educating the future generation (1). Marital satisfaction is the most important and a complex aspect of a marital relationship. In other words, one of the vital aspects of a marital system is the satisfaction that spouses feel and experience in their relationship (2). The term marital satisfaction refers to the general satisfaction with the close marital relationship, and the satisfied couples are couples who show a great deal of agreement, are satisfied with the type and level of their relationship, are satisfied with the type and quality of their leisure time and apply good management in time and financial issues(3). Increasing the problems, dissatisfaction and marital incompatibility, increasing rate of divorce and its adverse consequences over the recent years have highlighted the importance of couples' relationships. In this regard, one of the most effective approaches in researching and recognizing the roots and causes of communication problems is the rational-emotional-behavioral view. In this perspective, attention is paid to perceptions, beliefs, thoughts, expectations and beliefs of the individual and their effects on everyday behaviors. Ellis (1987), a rationalist-emotional-behavioral theorist, considered illnesses and mental disorders resulting from misconceptions, false beliefs and beliefs, and wrong attitudes. In his opinion, irrational beliefs are the main cause of disagreements in social relations, especially in couples' relationships. According to statistics reported among incompatible couples (4), misunderstandings, irrational and absolutist beliefs were more frequent (approximately 60%) than other factors, since irrational beliefs were known as exaggerated, inflexible, absolute, and unrealistic. Bernstein (1989) also emphasizes that much evidence points to the fact that cognitive mechanisms affect marital adjustment and satisfaction; therefore, marital life is not immune to irrational beliefs(5). Also another researcher showed that irrational beliefs were a known factor in marital conflicts and irrational beliefs were positively associated with various types of distress, such as general distress, anxiety, depression, anger, and guilt (6). Fincham, Beach and Davila (2004) have shown that the conflict resolution style and the ability to develop emotions and feelings in the first 5 years of marital life were considered as important factors in marital satisfaction(7). Couples' agreement on communicative styles, emotional expressions, sexual relations, leisure, and house hold chores were known to be influential among other important factors in marital affairs (8, 9, 10). Another important factor in marital satisfaction is how to communicate.

Effective communication has a prominent role in marital relationships (11). Communication in the family uses the mechanisms of the family to share their preferences, needs and feelings. Communication is considered as the next facilitator and dynamic dimension of family system, which plays a vital role in helping the family to move towards the coherence and flexibility of the family so that Lewis and Spanier (1979), reviewing research in three decades of 1950 to 1970, concluded that communication skills were positively related to the quality of marriage (12). Positive communication facilitates movement at different levels of the family organization, while the lack of communication skills or negative relationships prevents the family system from changing levels of cohesion and flexibility. Therefore, proper communication can play a key role in preventing the collapse of the family system in times of crisis and difficulty (13, 14, 15, 16, 17, 18). Since the family is known as one of the main institutions of the society and the main guardian of the growth and development of their couples and their children, helping couples to improve couples and their children, marital relationships have been taken into consideration through various methods of treatment during recent years. It is necessary to help couples to solve marital problems through identifying the reasons and factors affecting marital dissatisfaction and satisfaction. Considering the essential role of marital relations on the concept of mental health, identification of effective factors in marital satisfaction can be considered as an important step in marital relationships. On the other hand, the increase in divorce rates in motivational societies has led researchers to find effective factors in marital satisfaction and stability. According to the discussion above, the present study aimed to investigate the mediating role of irrational beliefs in relationship of quality of family communication and marital satisfaction.

Materials and Methods

It was a correlation exploratory research. The samples of the study included employed women in Kermanshah University of Medical Sciences where 250 samples were available and selected according to their availability. They participated in the study on their own free will.
Inclusion criteria: Married women, women who did not have a history of mental illness and chronic physical illness, women who had not yet been referred to the judicial authorities.

Exclusion criteria: people who had not the desire to continue cooperation

The questionnaires used in this study were demographic questionnaire, Jones irrational beliefs questionnaire, Family Injury Family Valuation Scale and Enrich Marital Satisfaction Quiz.

Jones's irrational beliefs questionnaire. The irrational beliefs questionnaire was based on Ellis's (1962) theory in 1969 and developed by Jones (19). It includes ten scales. Each scale contains ten questions. A five-point Likert scale was used to grade the responses, and respondents

determine their degree of agreement or opposition according to the degrees. A special key is made for each scale. In any scale, the higher the score, the more illogical the severity of the belief is. The total score of the individual in the questions of each sub-scale is calculated, and the sum of all subscales or the total score of irrational beliefs is achieved (20). Using test-retest method, Jones (1969) demonstrated the reliability of the test as 0.92, and the reliability of each of its sub-scales were reported from 0.66 to 0.80. In Iran, it was reported the reliability of the test on a student sample of Allameh Tabataba'i University students by Cronbach's alpha to be 0.71 (20, 21). In this study, Cronbach's alpha 0.81 was obtained.

Family crisis oriented personal evaluation scale (F-COPES). This scale was developed by McCubbin, Larsen and Olson in 1981 to measure family adaptation and problem-solving. F-COPES is a 30-item tool consisting of 5 sub-scales: a. acquiring social support, b. cognitive reframing, c. spiritual social support, d. mobilizing the family to acquire help, e. passive evaluation (22). This 5-point Likert scale ranged from strongly agree for 5, and strongly opposed for 1. This scale was performed on 27-40 respondents in the first assessment and then was divided into two groups, which were identified by factor analysis on these five subscales and Cronbach's alpha was calculated for each subscale with general scores of 0.86 and 0.87 for the first group and the second group, respectively. T McCubbin et al (1982) suggested the retest of reliability to be 0.61 (reframing) to 0.95 (spiritual social support) with a four-week interval. In their study (23). Blake and Darling (2000) investigated life quality along with data analyses for the given scales where Cronbach's alpha 0.81 was reported (24). Also, Seidi & et al (2011) suggested Cronbach's alpha coefficient 0.81 for general subscale; the highest coefficient for the social support access was reported as 0.80 and the lowest coefficient for passive evaluation was 0.43(13).

Enrich Marital Satisfaction questionnaire (short form). The questionnaire was used to measure marital satisfaction. The questionnaire was developed by Olson et al. (1978, 1987) which included 115 questions and 12 scales. Soleimanian (1994) provided a short form of this questionnaire which included 47 items and its reliability was investigated calculating Cronbach alpha 0.95 through testing 11 respondents (25). The present study made use of Soleimanian short form with 47 items. Olson (1989) reported the reliability of the questionnaire with an alpha coefficient of 0.95. Calculating the alpha coefficient of the short form questionnaire, Soleimanian (1997) reported the reliability of 0.95 (26). Sanaiee (2008) stated that alpha coefficient for Enrich questionnaire suggested in Olson et al.'s report for both contractual response scales, marital satisfaction, personal issues, marital relationship, conflict resolution, financial monitoring, leisure activities, sexual relations, marriage and kids, roles for equality between women and men were 0.9, 0.81, 0.72, 0.68, 0.75, 0.74, 0.76, 0.48, 0.77, 0.72, and 0.71, respectively(27). Alidadi Thaeme et al (2014) suggested Cronbach alpha 0.95 for the test(28).

Obtaining permission from the University of Medical Sciences and explaining the research objectives for the participants, questionnaires were provided to them, and the participants responded to the questions individually. In this study, only married women who did not have a history of mental or physical illness and did not intend to divorce were included, and women who refused to complete the questionnaire were excluded and the questionnaire was delivered to another potential sample. Collecting data, data were analyzed by SPSS-19 software using descriptive statistics, Pearson correlation coefficient and path analysis.

Results

Table 1 shows mean, standard deviation and Pearson correlation coefficient of zero-order two by two variables under study. The hypotheses related to simple relationships between variables were investigated based on Pearson correlation coefficients. The results suggested a positive relationship between qualities of family communication with marital satisfaction. Also, the results showed a negative relationship between irrational beliefs and marital satisfaction.

Table 3 shows the fitting characteristics of the model. NFI and CFI indices equal one or are close to 1, and the RMSEA index, which is one of the important indicators in fitting the hypothesized model, is less than 0.05, indicating a high utility of the hypothesized model. In this model, irrational beliefs could play a mediator role between the quality of family communication and marital satisfaction.

The path analysis was used to analyze the mediation role of irrational beliefs in the relationship between qualities of family communication and marital satisfaction. The results showed that there is a significant direct relation between irrational beliefs and family movement for obtaining marital satisfaction, -0.21 and 0.19 respectively, and there was a direct relation between passive evaluation and irrational beliefs, 0.24, which were significant at p <0.01. However, there was no direct and significant relationship reported between the other variables in the study. Table 3 suggests the standard and non-standard coefficients between variables.

The results of the study showed that the standard coefficient of difficulty in passive evaluation, spiritual social support, cognitive reframing, acquiring social support, and mobilizing the family to acquire help with marital satisfaction through irrational beliefs were 0.43, 0.39 , 0.05, 0.04 and 0.08, respectively, which were significant at p <0.01.

Table 1. Average, standard deviation and correlation matrix among variables

Variables	Mean & SD	1	2	3	4	5	6	7
1. marital satisfaction	151.54 (24.38)	1						
2. irrational beliefs	107.79 (19.62)	-0/28**	1					
3. passive evaluation	13.77 (2.91)	0/31**	-0/27**	1				
4. mobilizing the family to acquire help	16.76 (4.01)	0/31**	-0/15**	0/60**	1			
5. spiritual social support	15.05 (3.09)	0/18**	-0/17**	0/42**	0/41**	1		
6. cognitive reframing	28.66 (5.24)	0/14**	-0/18**	0/42**	0/39**	0/73**	1	
7. acquiring social support	29.41 (7.39)	0/29**	-0/20**	0/63**	0/72**	0/48**	0/46**	1

Table 2: Fitness fitting indicators for a given model

RMSEA	NFI	CFI	X2/df	df	X2
0/00	0/099	0/99	0/53	3	1/59

Figure 1. Standardized Factor Paths (Factor Load) for direct effects of the probabilistic model variables. The mediating role of irrational beliefs in relationship between the quality of family relations and marital affiliation
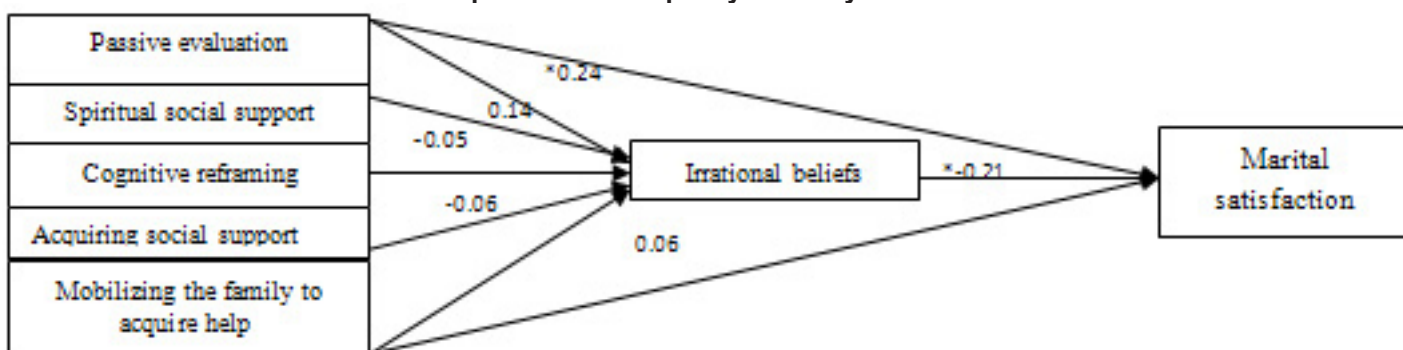
Table 3: Standard and non-standard coefficients among variables

Path	B	β	Meaningfulness
Effect of passive evaluation-marital satisfaction	1/16	0/14	0.06
Effect of mobilizing the family to acquire help-marital satisfaction	1/17 -0/26	0/19 -0/21	0/00 ***
Irrational beliefs-marital satisfaction	-0/14	-0/02	0/8
The Effect of Spiritual Social Support-Irrational Beliefs	-0/21	-0/05	0/53
The Effect of Cognitive reframing - Irrational Beliefs	-0/17	-0/06	0/5
The effect of acquiring social support - irrational beliefs	-1/6	0/24	0/00
The Effect of Passive Evaluation - Irrational Beliefs	0/33	0/06	0/45

*p< .01

Table 4: Standard and non-standard coefficients between variables

Path	Standard coefficients	Non-standard coefficients	Meaningfulness
Passive evaluation with marital satisfaction through irrational beliefs	0/43	0/05	0/0001
Spiritual social support with marital satisfaction through irrational beliefs	**0/39**	**0/00**	0/0001
Cognitive reframing with marital satisfaction through irrational beliefs	0/05	0/01	0/0001
Acquiring social support by marital satisfaction through irrational beliefs	**0/04**	0/01	0/0001
Mobilizing the family to acquire help to get marital satisfaction through irrational beliefs	-0/08	-0/15	0/0001

Discussion and Conclusion

The present study aimed to explain the mediating role of irrational beliefs in the relationship between family quality of life and marital satisfaction. Marital satisfaction is the most important factor for the sustainability and durability of common life, and it is essential to recognize the factors affecting it to improve quality of marital satisfaction. The results of this study showed that irrational beliefs can play a mediator role in relation to the quality of family communication and marital satisfaction. And the variables of family movement to acquire support and irrational beliefs are directly predictive of marital satisfaction.

So far, no research in Iran and other countries investigated the mediating role of irrational beliefs in the relationship between the variables of family quality (acquiring social support, cognitive reframing, spiritual social support, mobilizing the family to acquire help, passive evaluation) and marital satisfaction. However, several studies have evaluated the relationship between irrational beliefs and marital relationships. For example, Bernstein and Bernstein (1989) suggested that many of the spouses had problems in establishing and maintaining friendly and intimate relationships with each other, since they expected to earn some interests from their marriage in general, and from their spouses in particular(5). On the other hand, 85 and 91% of those at the verge of divorce suggested positive opinions and irrational and irrational predictions of marital relationship at the beginning of their marriage, and believe that the probability of divorce was zero to them which corresponds to the results from the present study (29). Many scholars and theorists consider irrational beliefs as the main cause of disagreements, especially in marital relationships. Irrational beliefs have also been reported in disrupted families which in turn confirmed Ellis and Beck's view that psychological problems were the major result of people's misconceptions. Ellis (1995) believed that dependency on others, fear and loneliness, passivity to choose, continuous effort to influence others even when at risk, would most likely cause couples to have particular tendencies in their behavior and actions

which results in their dissatisfaction with marital life and marital dissatisfaction rises due to a series of unrealistic expectations and beliefs and challenges in life. Dependent individuals tend to enter into relationships with people who are emotionally available; they try to control a relationship without expressing their needs and desires and as the result feel a state of uncompromising endurance. They try to care for someone who is in a critical condition, but such care and attention changes to an obsession and frustration. In fact, this dependency forms a relationship that is characterized by living for another, controlling others, solving others' problems, and excessive concern about intimacy, and it occurs when a person with his inefficient and addictive behaviors affects thoughts, feelings and behaviors of others (30, 31).

Also the other study showed that irrational beliefs lead to dysfunctional emotions, which further affect the perceived marital adjustment of both partners(32).

Another variable affecting marital satisfaction in this hypothesized model is the quality of communication with the family, since communication in the family uses the mechanisms of the family to share their preferences, needs and feelings (14). Communication is also considered as the facilitator and dynamic dimension of the family system, which plays a vital role in helping the family to move towards the coherence and flexibility of the family (18). To explain these results, it can be concluded that effective and proper communication in the family helps to promote satisfactory factors among couples and facilitates social and spiritual support, access to social support and family movement to help. Also, the proper and effective communication along with reduction of inhibitor factors to intimacy can result in better marital satisfaction. In summary, the results of the present study were presented in two theoretical and practical sections: at the theoretical level, the results of this study could help in better identification of the causative factors and correlations of marital dissatisfaction. Also, the findings of this study can confirm the theories related to the relationship between marital anxiety and marital satisfaction, and also the results of previous studies.

Since so far no research ever investigated the relationship between quality of family communication and marital satisfaction, the present study may introduce a new perspective to investigations on marital satisfaction. At the practical level, the findings of this study can offer preventive aspects to be considered in pre-marital counselling. It can also introduce an empirical and therapeutic basis for couple therapists and family therapist who may use cognitive and behavioural therapies to affect excitement and emotions of couples, teach them the skills to share feelings and emotions, and help couples to be better communicators and improve the quality of family communication which leads to higher marital satisfaction.

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New Methods in Treatment of Renal failure in Patients with Multiple Myeloma: A Review with Immunological Approach

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Abstract

Multiple myeloma (MM), as one of a variety of autoimmune diseases, affects the immune system and, on the other hand, is considered to be a hematologic impairment. One of the most common and important complications of MM is renal impairment (RI), which is associated with an increase in serum Cr levels. Although RI is one of the major complications of MM, the routine therapies for MM patients practically lack acceptable efficacy for the improvement of RI patients, and as a result, RI remains a deadly disease with high mortality rate and very bad prognosis; therefore, new treatments have been proposed for the improvement of nephropathy in patients with MM, and extensive research is ongoing in various phases, including clinical trials. Attempts were made in this study to review common and advanced treatments (immuno-therapy, cell therapy, new therapies based on genetic engineering) in these patients and to consider this disease from an immunological viewpoint.

Key words: Multiple myeloma, renal impairment, Immunomodulatory drugs

Introduction

The immune system is the body's natural defense against infection and malignant diseases. However, sometimes its responses can cause autoimmune diseases (1-7). Multiple Myeloma (MM) is one types of autoimmune diseases associated with B cells and plasma cells are highly proliferated and IgG antibody is produced at high levels in serum and urine. It alone accounts for 10% of all hematologic malignancies. The disease affects people's immune system and, is also considered as a hematological defect. The disease mainly involves the elderly (8) so that the average age of people involved with MM is 65 years (9). This disease is more common in men and the prevalence of this disease in Africa and the United States is twice as high as in Europe. One of the most common and important complications of MM is renal impairment (RI), which is associated with an increase in serum creatinine levels. RI is seen in 20-40% of patients newly diagnosed with MM (NDMM) and 25% of patients (RRMM) and / or refractory multiple myeloma with relapsed symptoms and creatinine levels increases to above 4 mg/ml in most people with this condition (10). MM begins with acute kidney injury (AKI), and recurrence is associated with nephropathy casts.

Prevalence of RI in patients with MM

RI is seen in half of the patients with MM. Severe RI is also seen in more than 15% of these patients. Table 1 presents the prevalence of all types of disorders involved in this disease.

Today for prevention and treatment most disorders such as urinary system dysfunctions have been evaluated and new drugs and methods and their outcomes have been considered (11-19). Since routine therapies for patients with MM have virtually no acceptable efficacy for the improvement of RI patients and RI is still considered as a disease with high mortality and very bad prognosis; new treatments have been proposed for the improvement of nephropathy in patients with MM. In this study, attempts were made to review common and advanced treatments (immunotherapy, -cell therapy and new therapies based on genetic engineering) and discuss this disease from an immunological viewpoint.

Mechanisms of nephropathy symptoms in patients with MM

Renal damages in patients with MM mostly occur due to the toxic effect of the free light chain (FLC). Light chains are proteins produced by plasma cells. Within a plasma cell, two light chains and two heavy chains are combined to form an immunoglobulin. The free light chain is filtered through the glomeruli and is removed and catabolized by the cells of the proximal tubule cells (PTCs). The FLC level in the serum of patients with MM can be increased up to 100 times, which indicates the high ability of PTCs cells in absorbing and catabolizing these proteins, which, as a result of increased activity of these cells, leads to an increase in the concentration of FLC in the urine and fluid in the tubule of the kidney(20). Urinary FLC has a high affinity for binding to the carbohydrate portion of (THP), which causes aggregates that cause cysts and blockage of renal tubules(21). FLC can activate inflammatory pathways and cause fibrosis in the tubular area during inflammation in cells in the tubule (20). Also, various factors, including nonsteroidal anti-inflammatory compounds, dehydration, acidosis, and angiotensin converting enzyme (ACE) inhibitors interfere with the onset of RI and contribute to the nephropathy caused by FLC. On the other hand, factors like hypercalcium may further aggravate the symptoms of nephropathy (10, 22, 23)(Figure 1).

MM therapies

1. Common MM Therapies:

1-1 Primary Care Support
In case of transient but recurrent defects in the kidney, especially in people who excrete plenty of Bence Jones protein, immediate supportive treatments have been taken for patients for whom combination of bortezomib and dexamethasone is a good therapeutic option. And in limited cases, thalidomide is also prescribed. Lenalidomide is another low-dose drug that can control and treat the symptoms of nephropathy in patients with MM(24). In addition, plasma replacement has been suggested as a treatment for nephropathy in patients with MM. However, the use of this treatment is controversial in RI people suffering from excretion of Bence Jones protein.

1-2. Corticosteroids (dexamethasone) and conventional chemotherapy
Dexamethasone is one of the cortical derivatives that plays an important role in improving nephropathy in patients with MM. A high dose of dexamethasone leads to a higher rate of kidney regeneration activity in MM patients who have recently suffered RI. It is also prescribed, independently of dialysis, for patients with kidney complications and high risk of severe proteinuria, which discharges Bence Jones at high levels in the urine (25). In addition, the new drug combination of thalidomide+bortezomib is safe in the treatment of nephropathy in patients with MM, leading to renal function improvement. However, the use of dexamethasone and chemotherapy is recommended for effective treatment of nephropathy in these individuals (25-27).

2. New treatments and advanced drugs:
Over the last decade, there has been a major advance in MM treatment and new and advanced therapies were later used for the treatment of transplant recipients as well as those who were not eligible for transplantation (28) and considering their effectiveness, the probability of complete responses (CR), progression of disease, disease-free survival (PFS) and total survival (OS) have been increased. Combined therapeutic approaches, including dietary regimens and chemotherapy, have been proposed as a standard treatment approach, which can be done in both the ASCT patients as well as patients who do not intend organ transplants(29). The new therapeutic approaches and advanced drugs that are introduced and presented in this effort are presented in more detail as follows.

Table 1: Prevalence of some types of defects and RI in patients with MM

Disorders	Prevalence
Severe kidney failure	More than 15% of patients
High blood pressure	60-80% of patients
The need for dialysis	2-4% of patients
Renal impairment (RI) in patients with relapsing-remitting or refractory MM	25% of patients
Early death Risk in patients with severe renal failure	12% of patients

Figure 1: Mechanisms involved in RI-caused MM
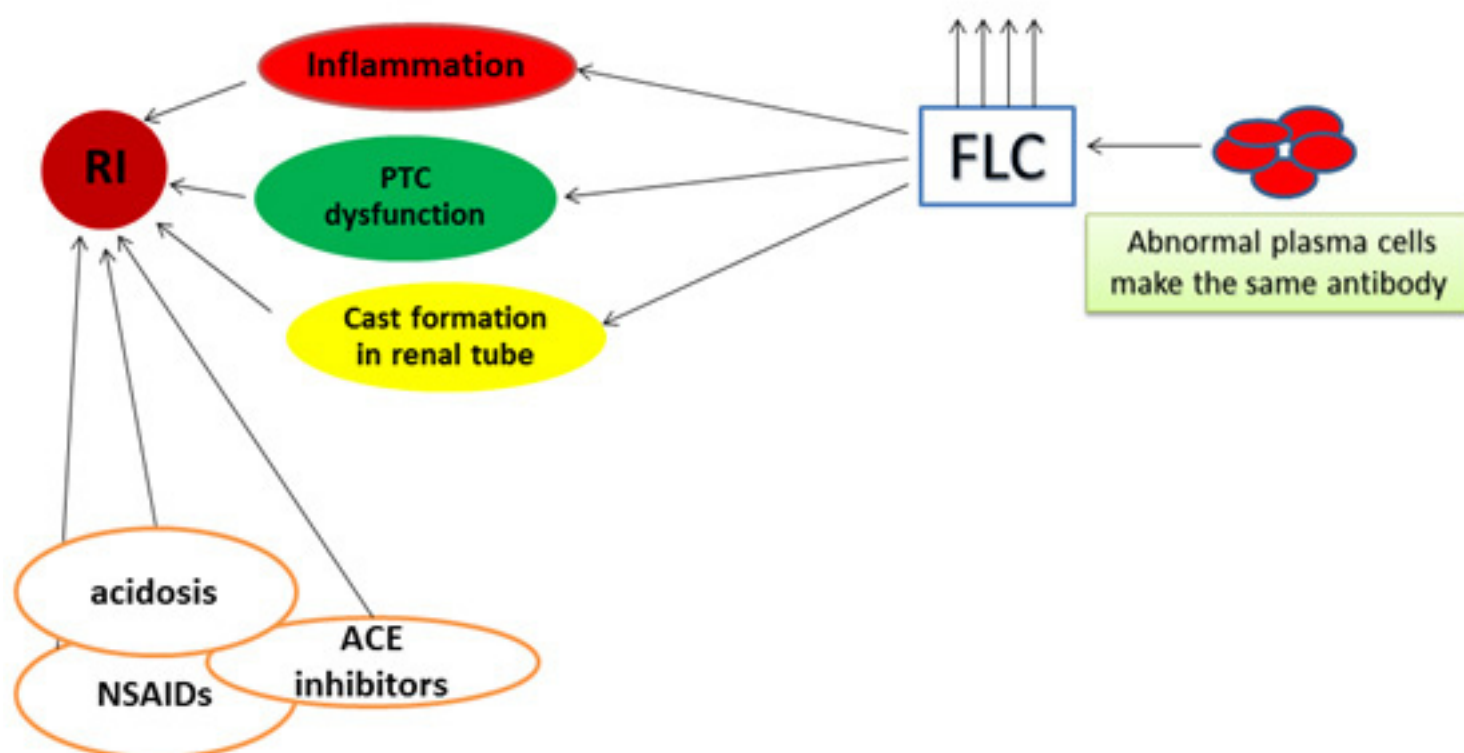
Renal impairment: RI; Free light chain: FLC; Proximal tubule cells = PTCs; Angiotensin converting enzyme: ACE.

Table 2: New anti- MM drugs the mechanism of action of which is proteasome inhibition

Drug name	Group owned	Efficacy in RI Patients	Mechanism	Combined therapy	Reference
Bortezomib	Proteasome inhibitors	Gold standard for the treatment of RI in patients with MM	Bortezomib inhibits the 26S portion of the proteasome	Bortezomib along with thalidomide and lenalidomide	(30-32)
Carfilzomib	Proteasome inhibitors (2nd generation)	An effective drug in treating nephropathy of patients who have already received at least two therapies	Proteasome inhibition and apoptosis stimulation	Combination with lenalidomide and dexamethasone and only dexamethasone for RRMM patients	(33-35)
Ixazomib	Proteasome inhibitors	Increasing overall response rate (78% instead of 72%), progression free surviving and response period (mean 21 to 15) in patients with MM	Selectively and reversibly inhibits the β5 unit of proteasome, which is part of the proteasome 20S subunit.	Dexamethasone and other drugs	(36-38)

2.1 Proteasome inhibitors

Proteasome inhibitors have been able to significantly advance the progression of MM disease independently of organ transplants. Some of the new anti-MM drugs, the mechanism of action of which is proteasome inhibition are listed in Table 2 (previous page).

2-2 Immunomodulatory drugs

Immunomodulatory drugs (IMiDS) directly affect multiple myeloma cells and bone marrow environments, leading to changes in cytokines, inhibition of angiogenesis, and increased number and function of various cells, including T, NK, and NKT. IMiDs are also capable of replicating Treg cells. In addition, IMiDs can enhance the ADCC defense response in NK cells by increasing expression of FasL and granzymes. Considering this feature, IMiDs can be used in targeted therapies for immunotherapy(39). As indicated in the mechanism section, inflammatory response is one of the effective factors in the progression and treatment process. Therefore, this group of drugs can effectively and potentially contribute to the treatment of MM patients (Table 3). Given that immunomodulators include a wide range of therapeutic strategies, some of the most recent and most important ones are mentioned here, and some of them are listed in Table 3.

2-2-1 - Bispecific T cell engages (Bi-TEs)

BiTEs are a novel immunotherapy approach in relation to antibodies and T cells. This method enables us to design antibodies using genetic engineering, which is in contrast to the usual dual specificity. For example, the antibody is designed in such a way that, on the one hand, as a specific marker of T lymphocytes for CD3 and as a specific marker for CD19 on the surface of the cells of the lymphoma, on the other hand. Thus, a tumor cell with T lymphocyte (as the main anti-tumor cell) will be placed next to each other, resulting in the destruction of tumor cells at higher intensity. BiTEs have been investigated for the treatment of melanoma in vitro and in vivo and satisfactory results were also obtained.

2-2-2 Adoptive T cell Therapies (ACT)

In this method, the T-cell of a person with MM is isolated from its whole blood, and these cells lead to the activation and development of T-cells in the presence of anti-CD3-CD28 beads and IL2 in the ex-vivo environment and after being discharged from the bone marrow from the myeloid line and the autologous transplantation, this ex-vivo amplified compound is inoculated and leads to primary lymphocytosis. Recently, this method has also been used for the first time in the production of bone marrow infiltrated t lymphocytes (mILs) as clinical anti-tumor immunity (40). The results of this treatment are satisfactory, but more confirmation is needed in this regard.

2-2-3 TCR transgenic T cells

In this method, TCR infusion occurs with high affinity and common peptide antigens between two types of cancer (NY-ESO-1, LAGE-1)(41). Initial laboratory tests indicate that the infusion T cell, the function of which is actively maintained, occurs and these cells remain active in the body and in the presence of IL2 without fatigue for up to one year. On the other hand, all people with MM are being treated to respond to HLA-dependent treatment. Nevertheless, these cells are HLA-dependent and therefore, this is a therapeutic constraint compared to the CART method(25).

2-2-4 BTK inhibitors

Bruton Tyrosine kinase is an enzyme from the Tec family that is expressed in hematopoietic cells such as B and myeloid cells, mast cells, and platelets, and plays a key role in several important cellular processes, including differentiation, proliferation, cell migration and apoptosis(42, 43). In the case of mutation in the BTK gene, the maturation of these cells is impaired and genetic and hereditary diseases such as XLA (X-linked gamma-globulinemia) are created(44). On the other hand, the excessive activity of BTK refers to the neoplasm associated with B cells(45). Ibrutinib is one of the drugs produced in this field and is capable of inhibiting the function of this enzyme during the binding of covalent to BTK and its administration alone or in combination with other drugs can provide satisfactory therapeutic results. In a study in 2015, a combination of Ibrutinib and Carfilzomib with or without dexamethasone was used to treat RRMM patients and a target response rate of 62% was reported(46). The effect of BTK expression in the treatment of the disease is so important that there are many solutions to inhibit the expression of this enzyme, which can have a significant effect on the treatment process.

2-3- Monoclonal Antibodies

Therapies performed based on monoclonal antibodies against target antigen have been defeated due to the lack of clear expression of the target molecule on the plasma cells. In fact, early studies have only shown the minimal activity of anti-CD20, which is expressed in 20% of plasma cells. Studies have also been conducted on several other monoclonal antibodies (anti [TRAIL-R1, IL6, CD38, CD138, CD74, CS1, CD56, IGF-1R, CD40]), among which two monoclonal antibodies, Elotuzumab and Daratuzumab, is important and practical in MM disease (Table 4). In addition, B cell maturation antigen (BCMA) antibodies are under construction and its clinical trial is in progress. BCMA, a superfamily protein TNFR, is used as an important target in the construction of monoclonal antibodies and can be of great help in treating patients with MM. On the other hand, the production of antibodies against CD138, CD56 and CD74 is also under investigation in the early stages of clinical practice (25).

2-4 High-dose therapy and autologous stem cell transplantation (HDT & ASCT)

ASCT (Post-autologous Stem Cell Transplant Therapy) is one of the supportive therapies that is used for MM patients during a 12-month period (63-66), leading to improved OS and better treatment outcomes) during the transplantation process. The ASCT method is applicable to all eligible MM patients. In this therapeutic approach, following a stem cell transplant, 3-4 courses of the drug regimen, including bortezomib and dexamethasone in combination

Table 3: Some immunomodulatory drugs for the treatment of multiple myeloma

Drug name	Category	Mechanism of action	Combined with other drugs	Efficacy	Reference
Thalidomide	Immunomodulatory drugs			Satisfactory outcomes have been obtained using thalidomide compared with biosamide and some other drugs in the treatment of RRMM individuals.	(47, 48)
Lenalidomide	Immunomodulatory		Administration of lenalidomide with high doses of dexamethasone	The use of lenalidomide in the treatment of severe nephropathy is under investigation	(49)
Pomalidomide	Immunomodulatory	The production of other cytokines and increasing IL2, IL10 and IFNγ, and also reducing IL6, directly inhibits the growth and development of tumor cells.	Combined with low dose dexamethasone	Approved by the FDA and used in treating nephropathy in RRMM individuals.	(50-53)
Panobinostat	Immunomodulatory	The histone deacetylases enzyme inhibitor results in the apoptosis of malignant cells from different pathways.	Combined with anticancer drugs like bortezomib and dexamethasone		(54, 55)

Table 4: Monoclonal antibodies approved by the FDA for patients with MM

Antibody name	Target	Mechanism of action	Reference
Elotuzumab	Anti-CS1 (SLAMF7) antibody	It can kill myeloma cells through antibody-dependent cytotoxicity (ADCC).	(56-58)
Daratuzumab	Anti-CD38 antibody	Antibody during binding to CD38 causes apoptosis of the cell by complement or antibody-dependent cytotoxicity. Also performed ADCP (Antibody Dependent Phagocytosis) activity.	(59-62)

with lenalidomide, thalidomide, or cyclophosphamide, is received by the patient(67). The administration of this therapeutic approach helps patients maintain their condition for a progressive free survival (PFS)(68, 69). In addition, bortezomib's mechanism of action, which is to inhibit proteasome, helps to create better PFS in MM patients with intermediate and high-risk; however, the post-ASCT administration of this drug compared with thalidomide, which has toxic effects in the blood, offers better treatment outcomes. Since the relapse of the disease occurs almost entirely in MM patients, the relapse period can be changed from 2.5 years to 4 years (70, 71).

2.5 Plasma exchange

The kappa and lambda chains of FLC, which have a molecular weight of 45KD and 22.5KD, respectively, are excreted from the renal glomeruli after a half-life of 3 and 6 hours. Consequently, anti-myeloma effects are induced in individuals through the "plasma replacement" and FLC levels are also reduced. Interestingly, patients who receive this treatment are protected against other kidney injuries that may occur in the future (72). Additionally, the combination of plasma replacement therapy with bortezomib-based therapies gives rise to strong responses in all NDMM and RRMM patients (73). Plasma replacement in the short term leads to the purification of proteins in the extravascular part, but in any case, the plasma replacement in the long run leads to the purification of other essential proteins; therefore, the use of membranes have cut-off for higher molecular weight proteins, can be a remedy in this case (74).

2.6 Renal transplantation

One of the treatment methods for MM patients involved with RI is renal transplantation, which can be used as a treatment alternative for these patients, due to the increasing number of patients. The results of a study which was conducted on 166 patients in 2013 showed that the risks of immunosuppression should be considered in those who received ASCT and kidney allograft transplants, and eventually 26 of them survived without the need for dialysis (10, 75).

2.7 Histone deacetylases (HDACs)

HDACs deacetylates lysine residues (tails) in both histone and non-histone proteins. This enzyme in the chromatin structure creates a local relaxation and regulates the specific expression of the gene. HDACs acts nonspecifically and can deacetylate non-histone proteins that is also intended to alter the activity and sustainability of their activity, so the inhibitory effect of this enzyme complex on the treatment of multiple myeloma is very important (76) and specifically the combination of inhibitors of HDACs and proteasome or immunomodulatory drugs play a very important role in the progression of this disease in pre-clinic and clinical phases. However, clinical studies that are performed using selective HDACs inhibitors reduce the side effects of treatment, which leads to increased tolerance in patients and has no negative effect on the multiple myeloma activity; therefore satisfactory outcomes were obtained when this treatment was performed (77). Panobinostat is a deacetylase inhibitor

that can produce better treatment outcomes in combination with dexamethasone and bortezomib. Inhibiting HDACs activity leads to an increase in acetylated histone proteins, as a result of this epigenetic change, eventually during the formation of the chromatin regimen results in the activation of the transcriptional process in individuals (78, 79). Vorinostat is another oral deacetylase inhibitor that is effective in treating cutaneous T-cell lymphoma (CTCL) (80). Therefore, both panobinostat and vorinostat are involved during the inhibition of deacetylation in treatment of multiple myeloma. The panobinostat is so important in the treatment of these patients that it is prescribed in combination with dexamethasone and bortezomib for RRMM patients who have received at least two therapy y lines in the past (80, 81)and have shown resistance and this therapeutic pattern was approved by the FDA in February 2015.

Conclusion

Multiple myeloma is a hematologic malignancy that alone accounts for 10% of all hematologic malignancies. One of the main complications of the disease, which is seriously problematic, is high mortality and a lack of satisfactory effect of the common treatments intended for this group of patients. So, in the last decade, extensive researches and studies have been carried out to produce new drugs; therefore, many drugs could help with the treatment of patients with multiple myeloma by obtaining approval from the FDA. Meanwhile, drugs that affect the immune system of the human body, namely immunotherapies, are extremely important.

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Congenital anomalies: Overview and a brief report on promising new research

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Background

The release of Australian research earlier this month showing that potentially millions of babies can be prevented from miscarriage and neural tube and other congenital defects, through dietary interventions, has prompted us to provide a brief report on these results in the hope that the early dissemination of this information can be used by family doctors to reduce the burden of congenital anomalies for regional children and their families. Currently and prior to these new research results, approximately 50% of all congenital anomalies have not been able to be linked to a specific cause, though there are known genetic, environmental and other risk factors for many such defects. We have provided the outline of this new research and a review of current knowledge in the hope that it provides some insights into unidentified causes.

Introduction and Overview

Congenital anomalies are intrauterine malformations of the foetus and may occur at any time during development. In developed countries where foetal and maternal screening is often conducted they may be discovered early; without such screening they are usually discovered via miscarriage or at birth. The prevalence of congenital anomalies and its pattern of distribution is different globally and regionally, being affected by a variety of factors, be they physiological, socio-economic, genetic or environmental. Global distribution of congenital anomalies has been shown in Figure 1.

Key facts

• Globally, an estimated 303,000 babies die every year within the first month of life due to congenital anomalies.

• Those babies who survive with congenital anomalies, can have lifelong disability.

• Some disabled children are abandoned at birth due to stigma and economic burden on poor families.

• Such disability also therefore becomes an economic burden on society.

• The most common and most severe of congenital anomalies are heart defects, neural tube defects and Down syndrome.

• It is estimated that about 94% of severe congenital anomalies occur in low- and middle-income countries. (1)

Figure 1: Global distribution of congenital anomalies (2012) (1)

Legend:
- no data
- less than 160
- 160-240
- 240-320
- 320-400
- 400-480
- 480-560
- 560-640
- 640-720
- 720-800
- 800-900
- 900-950
- more than 950
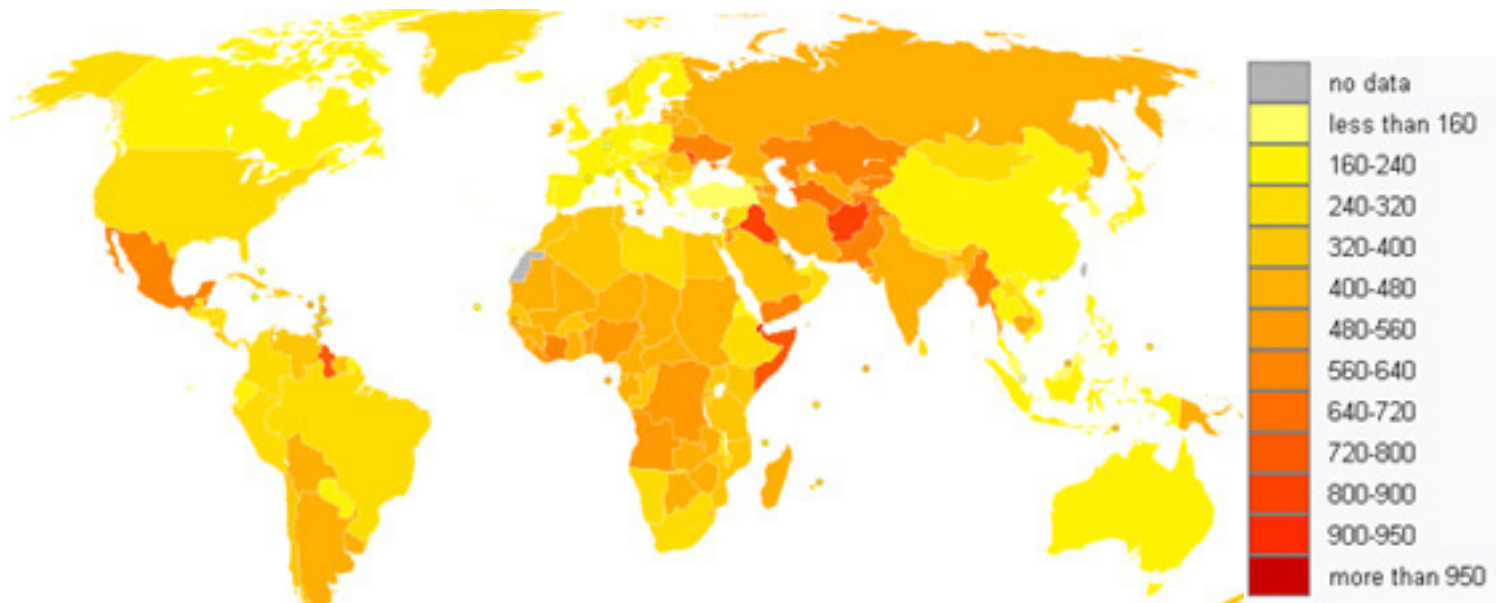
Causes and Risk factors

Most severe congenital anomalies occur in low- and middle-income countries (1).

The following summarises the major causes:

1. Diet and appropriate nutrition
Being born in a low income or developing nation can have an immediate effect on risk factors not only through malnourishment of the mother and consequently the foetus, but also lack of dietary requirements and inability to afford supplements.

1a. Folate
An adequate intake of folate in the peri-conceptional period has the capacity to prevent 70 per cent of all cases of Neural Tube Defects (NTD). Those women planning pregnancy are therefore in a position to avoid such defects by ensuring adequate supplies in their diet. For women unable to purchase folate supplements it is readily found in green leafy vegetables. The growing and eating of such vegetables is a cost effective way of avoiding NTD.

Neural tube defects include spina bifida, encephalocoele and anencephaly, and result from failure of the spinal cord or brain to develop normally during early foetal development. Less than 40 per cent of those affected survive to birth. People born with an NTD, especially those with spina bifida, will experience lifelong disability.

Pregnancy guidelines recommend that women of childbearing age take in 0.5mg of folic acid for at least one month before pregnancy and three months into the pregnancy. Women who are at high risk of having a baby with an NTD include those where a parent-to-be has spina bifida, has had a previous child with an NTD, has a close relative with an NTD, or where the woman has been treated for epilepsy. These women should take ten times the minimal dose (5mg of folic acid daily one month before pregnancy and three months into the pregnancy) (2).

1b. Vitamin requirements
Vitamin A deficiency may cause blindness while excessive vitamin A intake during pregnancy may affect the normal development of an embryo or foetus.

Risk of Vitamin D deficiency can be found in those with low exposure to sunlight (this may include Muslim women whose attire can prevent adequate sunlight exposure), in women with dark skin, and those with a pre pregnancy BMI ≥ 40. Vitamin D deficiency leads to a higher risk of pregnancy complications such as gestational diabetes, preeclampsia, preterm birth, and low birth weight (3).

The new Australian study outlined below shows that lack of Vitamin B may be the cause of many of the 50% of unexplained congenital anomalies.

The obvious conclusion from these studies is that pregnant women need to have a varied diet that covers all food groups, vitamins and minerals, to allow the foetus to gain all it needs for proper development. This obviates the necessity of nutritional guidelines and prenatal care being made available to all pregnant women globally.

2. Pre-natal care
Prenatal care should not only include guidelines as to a healthy diet for mother and foetus, but also the monitoring of foetal growth and mother's health; for example, for cases of gestational diabetes, eclampsia and pre eclampsia . Mothers in low socio-economic areas may receive no pre-natal care at all, as well as be subject to a wider range of causative factors. In some developed countries the foetus or mother is screened for congenital and genetic disorders and aborted if found to be affected or a genetic carrier.

3. Vaccination, Infection and disease
A number of maternal diseases are known to cause congenital anomalies with the most common being syphilis and rubella. Rubella vaccination of women and girls occurs in most developed nations but is a more prevalent cause of

congenital anomalies in low- and middle-income countries. More recently, the effect of in utero exposure to Zika virus has been reported and has had devastating congenital defects, such as severe microcephaly, subcortical calcification, congenital contractures and hypertonia, and is now prevalent in a wide range of countries that host the mosquito carrier (4).

4. Environmental risks

While there can be a wide range of environmental dangers to the developing foetus, such as infections and disease prevalence, maternal exposure to certain pesticides, chemicals, and medications (including traditional herbal mixtures), alcohol, tobacco and radiation during pregnancy, increases the risk of congenital anomalies. Working or living near, or in, waste sites, smelters or mines may also be a risk factor (1). These risk factors are more common in low and middle income countries.

5. Genetic factors

These can be inherited conditions such as anophthalmos, microphthalmos, coloboma, congenital cataract, infantile glaucoma, and neuro-ophthalmic lesions as examples.

Complicating inherited genetic disorders are issues of consanguinity. This can be a primary cause where consanguinity increases the prevalence of rare genetic congenital anomalies and nearly doubles the risk for neonatal and childhood death, intellectual disability and other anomalies (5).

The high prevalence of consanguinity in some regional areas needs a thoughtful public health approach.

Prevention

Vaccination, appropriate diet, including adequate intake of folic acid or iodine through fortification of staple foods or supplementation, including the Vitamins groups discussed here, in addition to adequate prenatal care, are necessary prevention methods.

Doctors everywhere also need to be alert to viral outbreaks and higher incidence of anomalies in their patient populations, report such to health authorities and, ideally, investigate the causes (6).

Report on Australian Research

Australian researchers in a 12 year study, have recently published evidence that supplements of vitamin B-3 can prevent many miscarriages and congenital defects (7).

A team of researchers has identified a key factor behind some miscarriages and congenital malformations of the heart, spine, kidneys, and cleft palate.

The Australian study evaluated the cause of a number of abnormal embryonic developments to a deficiency in nicotinamide adenine dinucleotide (NAD), a molecule that plays a key role in metabolic regulation. NAD is involved in energy production and boosting cell survival, as well as supporting DNA repair. However, NAD production can

be inhibited by some genetic factors, chronic diseases (such as diabetes), or an unhealthy diet, leading to NAD deficiency.

The study initially focused on families exhibiting a rare condition known by its acronym as "VACTERL." This condition refers to people born with at least three of the following anomalies: vertebral defects, anal atresia, cardiac defects, tracheo-esophageal fistula, renal anomalies, or limb abnormalities.

The researchers found that a shortage of NAD in these families resulted in miscarriages or birth defects. They also concluded that NAD deficiency might therefore explain a wider range of miscarriage and congenital anomalies globally.

The research indicated that a relatively simple solution in preventing such disorders was ensuring required Vitamin B-3 intake. They found a key element in NAD synthesis is niacin, a vitamin B-3 complex available as a dietary supplement (7).

A sustained intake of B-3 complex supplements, the researchers suggest, can effectively prevent miscarriages and birth defects such as spina bifida and other vertebral segmentation malformations, as well as some heart and small kidney defects.

An earlier Australian study (8) found vitamin B-3 deficiencies in mothers already taking B-3 supplements. Appropriate intake of vitamin B-3 during the first trimester is a requirement for proper organ development in the developing foetus (8).

This may indicate that pregnant women require an even higher vitamin B-3 intake.

The Australian study evaluated the effect of niacin on developing embryos in a preclinical mouse model, and noted that, after the vitamin B-3 complex was appropriately introduced into the expecting mother's diet, miscarriages no longer occurred. Moreover, all the babies were born healthy, with no congenital malformations. They used genomic sequencing to identify potentially pathogenic gene variants in families in which a person had multiple congenital malformations and tested the function of the variant by using assays of in vitro enzyme activity and by quantifying metabolites in patient plasma. Variants were identified in two genes.

The researchers say that developing a test to measure levels of NAD in expecting mothers will come next. This will allow practitioners to identify which women risk miscarriage or delivering a baby with a congenital malformation, and who therefore need to take more B-3 supplements in pregnancy.

For the time being, expectant mothers should include Vitamin B-3 foods in their regular diet but only take B-3 supplements as advised by their doctors, as it is still unclear what exact doses of vitamin B-3 would help to prevent miscarriages and malformations in each case.

Overview of Niacin

The current required daily intake of Niacin (Vitamin B3) is 20mg (2).

Niacin or Vitamin B3 is an essential vitamin for human health that processes fat in the body, regulates blood sugar levels and lowers cholesterol levels. A deficiency of niacin causes symptoms of diarrhoea, dermatitis, dementia, inflammation of the mouth, amnesia, delirium, and if untreated, death. It is found in many foods (see Table 1).

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Table 1: Niacin containing foods

	Serving size	Niacin
Chicken	100 grams	7.8 milligrams
Bacon	100 grams	11 milligrams
Tuna	100 grams	5.8 milligrams
Mushrooms	100 grams	5 milligrams
Broccoli	100 grams	0.64 milligrams
Veal	100 grams	9.42 milligrams
Turkey	100 grams	11.75 milligrams
Organ meats	100 grams	Most are over 10 milligrams
Asparagus	100 grams	1 milligram
Peanuts	100 grams	12 milligrams
Coffee	1 cup	39.73 milligrams

Data Source: NHMRC (2).

Investigating the Use of Smartphones for Learning Purposes by Iranian Dental Students

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Abstract

Introduction: The use of smartphones for teaching and learning purposes is increasingly being developed in the field of dentistry. This study aims to investigate the use of smartphones for learning purposes by Iranian dental students.

Materials and Methods: This is a descriptive study. The population of study consists of the general students of The Faculty of Dentistry of Ahvaz Jundishapur University of Medical Sciences (AJUMS) located in the south west of Iran. Sampling was practiced through census and by distributing questionnaires between all subjects. Totally, 109 cases (64 females and 45 males) filled the questionnaire. Data was analyzed using SPSS 21.

Results: Surfing course-related websites in the Internet and sharing notes with each other are the most frequent used items accounting for 96% and 94% of smartphone use, respectively. In addition, 91% of cases believe that smartphone improves their access to the content of courses. Moreover, 95% of cases have access to social media, especially Telegram, via their smartphone and acknowledge its usefulness in the education field. There was a positive correlation between the use of smartphones for general purposes and the use of them for learning purposes (0.483). In addition, the correlation between age and the use of smartphones for general purposes and between age and the use of smart phones for learning purposes is negative (-0.279).

Conclusion: The use of smartphones for learning purposes or combining traditional educational approaches and e-teaching methods, including smartphones, can provide students with more diverse learning opportunities.

Key words: Dentistry, Learning, Smartphones, Students, Iran

Introduction

Dentistry is one of the most interesting academic majors in Iranian and many other countries' universities [1]. The use of smartphone is increasingly being developed for caring, teaching and learning purposes. However, the use of smartphones and their diverse capabilities depends on many factors such as availability of proper software and hardware and accessibility of high speed Internet [2]. Today, the application of smartphones in the teaching process, especially teaching medicine is well known and it is used as an effective learning device in any place and at any time [3]. The students of medical sciences and dentistry as well as their professors use many applications associated with their profession and field of study for clinical and learning purposes [4]. In addition, the use of education applications, including pharmacology and medical science resources, assists physicians to better perform their teaching and caring tasks and improves communications between medical staff and patients in hospitals by providing them with updated, rapid and practical information [5]. Ozdalga et al conducted a review study from 2011 to 2012 and reviewed 60 studies and stated the positive role of smartphones in the promotion of learning of the students of medical sciences [6]. Schulz et al studied the acceptance of e-learning devices by the dentistry students of Mainz University, the U.S.A. He concluded that a considerable portion of the students have welcomed the devices [7]. Gilavand et al conducted an interventional study on Iranian dentistry students and concluded that smartphone applications-aided teaching considerably promotes the learning and awareness of students compared with traditional approaches [8]. Jamal et al conducted a study on the Saudi Arabian students of different medical sciences and indicated the positive role of smartphones in clinical teaching and educational interactions between medical staff [9]. Albercht et al conducted a study in Germany and compared traditional approaches of teaching medical sciences (written courses) with smartphone-based teaching methods. They indicated the interest of students in smartphone-based teaching methods. Wu et al conducted a study in Canada and concluded that BlackBerrys smart phones have played a positive role in the interaction and exchange of information between physicians and nurses aimed at performing their professional tasks and improving patients' health status [11]. Smartphones and relevant applications installed on them are very advantageous and capable of promoting students' learning capability. On the other hand, dentistry students widely use smartphones for learning purposes. Considering the fact that smartphones alone or the combined use of traditional teaching approaches and e-teaching, including smartphones, can provide students with more diverse learning opportunities. This study investigated the use of smartphones for learning purposes by Iranian dental students.

Materials and Methods

This is a descriptive study conducted in the period 2016-2017 to evaluate AJUMS dentistry students' use of smart phones for learning purposes. The study tool is the research-made questionnaire of Wrang et al's study distributed between Australian dentistry students [12]. The validity and reliability of the questionnaire was confirmed in our study following customization and making slight changes in it. The first part of the questionnaire addresses demographic information and the second part has 16 items about dentistry students' use of smartphones. The second part includes four items about the role of social media in students' learning and the fourth part contains seven items about places where the studied students use their smartphone for learning purposes. Finally, the fifth part of the questionnaire has three items requiring the opinion of the studied students about the role of smartphone in their learning.

The population of study consists of all general students of the Dentistry Faculty of Ahvaz Jundishapur University of Medical Sciences (AJUMS) located in the south west of Iran. Currently, a total number of 264 students (157 females and 107 males) are studying in the general level in the Dentistry Faculty of the university. Sampling was practiced using census method and by distributing the questionnaire between all cases of which 109 cases (64 females and 45 males) filled it out. Data was analyzed by frequency, mean, percent, Mann-Whitney and Spearman's correlation coefficient in SPSS 21.

Results

Table 1 shows the demographic information of the cases. A total number of 109 students participated in this study, where 59% were female and 41% were male. In addition, 79% of cases were single and 21% were married. Regarding smartphone type, 77%, 18%, 3% and 2% of cases had Android, iPhone, Windows phone and BlackBerry smart phones.

Table 2 shows the items associated with the use of smartphone for learning purposes. According to the table, 79% of cases use their smartphone to search contents associated with their courses and 86% of them use it to search education-related bulletins. Moreover, 89% of cases use it to send emails to classmates and university staff, 78% of cases use it to study the text of classroom lectures, 82% use it to view the images of classroom lectures and 94% use it to view educational videos. Furthermore, 86% of cases use their smartphone to search Library resources and the content of texts, 96% of them use it and the Internet to search required educational texts, 94% use it to share their notes with classmates, 94% use it to take pictures of their work in university, 93% use it to make a video of their works in university, 92% use it for other educational purposes, not indicated in this study, and 86% of cases have dentistry or educational-related applications installed on their smartphones.

Table 1: The information of the participants

Variables	Number and percentage of individuals
Gender	***
Male	(45)-41%
Female	(64)-59%
Total	(109)-100.0
Marriage	***
Single	86(79%)
Married	23(21%)
Total	(109)-100.0
School year	***
1	1
2	33
3	30
4	21
5	7
6	13
No answer	3
Total	(109)
Age	***
Under 20 years old	17
21-25	85
26-30	5
31-35	5
36-40	1
41-45	1
Total	(109)
Smartphone Type	***
Android	84(77%)
iPhone	20(18%)
Windows phone	3(3%)
BlackBerry	2(2%)

Table 3 shows the role of social media in learning. Totally, 95% of cases have access to social media through their smartphone and know it is beneficial for learning purposes. According to the cases, Telegram, WhatsApp, Viber, Facebook, Instagram and other social media contribute to 50%, 26%, 7%, 5%, 2% and 11% of learning, respectively.

Which one of the following applications is frequently used by you for educational and learning purposes?
Telegram: 54(50%), WhatsApp: 28(26%), Viber: 8(7%), Facebook: 5(5%), Instagram: 2(2%), others: 12(11%)
Table 4 shows places where the cases use their smartphone more for educational purposes. According to the cases, home, different places of university, on transport (for example in bus), library, amphitheater, working times in laboratory and other places contribute to 91%, 69%, 53%, 49%, 37%, 30% and 77% of places where the cases use their smartphone.

Table 5 shows the general opinion of the cases about smartphone and its impact on learning and education. According to the table, 91% of cases believe that smartphone improves their access to the content of their courses and educational content. In addition, 88% of cases believe that smartphone assists them in having a more independent learning process. Finally, 86% of cases think that university professors should pay more attention to the use of smartphone for educational purposes.

Table 2: Smartphone use questions

Item	Smartphone use questions	Yes	No	P
1	Do you search your course timetable?	86(79%)	23(11%)	P<0.01
2	Do you search education-related bulletins?	94(86%)	15(6%)	P<0.01
3	Do you send emails to your classmates and university staff?	89(82%)	20(8%)	P<0.01
4	Do you study the text of classroom lectures?	78(72%)	31(22%)	P<0.01
5	Do you view the images of classroom lectures?	82(75%)	27(25%)	P<0.01
6	Do you view educational videos?	103(94%)	6(6%)	P<0.01
7	Do you search desk resources and the contents of texts?	86(79%)	23(21%)	P<0.01
8	Do you search educational contents in web pages?	105(96%)	4(4%)	P<0.01
9	Do you share your notes with your classmates?	102(94%)	7(6%)	P<0.01
10	Do you take pictures of your work in university?	103(94%)	6(6%)	P<0.01
11	Do you make movies of your work in university?	101(93%)	8(7%)	P<0.01
12	Other uses?	100(92%)	9(8%)	P<0.01
13	Do you have any educational or dentistry-related application installed on your smartphone?	94(86%)	15(14%)	P<0.01

Table 3: Role of social media in learning

Item	Table 3: Role of social media in learning	Yes	No
1	Do you believe that social media is beneficial for education and learning purposes?	104 (95%)	5 (5%)
2	Do you have access to social media through your smartphone?	104 (95%)	5 (5%)

Table 4

Item	What are the places where you use your smartphone for educational purposes	Regularly	Generally	Rarely	Never	Agree (%)
1	Library	19	34	42	14	49%
2	Amphitheater	15	25	47	22	37%
3	Worktime in laboratory	13	20	46	30	30%
4	Different places of university	26	49	28	6	69%
5	On transport	18	40	30	21	53%
6	Home	54	44	10	1	91%
7	Other places	47	37	19	6	77%

Table 5:

	Cases' opinion	Completely agree	Agree	Completely disagree	Disagree	P	Agrees (%)
1	Smartphone has promoted my access to the contents of courses and educational contents	40	59	7	3	P<0.01	91%
2	My smartphone assists me in having a more independent learning process	30	67	3	9	P<0.01	89%
3	Professors should pay more attention to the use of smartphones for educational purposes	40	54	3	9	P<0.01	86%

Spearman's correlation coefficient shows that there is a positive correlation between the use of smartphone for general purposes and the use of it for learning purposes (0.483). In other words, as a student's use of smartphone for general purposes increases, his/her interest in using it for learning purposes significantly increases (P<0.01). In addition, there is a negative correlation between age and the use of smartphone for general purposes and between the age and the use of smartphone for learning purposes (-0.279). This means that as age increases the interest of students in the use of smartphone for general and learning purposes significantly decreases (P<0.05). Moreover, females and males as well as single and married cases were compared in terms of the use of smartphone for learning purposes using Mann-Whitney test and there was no significant difference between the groups.

Discussion

This study showed that dentistry students widely use smartphones for learning and educating courses. Surfing websites in the Internet associated with courses is the most frequent use of smartphones followed by sharing notes with classmates, dentistry-related applications installed on smartphones and making images and videos of university works. This agrees with Ozdalga et al [6], Schulz et al [7], Gilavand et al [8], Jamal et al [9], Albrecht et al [10] and Wu et al [11] studies. In addition, 95% of cases have access to social media through their smartphones and acknowledge the beneficial role of social media in education. According to the studied cases, Telegram and WhatsApp are the most frequent used applications for learning and educational purposes, respectively. This agrees with the results of Jamal et al [9], Malka et al [13], Goyder et al [14], Tran et al [15], Khanna et al [16], Johnston et al [17], Giordano et al [18], and Anyanwu et al [19]. However, some social media, including Facebook and Twitter, are censured in Iran and can be accessed only by proxy sites. According to the cases, home, different places of university, on transport (for example in bus), library, amphitheater, working time in laboratories and other places are the most frequent places, respectively where students use their smartphone for educational activity purposes. Finally, the majority of cases believe that their smartphones have improved their access to the content of courses and educational content. In addition, they believe that their smartphones help them in having a more independent learning process. The cases believe that professors should pay more attention to the use of smartphones. This agrees with Payne et al [20], Mosa et al [21], Baheti et al [22], Ozdalga et al [6], Schulz et al [7], Gilavand et al [8], Jamal et al [9], Albrecht et al [10], Wu et al [11] and Gavali et al [23] studies.

Conclusion

Even though this technology has not officially been included in curriculum, the use of it is rapidly being increased in educating in medical sciences due to its various advantages and capabilities in the learning process. It provides dentistry students with a proper opportunity for adopting different learning methods and may completely remove the monopoly of traditional education methods, i.e. books and lectures, in the near future. However, the combined use of traditional approaches and e-learning methods, including smartphones, is currently more acceptable. Many students use the course-related applications installed on their smartphone throughout their career and occupational life even after graduating from universities. Low-speed Internet and censured social media in Iran, limited software educating the use of cell phones, the possibility of transferring diseases in clinical environments by cell phones and the possibility of the disclosure of personal information of users are the most important challenges of the use of smartphone for learning purposes. It is suggested that similar studies be conducted on other academic majors in order to more accurately conclude the impact of smartphones on the promotion of the learning capability of other students.

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The Effect of Educational Training on Nurses' Clinical Function of Cardiopulmonary Resuscitation

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Abstract

Background and objectives: Cardiopulmonary resuscitation (CPR) is a life-saving intervention which is casually performed by nurses. The nurses' knowledge and skills play a great role in examining the effect of educational training on nurses' performance on the guidelines in manipulating cardiopulmonary resuscitation.

Materials and methods: In this experimental study we evaluated 66 nurses of the emergency Room (ER), ICU, CCU, and internal wards of Taleghani Hospital in Abadan, Iran in CPR before and after educational training. A validated researcher-made questionnaire was used since its validity and reliability were highly observed. It contained demographic information and included 20 items on nurses according to the Cardiovascular Recovery Guide 2016. All participants received an 8-hour training session and the scores were compared before, and one month after, educational intervention. The data were calculated through SPSS software version 16.

Results: Data were collected among the 66 nurses who participated in the study. They were one male and 65 female nurses. Participants' age was 30.27±6.71 years and their work experience of 6.79±6.36 (1-27) years. The educational level of most participants was nursery including bachelor (92.4%) and most in ER (31.8%). Score of the nurses' was 35.24±2.45 at baseline and that increased to 38.07±1.58 after the educational intervention (p<0.001). That was significantly higher in participants who were above 30 years old than those who were less than 30 years old. Their age was correlated by the increasing years of their job experience and was different in nurses who worked in various wards (all p<0.001), but they did not differ in their educational level (p=0.13).

Conclusion: The nurses of Taleghani Hospital had experience of CPR guidelines at the significant level which improved after the educational training; this issue showed the necessity of routine educational sessions on CPR for nurses.

Keywords: Nurses, Education, Knowledge, Cardiopulmonary Resuscitation

Introduction

Sudden cardiac arrest is the leading cause of death in Iran and worldwide (1). As American Heart Association (AHA) guidelines recommended in 2015, early cardiopulmonary resuscitation (CPR) within 3 to 5 minutes of cardiac arrest is the first step after pulse check that can increase the survival rate by 50% (2).

Nurses are usually the first who should be familiar with the patients who need most updated CPR guidelines and should receive proper training on the use of the devices including automated external defibrillator (AED) (3). However, studies have reported that the training programs are insufficient (4) and they have reported less than 50% success rate in CPR guidelines (5). Even when nurses pass the theoretical exams, less than half them cannot correctly perform the guidelines of the CPR clinical function on patients(6). Lack of knowledge and self-confidence or anxiety of the nurses may cause them not to start defibrillation (7). Therefore, several hospitals perform routine training courses at least each 6 months for nurses, but they have concluded that the educational programs that increase the nurses' confidence in skills may not reduce their anxiety (8). Since training alone could not increase nurses' skills, studies have suggested that coaching and practicing after an educational period are the key elements of success (9). They have established various factors which are associated with the amount of attention paid to guidelines of nursing principles, such as practicality of the guideline, job motivation potential, and organizational competence (10). It is suggested, that staff education, an early call for help, and team-work can increase the success rate, but it seems that a great number of medical staff had never renewed their CPR knowledge and the rest have only done so each 5 years (11).

Iranian studies have also reported that CPR is not performed properly in Iran (12) and have described low patient survival rates after CPR (13, 14). Therefore, CPR in Iran requires great attention to consider the fact that periodical education of nurses on CPR is not currently set in hospital guidelines in Iran. The present study aimed to examine the effect of educational training on nurses' CPR so they can perform it well.

Materials and Methods

Study design
In the present experimental study, nurses' CPR was evaluated in emergency departments (ED), intensive care unit (ICU), cardiac care unit (CCU), and internal wards of Taleghani Hospital, Abadan, before and after training courses. The total number of 66 nurses who worked with CPR in ED, ICU, CCU, and internal wards were recruited into the study voluntarily. Before recruitment, the design and objectives of the study were explained to all participants and written informed consent was obtained from those who were willing to participate in the study and they were ensured of confidentiality of their information.

The inclusion criteria consisted of having at least nursing associate's degree, but the job experience and age were not limited. Any participant who did not participate in the training sessions during the study or who worked in another hospital was excluded from the study. Nurses who met the appropriate criteria were included into the study by census method.

For checking of nurses on CPR, a questionnaire was designed by 3 faculty members who confirmed the content validity. The reliability of the questionnaire was approved by three faculty members (Cronbach's Alpha of 0.7). This questionnaire contained demographic information, including age, sex, educational level and general working experience plus 20 items (i.e., with choices including yes, partial, and none) regarding the cardiopulmonary resuscitation guidelines of 2016. Each item was scored by 0, 1, and 2 for the responses of no, partial, and yes choices, respectively, resulting in a maximum score of 40 and minimum of 0. Nurses were considered unsatisfactory when the score was 0-10, intermediate when 11-20, satisfactory when 21-30, and excellent when 31-40. The questionnaire was filled in by the participants before, and one month after, educational training.

Educational training consisted of an 8-hour training session, given to all the participants, in three groups of 22 by an educational supervisor at Taleghani hospital. They were certified as the trainers of CPR and the training was first conducted on a simulator. Practical training on the simulator of the QCPRC model of the Laerdal Company and the construction of the country of Norway, under the same conditions including the same time, was carried out by the teacher, teaching aids and a stationary simulator. After teaching of all participants practiced for 4 hours in the workshop on simulator. The time of this training was set based on the nurses' work shifts. Data were reported through frequency and percentage, or mean ± standard deviation (SD). The results of the questionnaire scores were compared using Paired samples T-test. For the statistical analysis, the statistical software SPSS version 16.0 for windows (SPSS Inc., Chicago, IL) was used. P values of 0.05 or less were considered at the significant level.

Results

The participants were 66 nurses and one of them was male and the rest were female. Mean ± SD of participants' age was 30.27±6.71 (i.e., ranging in range from 23 to 48 years old) and nurses' experience was 6.79±6.36 (1-27) years. The educational level of most participants was nursery bachelor (92.4%), while the rest (6.1%) were nursery associate, or (1.5%) nursery Msc. Most (31.8%) worked in ED, and 19.7% worked in CCU, while 16.7% worked in men and 16.7% in women's internal wards, and 15.2% in ICU.

Mean ± SD score of the nurses' was 35.24±2.45 at baseline and increased to 38.07±1.58 after the educational intervention (p<0.001).

The classification of the participants' age showed that the higher scores before and after intervention were in the experienced group (i.e., <30 and >30 showed) as (p<0.001) (Table 1). Moreover, there was a significant negative relationship between the scores and age (r=-0.33, p-value=0.006). Classification of the nurses' experience showed a significant difference in mean scores of nurses with various job experiences. This revealed that the scores increased by increasing the years of experiences (p<0.001) (Table 1). There was also a significant difference in mean scores of nurses who worked in various wards and the nurses who worked in men's internal ward showed the highest increase in mean score (p<0.001) (Table 1). But the mean scores of nurses did not differ significantly based on their educational level (p=0.13), as shown in Table 1.

Table 1: Mean scores of the participants based on the working unit/ward

Before training   **After training**
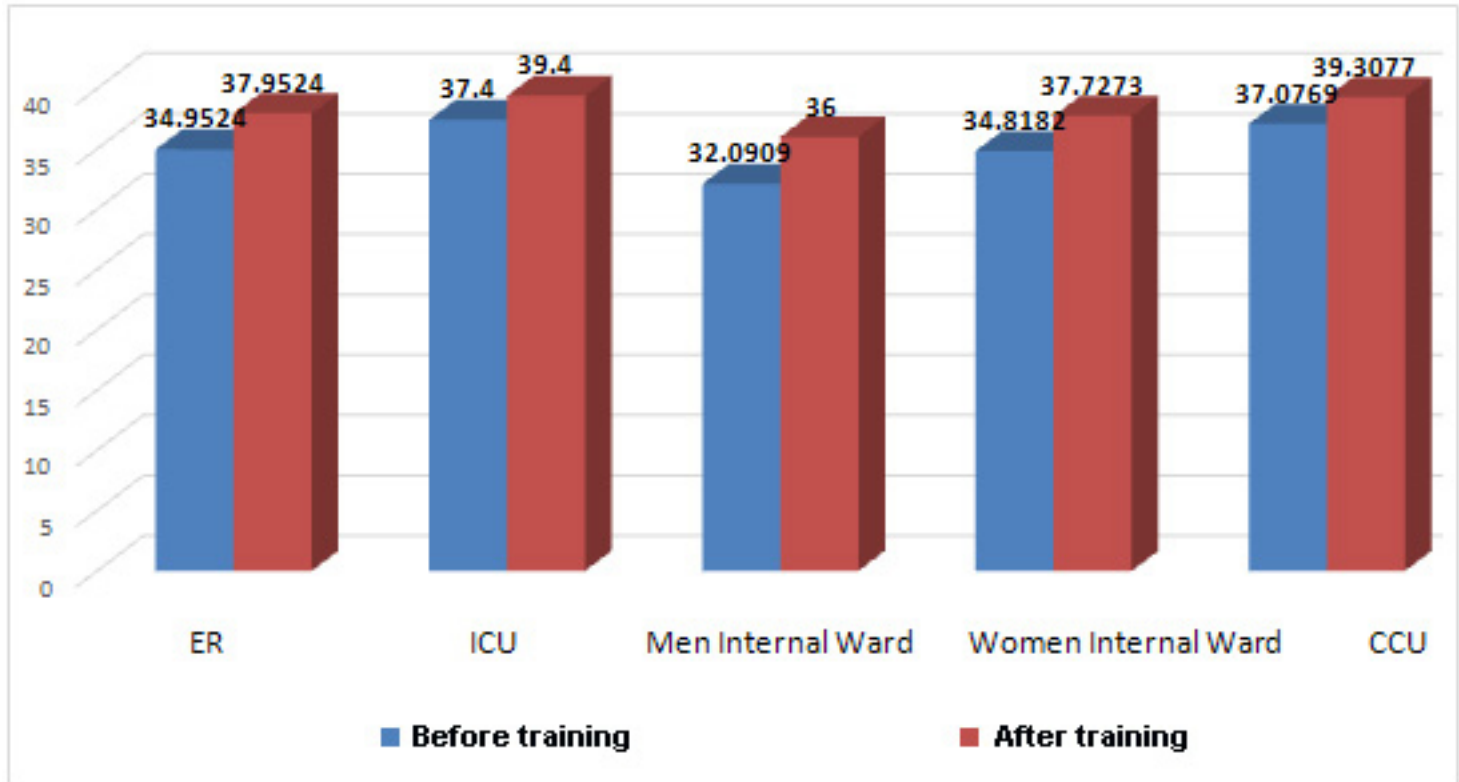
Table 2: Mean and standard deviation of participants' scores based on their demographic characteristics

Variable's category		Number of nurses	Before intervention	After intervention	p-value
Age category	<30	45	34.42±2.54	37.48±1.54	<0.001
	>30	21	37.0±0.77	39.33±0.65	
Work experience	≤5 years	35	34.11±2.27	37.31±1.43	<0.001
	5-10 years	19	36.15±2.47	38.57±1.50	
	≥11 years	12	37.08±0.66	39.50±0.52	
Working unit/ward	ED	21	34.95±1.85	37.95±1.11	<0.001
	ICU	10	37.40±0.84	39.40±0.69	
	Men's Internal	11	32.09±2.87	36.0±1.78	
	Women's Internal	11	34.81±1.60	37.72±1.0	
	CCU	13	37.07±0.64	39.30±1.58	
Educational level	Associate	4	36.75±0.50	39.25±2.45	0.13
	Bachelor	61	35.09±2.49	37.96±0.50	
	Master	1	38.0±0	40.0±0	

Discussion

The present study determined that the nurses of Taleghani hospital had a satisfactory CPR clinical function which increased after receiving educational training of CPR guidelines, with higher mean scores in experienced nurses with higher job experiences.

CPR is an important measure to improve the mortality and morbidity of patients after cardiopulmonary arrest. Thus, it is essential to pay more attention to success rate of CPR (15). In Iran, a recent study reported that 95.2% of CPR attempts were unsuccessful and less than 5% survived to receive hospital discharge (16). Nurses play a significant role in patients' survival, as they are the first who come to the patients' aid, so Success rate of CPR is significantly associated with the nurses' skills (17, 18).

Studies have indicated that nurses' knowledge is significantly associated with their CPR performance (19), and have, therefore, suggested that periodical education of nurses on CPR can increase nurses' knowledge and skill (20). Thus, many countries perform routine educational programs for nurses, and they have reported that it increases nurses' knowledge and skill, but it may not decrease their anxiety (8).

The results of this study agrees with an Iranian study, Saghafinia and colleagues (2015) who designed a 20-item questionnaire and reported that 54.75% of nurses responded correctly to the knowledge question; however, the psychomotor skills were very low and that increased after training (21), which is consistent with the results of the present study, considering the association of knowledge and clinical function (22). They also showed that the nurses' knowledge that increased to 80.6% after education, decreased to 64.3% after two years, which indicates the necessity of periodic education of nurses about CPR (21). Another study that examined CPR performance of nurses in Fasa showed that among 140 Iranian nurses, a 4-hour course could significantly increase their CPR performance (23). This is consistent with the results of the present study. Studies in other countries have also confirmed that nurses' knowledge significantly increase after education(24,25). Källestedt confirmed that standardized cardiovascular education could increase the knowledge of nurses that was consistent with our study outcomes. The findings of the present study were confirmed by his colleagues (24). In addition, Moule reported that nurses' clinical practice increased after training for cardiopulmonary resuscitation guidelines (25). Moreover, the results of studies in other countries are consistent with the results of the present study and emphasize the necessity of educational programs for nurses involved in CPR.

Another finding of the present study was statistically significant higher scores in nurses with higher experience, which is in line with previous research, indicating the association between experience of the CPR team leader and success rate (26). Moreover, studies have indicated that even experienced nurses require training on CPR (27). The present study also indicated that after invention, the score of nurses with the highest experience reached nearly the maximum score, which showed the efficacy of training in experienced nurses. Hosseini et al showed that the trainer's skill and experience play a significant role in success of the training (28), which is consistent with the results of the present study.

Some studies have also focused on the type of education that can have the highest efficacy which suggests using human models, educational films, and reference books as the best method with the highest efficacy (29). The significant increase in nurses' skills in the present study showed the efficiency of the training sessions that were performed by skilled educational supervisors with high experience. All of these studies are consistent with the current study, suggesting that a continuing education course can significantly increase the clinical performance of nurses' cardiopulmonary resuscitation. So, this is a matter of great importance and must be included in Clinical decision-making.

Beside the strengths of the current study, it also had some limitations, such as limited sample size and taking place in one hospital. Moreover, the nurses' were only evaluated for a short period after educational training. These limitations result in non-generalizability of the results. Thus, it is suggested that future multi-centric studies evaluate the nurses' after educational programs in longer follow-ups.
In conclusion, nurses' knowledge significantly increased after an 8-hour educational session by an educational supervisor in CPR which indicated the efficacy of CPR training for nurses who can perform effectively to increase the success rate of CPR in Iran.

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Comparison of the attitude toward stigma among the staff and students and faculty at Abadan School of Medical Sciences

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Abstract

Background: Stigma is a powerful social, inclusive and sustainable phenomenon and affects vulnerable populations. Stigma increases to psychiatric disease and is a leading burden of the disease on public health. This study aimed to investigate the attitude of students, faculty and staff toward stigma toward severe psychiatric patients in Abadan.

Methods: This study is descriptive. The study population included all students, staff and faculty members of Abadan School of Medical Sciences in 2016. The sample consisted of 282 subjects who were selected by convenience sampling method. To collect the data, demographic data, social distance questionnaires and being dangerous questionnaires were used. Data were considered using KS-test, independent T test, I U-Whitney, Wilcoxon test and were analyzed in SPSS-22, significance level was $(0.05 > p)$.

Results: The results showed that stigma of Employees with severe psychiatric disorders (34.21 10.64) is more than students (31.27 10.84) and professors (26.42 8.79). There is a direct correlation between age and stigma of professors, 0.514. No correlation was found between students and staff $(0.05 > p)$. It was also found that in the three groups health care and the fight against diseases in clinical laboratory sciences have more social Distance than other fields of study (mean 10.62, 8.86, 7) and two of the groups in clinical laboratory sciences and nursing have more stigma than other academic fields (34.06, 31.48), but the feeling of being dangerous has less stigma than other factors (23.43, 22.62).

Conclusion: According to the findings, it can be concluded that of the three groups of teachers, students and staff in clinical laboratory sciences, nursing has less social Distance, and higher stigma and yet feels dangerous has a higher sigma than the other disciplines. It is essential for the university community to understand components of the stigma towards mental illness.

Key words: severe psychiatric illnesses, attitudes, stigma, Abadan.

Introduction

The human body and mind have deep connection and attachment to each other. Therefore, their disease will affect each other. Complications and signs of physical illness are commonly visible and can be perceived by the five senses, but psychiatric symptoms usually influence emotions, feelings and behavior of the person and give a vague sense in early disease that the person does not understand it easily (1).

Total load and the prevalence of psychiatric disorders are a priority of the mental health services system. Mental health problems form 8.1 percent of =all diseases (2). Based on the results of a study that is part of a national study on health in Iran, the prevalence of mental disorders in the study population was 21% and depressive symptoms was in 21%, anxiety symptoms were in 20.8 percent, physical symptoms were in 17.9 percent and symptoms of social dysfunction were in 14.2 percent of people (3). In a study, the prevalence of mental disorders in Tehran was 14.3 and anxiety and mood disorders are 8.6 and 4.5 percent, respectively, reported as the most prevalent psychiatric disorders (2).

Despite the high prevalence of mental illness and despite major upgrade in quality and effectiveness of mental health services in the past decade, there is a significant Distance between the prevalence of these disorders and the use of mental health services (2). In an epidemiological study, it was shown that less than 30% of psychiatric patients follow treatment processes and another study showed that about 40 percent of patients with schizophrenia refuse to accept treatment (4). Most Asians and Westerners have the lowest latency delay in referral to treatment (5). One of the factors that can be a barrier in improving these diseases is stigmatization of mental illness (6). Goffman knows stigma as a split identity, that the feature is assigned to the individual or group, of which the credibility of members of the group or individual have unwanted attention imposed on them (7). Stigma indicates conditions of debasement(1), so that the stigmatised person, is not considered as a normal human with sufficient adequacy for acceptance in society (7). In Persian language, stigma is also called social stigma. The patient feels lack of compliance with the aspirations and social demands due to signs and symptoms of disease and feels the shame and despair and tries hiding their illness to compensate for this difference (8-9, 2). This makes them avoid treatment (4), which would protect them from withdrawal from society (8).

Patients with mental illness often are faced with two major problems. Firstly, they have compromising symptoms that vary depending on the type of disease (such as anxiety, delusions, hallucinations, etc.). These symptoms can influence employment, independent living and life satisfaction of these individuals (8). Secondly, social misconceptions can help in the creation of stigma against these people, even people who have well controlled disease in the workplace, or who are experiencing this problem when looking for a job. So, mental patients often will suffer loss of self-esteem (10) followed by declining confidence in their efficiency and confidence in the future. They are believed to be less valuable than others (4); they consider themselves responsible for causing the disease (12-11). And so, stigma affects their personal emotions (4).

Naturally, the conditions create restrictions for the stigmatised person, which strongly influences their individual psychosocial life. Limitations in acceptance among peers, use of economic and social benefits, jobs and education, social relations and loss of social support networks and even deprivation of looking healthy and having normal experiences (9-8). In such a situation, those with stigma see themselves as unworthy and not fitting in with society.\ (8).

At present, perceptions of psychiatric patients is different from patients with physical illness. One part of this attitude relates to knowing the psychiatric patient may be dangerous and another part is due to their lack of understanding of abnormal experiences. The diseases usually cause symptoms such as delusions and hallucinations, and these symptoms can affect their daily lives (13).

Attitudes of stigma of people with psychiatric illness is based on stereotypes and reaches a peak when there is insufficient awareness, misinterpretation and slight contact with the patients and this prevents attitude correction (9). Studies show that in people from the general population with familiarity of mental illness, the belief of these people with mental illness being dangerous is less (14). Other studies have also shown that medical students due to more information of mental illness have less stigma toward them than the freshmen (15).

The community response to mental illness can vary by severity, type of disease, the prevailing culture and traditions (8). The reaction can change over time (4). Stigma of schizophrenia, in Iran, follows in terms of both documentary and risk assessment (2). It has been shown that the stigma frequency varies between different nations and has increased in recent years (16). People have more stigma toward these patients than patients with physical diseases (4).

Noting that stigma is not an individual problem , it is a social problem and it is product of a reaction between society and the individual patient. It is a heavily discredited opinion that can be dealt with differently according to cultural norms. Considering the importance of this issue and that this phenomenon is a public health problem (13), in order to plan to control stigma, underlying information is required (4) and because students and teachers directly are related to the patient both during school and during their employment, we decided to study attitudes of Abadan School of Medical Sciences (students, faculty and staff) as part of the educated sections of Abadan residents toward stigma of severe psychiatric diseases.

Methods

This study is cross-sectional and was performed in 2016 in order to determine the attitude of students, faculty members and staff of Abadan School of Medical Sciences toward stigma of severe psychiatric disease. The population included all students in different fields (nursing, operation room, laboratory, medical, oral health, public health, health to fight disease, anesthesia) who numbered 595 people. All faculty members were 46 people and all the employees of Department of education, research and student were 100 people. The sample size for this study was calculated as 282 people. The samples were selected randomly from those who agreed to cooperate. All students, staff and faculty without restrictions in terms of age, gender, economic status, marital status and physical illness and psychiatric history were accepted. Study entry criteria was being a student of University of Medical Sciences, being a member of Faculty of Medical Sciences, being an employee of training assistance and having willingness to participate in the study. Among participants the least education level was diploma and Exclusion criteria included only those who refused to participate in the scheme. After obtaining written permission and submitting to the President of the University, check lists and questionnaires were explained to students, faculty and employees. Participants completed questionnaires which showed their agreement to participate in this research project. In a meeting that was held in classrooms, at first a description of the project was offered to students and teachers. The subjects completed questionnaires of the plan. Information was collected without giving their name. Firstly, participants completed their demographic information. Also a briefing was held for employees and after consenting to the study, questionnaires were available to them. Sampling lasted a month.

The questionnaire had two items of social distance and dangerousness in addition to the check list of information. Social distance scale analyzes respondents tendency to interact with a person with close or far relation. This scale was invented and used by Bogard to measure social distance scale on the basis of race and ethnicity in 1925, but in 1957, Cumming first used this scale for attitude towards the mentally ill patients. Philip (1963) was the first person using this scale by description. The questionnaire has 7 questions and a history and grading scale varies from study to study (no / yes, disagree / or I do not want / agree or would like). Spiro was the first person using definitely would like to / would not desire. Today, biographies are set based on the DSM (17 and 13). Cronbach alpha and reliability coefficient of the questionnaire is estimated by North (2006) (82%), Link (2003) 75% and Ranjbar (1389) 92 %(19-18-13).

Dangerousness scale measures respondents' attitudes about the dangers of psychiatric morbidity. beleiving mental patients as dangerous, leads to patients' incidence of discrimination and segregation. This scale has 8 Likert questions and answers are rated in three forms (disagree / no idea / agree) (17 and 13). Cronbach alpha and reliability

coefficient of the questionnaire is estimated by Pan (2001) 78%, Erik 72% and Ranjbar 96% (21-20V 13).

Stigma score was obtained by adding both of the questionnaires. Checklist contains demographic variables (age, gender, job and marital status, educational level, place of residence).

Analysis of data was done using descriptive statistics (mean, frequency, percentage, standard deviation) and analytical methods suh as KS test, independent T-test, Mann-Whitney, Wilcoxon test. Data were analyzed using SPSS version 22. The level of significance was considered as (0.05> p).

It is worth noting in this study that the Cronbach alpha for dangerousness was 0.70 and for social distance was 0.86 that represents the reliability of the results.

Results

A total of 282 patients were enrolled based on the results of this study as 191 students (100%), 21 faculty members (100%) and 70 employees (100%), respectively. The average age of students was 20.82 2.17 and the average age of faculty members was 33.75 4.77 and the average age of employees was 33.09 7.86. Overall, 160 were men and 122 were women. In students, the highest rate of education was at the undergraduate level, of 136 cases (71.2%) and in terms of education, in nursing, for 75 cases (39.3%), in terms of marital status, 177 were single (93.2%). In terms of most frequent education of the employees, 24 were undergraduate level (34.3%) and in terms of BMI, 42 cases were single (60%) and among faculty members, the highest rate of education was at the graduate level for 14 cases (66.7%) and in terms of marital status 18 cases were married (85.7%).

In this study, the stigma of Employees for severe psychiatric disorders (34.21 10.64) was higher than students (31.27 10.84) and professors (26.42 8.79) (Table 1).

Also during study, the correlation between stigma and age in three groups of students, faculty and staff determined that there is a direct correlation between age and stigma of professors as 0.514, but no correlation was found for students and staff (Table 2 and 3). This study also reviews the dangers and stigma were identified between eight majors. 3 groups of teachers, students and staff in clinical laboratory sciences, health care and fighting disease had more social stigma than other academic disciplines (with an average of 10.62, 8.86, 7) and 3 Groups in the clinical laboratory sciences and nursing, had more stigma than other academic disciplines (34.06, 31.48), but the feeling of being dangerous had less stigma than other fields (23.43, 22.62) and significance level was (0.05> p). (Table 4).

Table 1: Descriptive statistics of research variables		Number	least	most	mean	SD
Student	Dangerousness	191	.00	39.00	23.0628	7.98461
	Social Distance	191	.00	19.00	8.2094	4.78024
	stigma	191	1.00	54.00	31.2723	10.83655
employee	Dangerousness	70	4.00	45.00	27.2429	8.57099
	Social Distance	70	1.00	16.00	6.9714	3.74542
	stigma	70	6.00	58.00	34.2143	10.64294
master	Dangerousness	21	14.00	37.00	20.2857	6.57376
	Social Distance	21	4.00	13.00	6.1429	2.97129
	stigma	21	18.00	48.00	26.4286	8.78960

Table 2: Correlation between stigma and age		stigma	Dangerousness	Social Distance
age	Pearson correlation	.098	.180**	-.102
	Significant level	111	.003	.097

According to the results of table, there is only direct correlation between age and extremely dangerous in 0.180.

		Table 3: Correlation between stigma and age based on job	stigma	Dangerousness	Social Distance
age	student	Pearson correlation	.030	.032	.014
		significance level	.695	.676	.852
		number	176	176	176
	employee	Pearson correlation	.086	.118	-.025
		significance level	.479	.332	.837
		number	70	70	70
	teacher	Pearson correlation	.514*	.648**	.086
		significance level	.017	.001	.712
		number	21	21	21

Pearson correlation is used according to both interval scale variables. Null hypothesis indicates independence between two variables and the alternative hypothesis shows a relationship between two variables under consideration. Results are shown in Table 3.

There is a direct correlation between age and stigma among professors, 0.514, also there is a direct correlation between age and dangerousness among professors 0.648, but the relationship was not found for students and staff.

mean	Nursing	Operation room	Lab	Clinical	Oral health	Public health	disease fight Health	Anesthesiology	Statistics	Significance level
Dangerousness	22.6222	22.6780	23.4375	21.8750	24.7692	24.0000	26.3333	11.6667	4.374	.736
Social Distance	8.8667	7.7966	10.6250	5.2500	6.1538	5.5000	7.0000	4.3333	17.411	.015
Stigma	31.4889	30.4746	34.0625	27.1250	30.9231	29.5000	33.3333	16.0000	5.077	.651

<< Table 4: Stigma, dangerousness and measurement of social distance in eight disciplines

Discussion

The findings of the study about the level of stigma of staff toward psychiatric disease is more severe than students and teachers and can be interpreted as due to the reaction of the population to mental illness can vary by severity, the disease type, the prevailing culture and traditions, but the attitudes of stigma toward people with mental illness is based on stereotypes and reaches a peak when there is insufficient awareness, misinterpretation and slight contact with the patients. This can prevent attitude correction. Of course, it goes to the media and the culture of our society. Given that the media has a very influential role in shaping public attitudes, consultants are trying to exaggerate the newspaper headlines in some rare events (e.g., death or damage by a person with psychiatric patients). The language used is often insulting and degrading and with induction of psychiatric illness lasting relationship with violence, encourage or spread negative stereotypes. The scheme, including the mentally ill population of the species are formed in a way that the patients are dangerous and should be away from them. In the present study, as the personnel are training department employees and somehow work in a riddled environment, they have less communication with them and in terms of education, they are mostly at the expert level, so they are not familiar with these conditions, the apparent cause of illness and lot of these problems. Therefore, according to the formed Schema in these patients, this group is described as dangerous and have more social distance and they have greater stigma to the disease. This finding is consistent with studies of Corrigan (2004), Sartorius (2002), Mess (2002), and Lev (1388).

Corrigan's study (2004) showed that in people of the general population with relative familiarity with severe mental illness belief of dangerousness is less and associated with less underestimated risk of persons with mental illness with less fear of them and ultimately with social avoiding. Cooper's Study (2002) found that seniors who had more information of the disease and had prior contact with persons with mental illness give less stigma to these patients than freshmen. The finding that there is a direct correlation between age and stigma of professors, 0.514 and the significant level of these two variables was 0.017, but no relationship was found in students and staff, it can be explained in this way that having knowledge about mental illness can have an impact on more tolerance toward mental illnesses and contact with this disease alone is not enough to change attitudes with which is in line with Cooper's Study (2002) and not in line with Eastman (2002).

Eastman's study (2002) on the subject showed that increasing age, lower socio-economic level, lack of familiarity and dealing with mentally ill people can add to the stigmatization toward them. The study is in line in terms of the view that stigma increases with ageing, but in terms that the teachers have good socio-economic conditions is not in line with Eastman, that says stigma is associated with a reduced economic and social level.

On the finding that three groups of teachers, students and staff in clinical laboratory sciences, Nursing and health, and fighting disease have more social distance than other academic disciplines (with an average of 10.62, 8.86, 7) and 2 groups of clinical laboratory sciences and nursing have more stigma than other academic disciplines (34.06, 31.48) but have less feeling of being dangerous than other fields (23.43, 22.62) it can be interpreted in this way that the Department of Health Laboratory and fighting disease pass only two units of psychology theory and no single apprenticeship is able to have direct contact with patients and are not closely familiar with them. So, their social distance and stigma is associated with lack of their connection with this class.

But this class in the group of nurses has more social distance and stigma with less dangerousness. It can be generally interpreted that the cultural background and the previous experiences of nurse and other people affect conditions of labeling and stigma. Stigma is a force that shaped both in local as well as affecting its properties . The interpersonal relationship of patients with people who have a high social situation (e.g., nurse, teacher) and also accepting the label by the affected person are the things that lead to stigma and social distance. When a person becomes labeled by society, expectations change according to it. Stigma may affect the behavior of people with the disease. They behave as they are expected to and this may change both their beliefs and senses, a kind of negative reinforcement of stigma and social distance in themselves and others. This finding is consistent with studies Major (2005) and Link (2001) and Soudmand (2016).

But it can be said about feeling less dangerous of the mentally ill, due to the pervasive nature, it is necessary for nurses to understand the components of stigma towards mental illness. Perceived stigma is promoted by nursing practice in two ways: First, it helps that nurses do care for each person individually and the second makes nurses examine their own beliefs and values and how they interact with patients. This is especially important in evaluating care, support, acceptance and confidence and should be the primary focus of all nursing activities. In this issue, open communication by nurses is necessary in such a way that the patient can act to express their feelings freely and without fear of being judged or stigmatized as behaving repulsively, because the stigma and labeling of mental illness can prevent treatment and that is a basic principle to be taught to students. Regarding the relationship of stigma with nursing, the meaning of stigma is reflected too low in nursing and patient care. This finding is consistent with Soudmand (2016).

Conclusion

Considering three groups of teachers, students and staff in clinical laboratory sciences, nursing, has more social Distance and stigma and yet less feeling of danger than the other fields, and since this study was conducted for the first time in this community, it needs to be replicated in different samples with greater sample size to interpret findings with more confidence and extend them. Stigma can occur in many different forms (culture, obesity, gender, race and mental illness) and in different environments (work, learning environments, health care and even in one's own family) and prevent mental health treatment. It is also recommended to have more training and workshops and making plans in this regard at the university level and occuring in public, especially through the mass media and to have normalization of mental illnesses for stigmatization, because this training is to improve public health and reduce stigma.

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The effectiveness of sexual skills training with a cognitive-behavioral approach on sexual dysfunction among infertile women

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Abstract

Background: There is evidence that sexual dysfunction in infertile women is more common than fertile women. As there is a relation between infertility and sexual dysfunction, treatment of this disorder seems necessary. Therefore, the current study was done to determine the effectiveness of sexual skills training with a cognitive-behavioral approach on sexual dysfunction among infertile women.

Methods: This was a quasi-experimental pre-test and post-test study which lasted from June 2015 to February 2016. Study population consisted of infertile women aged 22 to 36 years with sexual dysfunction who presented to our academic infertility center. Considering the inclusion and exclusion criteria, 40 patients with informed consent were randomly assigned to experimental or control group. Subjects in the experimental group received sexual skills training for 10 weekly sessions. No intervention was done in control group. Sexual dysfunction scores were recorded using the Female Sexual Function Index (FSFI). The gathered data were analyzed using SPSS software and the Chi-square test and co-variance analysis.

Results: The results showed that sexual skills training had significant effect on sexual dysfunction scores. The scores increased significantly in the experimental group (P< 0.001).

Conclusion: It is suggested that psychologists, psychotherapists, and obstetric and gynecologists use sexual skills training with cognitive-behavioral approach for infertile women who suffer from sexual dysfunction.

Key words: Sexual skills training; cognitive-behavioral; sexual dysfunction; infertile women

Introduction

Infertility which is defined as pregnancy failure despite at least one year of unprotected sexual intercourse now has a prevalence of 20% and has become a public health issue (1). A previous study reported the prevalence of infertility as 24.9% in Iran (2). One of the concerns in infertility is sexual dysfunction (3) which is persistent or recurring disorders in four domains including sexual desire, sexual arousal, penetration disorder or inability to achieve orgasm according to DSM-IV. In DSM-V some modifications have been made and sexual desire and arousal have been combined and the item pain during intercourse has been removed. The latter has been combined with vaginismus under a new disorder in DSM-V (4).

An important aspect of infertility is the relationship of this condition with sexual health. It seems that this aspect of infertility has been overlooked in developing countries (5). In other words, sexual dysfunction is a silent partner of infertility treatments (6). Sexual satisfaction is among the most important issues among infertile couples, especially in women. This can affect all aspects of marital life and even treatment progress (7). It is likely that sexual dysfunction is the etiology of infertility or may be the result of another psychologic stress in one of the couples or both of them (8). Most experts believe that there is association between infertility and sexual dysfunction (9). One of the biggest objectives of sexual desire is to have children (10). We encounter decreased sexual desire in infertile persons which reduces the chance of fertility. This decreased sexual activity increases the persons who do not have children in such a group of patients (11). Pregnancy is an inseparable component of a sexual relationship and inability to get pregnant often results in sexual problems which causes anger and depression in the affected couples (12).

Previous studies have confirmed sexual dysfunction among infertile patients (13-17). All these studies showed higher rate of sexual dysfunction among infertile couples when compared to fertile couples. In a former study in 2013, Jamali et al. studied 502 infertile women and reported that 87% of the sample had sexual dysfunction. They noted that this high rate of sexual dysfunction was due to lack of knowledge about sexual skills and lack of pertinent training (18).

Another study in 2015 reported the prevalence of sexual dysfunction as 55.5% among 236 infertile women (19). The main reasons for sexual dysfunction in the mentioned study were similarly lack of knowledge about sexual skills and lack of pertinent training. Considering these findings, it seems necessary to resolve the problem of infertile women through providing knowledge. This requires more research studies. Miller believes that cognitive-behavioral therapy should always be the first step in the management of infertile couples (20). Various forms of sexual dysfunction can cause infertility such as intercourse-related problems, decreased incidence of intercourse (due to decreased sexual desire in 11% of cases, impaired erection or premature ejaculation which are the most common sexual dysfunctions in males (66%) and lack of ejaculation (8%) in infertile males. Also, vaginismus or painful intercourse (58% of cases) and reduced sexual desire (28% of cases) exist in infertile women. On the other hand, insufficient sexual excitement in women causes vaginal dryness which inhibits sperm migration in the vagina (21).

Andrews stated that if it is not possible to resolve infertility tension, at least efforts should be made to decrease its burden. Therefore, decreasing familial disputes and making the couples satisfied with regard to sexual and marital relationships are appropriate methods for infertile couples (22). The World Health Organization (WHO) requires its personnel to go beyond clinical diagnoses and medical interventions to address sexual dysfunction. This organization necessitates its personnel to consider the psychological aspects of sexual dysfunction and by addressing such issues they try to improve the quality of life of affected patients (23).

One of the methods that seem to be useful in addressing the infertility problem and treatment of sexual dysfunction is cognitive-behavioral therapy. In this approach, using behavioral methods, we try to change maladaptive cognitions of a person (24). This approach was introduced by Masters and Johnson in 1959. Before introduction of this approach, sexual disorders were tolerated in silence by the patients and professional help was rarely accessible. The approach defined by Masters and Johnson had a special schedule that was named a package approach. In this package, a set of special methods was used in a diagnosis (25). There are several studies which indicate the usefulness of sexual skills training. For example, a previous study reported the efficacy of sexual skills training on improving psychological arousal during sexual relations and orgasm in women (26). A previous study assessed the effect of cognitive-behavioral based training

on sexual satisfaction among women with reduced sexual desire. They reported that after training, a significant difference existed regarding sexual satisfaction scores between experimental and control groups which supports the effectiveness of cognitive-behavioral training (27). Another study used cognitive-behavioral therapy in couples with idiopathic infertility and reported this approach as a successful one in order to help infertile couples (28). Considering the literature, there is no study to investigate the effect of sexual skills training with cognitive-behavioral approach on infertile couples.

The requirement to address the psychological needs of infertile people especially women, lack of accurate research studies regarding infertility psychology, and the necessity to find a short-term and affordable method and the fact that there is no public or governmental place to train infertile couples shows the fact that such research studies should be done in countries like Iran. Considering the fact that more than half of sexual dysfunctions are due to lack of knowledge or insufficient knowledge and an incorrect belief about sexual relations (30), the current study was carried out.

Research Hypotheses

Hypothesis 1: Sexual skills training improves sexual desire in infertile women
Hypothesis 2: Sexual skills training improves psychological arousal in infertile women
Hypothesis 3: Sexual skills training increases vaginal lubrication in infertile women
Hypothesis 4: Sexual skills training increases orgasm in infertile women
Hypothesis 5: Sexual skills training improves sexual satisfaction in infertile women
Hypothesis 6: Sexual skills training reduces sexual pain in infertile women
Hypothesis 7: Sexual skills training improves sexual function in infertile women

Materials and Methods

This quasi-experimental study with pre-test and post-test design was approved by the ethics committee of our university. The study population consisted of infertile women who presented to our academic infertility center. The sampling method was convenience method. Considering the inclusion and exclusion criteria and response rate, 40 subjects were selected. They were randomly divided into experimental and control groups (20 subjects in each group). Subjects in the experimental group received sexual skills training for 10 weekly 2-hour sessions. The control group did not receive any intervention. After completing this period, both groups completed the Female Sexual Function Index (FSFI). For ethical considerations, after 10 weeks, sexual skills training was done for the control group. The personal data was kept confidential. Inclusion criteria were written informed consent, being a volunteer for the study, age range of 22 to 36 years, sexual dysfunction, one year passed from unsuccessful pregnancy, and primary

infertility (no children or step children). Exclusion criteria were having physical conditions (spinal cord injury, limb amputation, paralysis, and anatomic disturbances in the limbs), psychiatric disorders (receiving treatment for psychiatric disorder by a physician or a psychiatrist), medical disorder (cardiovascular diseases, pulmonary diseases, hypo- or hyperthyroidism, epilepsy or diabetes), having stressful experiences (death or acute illness of a close relative and major change in life in the preceding 3-month period), alcohol or drug addiction, male-factor infertility, plan for pregnancy-assisted methods such as intra-uterine insemination or intra-vitro fertilization in the next 6 months, and taking medications for sexual dysfunction. The data were analyzed using multi-variable ANCOVA (analysis of covariance) by SPSS software (ver. 19.0).

Tool
The Female Sexual Function Index (FSFI) was developed by Rosen et al in 2000 and is a self-report measure of sexual function that contains 19 items. This assesses sexual arousal, vaginal lubrication, orgasm, satisfaction, and pain. The score range is from 0 to 5 and higher scores indicate more satisfactory sexual function. This questionnaire's validity and reliability have been approved by Rosen et al. (31). Also in an Iranian study in 2009, reliability and validity of the Persian version of this questionnaire was confirmed (32). The authors declared that this questionnaire is a valid and reliable one to investigate female sexual function and as a useful screening method. Cronbach's alpha coefficient by split half and test-retest methods were respectively 78% and 75%. Subscales had coefficients of 63% to 75% by split half method and 70-81% by test-retest method. As this questionnaire covers all items of sexual dysfunction including pain, it was selected for this study.

Therapeutic protocol
The cognitive-behavioral protocol used here is the one described by Masters and Johnson in 1996 and modified by Azartash in 2011 (33) (Table 1).

Table 1. Summary of sexual skills training with cognitive-behavioral approach

Session 1	Review of common sexual beliefs and cultural as well as religious attitudes
Session 2	Training anatomy and physiology of male and female sexual behavior
Session 3	Introducing desires, preferences, and differences in male and female sexual behaviors
Session 4	Training relaxation, sexual imagery, and regular desensitization
Session 5	Training focused attention, training self-monitoring assignments
Session 6	Training sensory focus exercises (1) and reviewing self-monitoring items and restructuring them
Session 7	Training sensory focus exercises (2) and reviewing self-monitoring items and restructuring them
Session 8	Training perineal muscle exercises or Kegel exercises and reviewing self-monitoring items
Session 9	Training facilitating of orgasm, reviewing self-monitoring items, and getting familiar with benefits of sexual relations for humans
Session 10	Getting familiar with sexual dysfunctions and their causes

Results

Table 2 shows Demographic data of experimental and control groups.

Table 2

Variable		Study F (P$_d$)	Control F (P$_d$)	P
Age	22- 25	6(30%)	4(20%)	
	26-29	4(20%)	4(20%)	0/938
	30-36	10(50%)	12(60%)	
Duration of marriage	1-3	8(40%)	2(10%)	
	3-6	10(50%)	10(50%)	
	6-9	2(10%)	4(20%)	0/055
	Over 9	-	4(20%)	
Time to pregnancy Proceeding	1-3	12(60%)	12(60%)	
	3-6	8(40)	6(30%)	0/011
	Over 6	-	2(10%)	

Considering the Chi-squared test results, the hypothesis of homogeneity between the groups is significant.

Table 3. Mean and standard deviation of sexual function and its items at pre-test and post-test states in experimental and control groups

Variable	Mean (SD) Study		Mean (SD) Control	
	Pretest	After test	Pretest	After test
Desire	2/70(0/823)	6/90(1/10)	3/50(1/26)	3(1/41)
Arousal	5/20(1/61)	13/50(2/75)	5/80(1/68)	2/60(2/01)
Lubrication	6/10(1/91)	14/10(1/75)	5/20(1/68)	4/30(2/21)
Orgasm	3/40(0/966)	10/70(1/49)	3/80(1/31)	3/10(1/66)
Satisfaction	4/70(1/88)	12/40(2/06)	4/80(1/47)	4/50(2/12)
Pain	6/60(2/36)	12/40(2/63)	9(3/82)	6/70(3/12)
Full Scale	28/70(6/65)	70(9/84)	32/10(7/27)	26/20(10/53)

Considering the data presented in Table 3, the experimental group achieved higher scores after the intervention. In order to assess the significance of the changes and determine the effect size of sexual training on sexual function improvement in the experimental group, first the pre-test scores were modified. Then, using the ANCOVA, the effect size of sexual skills training on sexual function improvement in infertile women was determined. Before using ANCOVA, its assumptions were reviewed. In order to determine normal distribution of data, the Shapiro-Wilk test was used. To address the assumptions, Leven's test was used. The Box test was not significant for any of the variables (BOX= 39.741, F= 1.191, P= 0.250). Other assumptions of ANCOVA were reviewed and all of them showed that assumptions have been addressed.

Table 4. Analysis of covariance to compare sexual function scores between experimental and control groups

	Variable	SS	DF	MS	F	Sig.	Eta squared
Group	Desire	50.272	12	50.272	54.416	< 0.001	0.819
	Psychological arousal	225.421	12	225.421	30.538	< 0.001	0.718
	Lubrication	226.661	12	226.661	50.684	< 0.001	0.808
	Orgasm	152.543	1	152.543	54.617	< 0.001	0.820
	Satisfaction	182.590	1	182.590	47.035	< 0.001	0.797
	Pain	58.059	1	58.059	5.274	0.040	0.305
	Sexual function	4990.382	1	4990.382	38.819	< 0.001	0.764

Table 4 shows that, after modifying pre-test scores, there was significant difference in post-test scores of desire (F $(12, 1)= 54.416$, $P < 0.001$), psychologic arousal (F $(12, 1)= 30.538$, $P< 0.001$), lubrication (F$(12, 1)= 50.648$, $P< 0.001$), orgasm (F$(12, 1)= 54.617$, $P< 0.001$), satisfaction (F$(12, 1)= 47.035$, $P< 0.001$), and sexual function (F$(12, 1)= 38.819$, $P<0.001$) between experimental and control groups. In other words, it can be stated that with 9% confidence that sexual skills training improved sexual function of infertile women. Considering the Eta squared value, the effect size of this training was 76%. As seen in Table 4, sexual skills training was also effective on pain (F$(12, 1)= 5.274$, $P< 0.05$). Considering Eta squared value of lower than 0.35, it shows that this training was not so effective on pain.

Discussion

This study was done with the objective of determining the effect of training sexual skills with a cognitive-behavioral therapy on sexual dysfunction of infertile women. For the experimental group, 10 weekly sessions of training sexual skills were performed, while no intervention was done in the control group. Both groups completed the FSFI at baseline and again after 10 weeks. Considering the ANCOVA results, it can be concluded that sexual function scores were significant after 10 weeks between experimental and control groups. Post-test scores were higher in the experimental group which reflects the efficacy of the sexual skills training. Therefore, all the study hypotheses, except hypothesis 6 which relates to pain, are approved.

There are limited studies about the effect of training sexual skills on sexual dysfunction in Iran. The findings of the study are in agreement with some former studies (34-42). All the mentioned studies indicated the effectiveness of sexual skills training with cognitive-behavioral therapy on sexual function. The intervention used here had a significant effect on all items of sexual function, except for pain. Although the change in pain score was not statistically significant, when mean score at pre-test (6.60) is compared to post-test score (12.40), we observe improvement. However, this change was not statistically significant. It should be noted that the training used here lasted for 10 weeks and this time course is too short to resolve pain. According to a previous study (43), the required time to address vaginismus was 34 sessions in 12 months. During this long time, patients gradually achieved higher level of vaginal muscles control and non-painful intercourse. The lack of significance regarding effect on pain may be justified by the study period.

The current findings are compatible with a previous study (44) that studied a 6-month therapeutic plan to improve sexual function and satisfaction and marital life skills. In addition to relation between infertility and sexual function that always should be addressed in treatment of infertility, sexual desire is also an important factor (45). It can be stated that sexual relations by affecting couples' thoughts and feelings directly or indirectly can affect their life. The couples that have agreement with regard to sexual relations are happier and can ignore many life problems (46). One of the main fundamental methods to achieve this healthy sexual behavior is providing appropriate education. Research in this field shows that sexual skills training is effective on health behaviors and can improve understanding of persons about sexual issues (47).

Perhaps the reason for significant effect of sexual skills training on sexual dysfunction in infertile women is that the need of such patients for such training to resolve problems in sexual function which existed long ago or developed after infertility was diagnosed, prepared them properly to implement this training. The training provided a basis that patients themselves see their relations beyond infertility and try to improve their sexual relations.

Another issue that is a strength in this study that spouses of the women were contacted and were advised regarding sexual dysfunction. They were notified that they should also collaborate in this study and as this study was done in a university center, they allowed their spouses to participate at the study. The sessions were held very regularly and this helped the effectiveness of the intervention.

There are some possibilities in terms of effectiveness of sexual skills training with cognitive-behavioral therapy approach on sexual dysfunction. First, exercises used were not merely physical ones. These sexual exercises can result in complex psychologic reactions. For example, with sensory-focus exercises not only pleasurable reactions are strengthened, but also prevent unwanted sexual tensions. By reducing unpredictable sexual tensions in couples, emotional relations are enhanced by such exercises and cause couples to be more kind towards each other. Secondly, the treatments used here allowed the subjects to state their excitement freely. This free relation usually resolves anxiety and facilitates subjects' feelings. Third, suppressing guilty feelings or unconscious fear of enjoyment and replacing prohibiting cognitions with correct cognitions can justify the effectiveness of the therapeutic intervention studied here. When pregnancy does not occur, infertile couples may think that they do not have effective sexual relation and gradually may forget that sexual relation is mainly to address a fundamental need and its ignorance can cause damage to their life (48).

In the current study, the sessions were held only for women in the absence of their spouses. It is suggested that in the future studies, such training be held in the presence of the spouses (couple therapy) and compare this with group therapy.

Conclusion

The results of this study indicated that sexual skills training with cognitive-behavioral approach was effective on sexual dysfunction among infertile women. We suggest that obstetricians and gynecologists, midwives, nurses, and psychologists use this method in addition to other approved methods. Treatment of sexual dysfunction in infertile women is very important by twofold. Firstly,

treatment of infertility is important. Secondly, by treating sexual dysfunction, marital relations are improved. This is an effective method to avoid marital and familial conflicts and resultant consequences. As married individuals have various sexual behaviors and patterns, by training couples, it is possible to enhance their sexual knowledge and make cognitive changes.

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How to prepare a poster for a scientific presentation

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Abstract

There are several different ways for present-ing research results. Writing and publishing an article is often the best format for such presenta-tion, however other methods such as presenting the results in a scientific gathering/meeting can also be suitable. Usually there are two different forms of such a presentation: firstly, through a short scientific talk and secondly, by designing a poster.

The chief aim of the present article is to provide readers with some practical guidelines on how to prepare a well-designed/attractive poster as a proxy for a research paper.

Key words: Poster preparation,
Scientific presentation, Scientific meeting

Introduction

There are several different ways for presenting research results. Writing and publishing an article is often the best format for such presentation, however other methods such as presenting the results in a scientific gathering/meeting can also be suitable. Usually there are two different forms of such a presentation: firstly, through a short scientific talk and secondly, by designing a poster (1).

Delivering a scientific talk has its own advantages and needs planning and preparation (2-4). Similarly, designing a scientific poster has its own advantages and also needs its own planning and preparation (5-7).

Evidence suggests that in a scientific gathering people tend to pay more attention to a scientific talk rather than poster presentation (8). On the other hand, since presenting a poster is more relaxing than giving a talk in front of a large audience (9) it seems that poster presentation may best suit novice researchers and/or students who would like to present their results for the first time.

The other major advantage of a poster presentation is that posters tend to stay on display throughout a conference, symposium etc. for a whole day. Whereas a scientific talk takes place at a particular time and not everyone may be available to attend at that time. Besides, often there are concurrent sessions at conferences so you can only attend one of them at a particular time.

It should be noted that at some conferences posters are only static displays and the designer/author does not attend. Under such circumstances the poster becomes their 'representative' and is a cost effective way of being involved in a conference. However, poster presentation in some other countries e.g. Iran is the only way to get funding in order to attend a scientific meeting (10).

If one follows some practical guidelines and prepares a well-designed/attractive poster that will increase the likelihood of their poster being displayed. Therefore, the aim of the present article is to provide readers with practical guidelines on how to prepare a well-designed poster.

Practical guidelines for preparing a well-designed scientific poster
1. As the first practical guideline it is worth emphasizing that like any other types of scientific presentation, you should decide to design a poster only if you have a new finding/message to deliver.

2. Whenever you have a new finding that might be selected to be presented in a poster format, the first and the foremost important step is to select a title that accurately says at a glance what your poster is about. The title should be presented attractively and legibly from a distance. Remember that only by an eye-catching title will you be able to make people stop by your poster and start reading it. The authors name and their affiliations should appear immediately after the title (Figure 1).

3. Including an abstract within your poster depends on the decision of the organizing committee of the scientific gathering. If an abstract is needed you should prepare a short but comprehensive one and put it in the upper left corner of your poster (11). Personally we do not think that an abstract is needed since the poster by itself should be designed very concisely. Instead we suggest that during the poster session you should provide reprints of your abstract plus your business card that attendees will be able to pick up if they wish.

4. After the title and details of the authors continue with a very short introduction followed by the essence of your Methods. Then present your findings using appropriate visual aids (See also the next two points). Continue with a brief but thoughtful Discussion and a clear but short Conclusion. Finish your poster with brief Acknowledgments followed by the list of very few but most relevant of your References (Figure 1).

5. As mentioned earlier and since people have a very short time to read your poster you have to design it purposefully, precisely, and attractively. Therefore, avoid too much text. Instead use charts, tables, diagrams, maps and pictures where they can better display the information at a glance. It is also suggested that you should reduce the number of full sentences and apply bullet points whenever appropriate especially within the Methods section (12).

6. You should also remember that using visual aids to display your findings depends on the nature of your data. For example, if you are going to present the geographical distribution of a phenomenon it would be wise to present the data in map rather than a table or chart (13). Similarly, if you are going to present the time trend of a phenomenon it would be much better to use a diagram rather than a table.

7. The size of the poster is always a vital issue. Usually the organizing committee will notify you about the preferred size of your poster. However, it would be worth remembering that a poster is usually designed as 120 cm wide and 90 cm tall (9) (Figure 1).

8. It is vital to present your text and visual aids using appropriate and attractive font type, font size and colors. A balanced fitting of text, color, and graphics will catch the attention of more people (14). It is suggested that headings should be in bold, 36-point type whilst the rest of the text should be no smaller than 24-point type (12).

9. It is worth emphasizing that there is software available which might help you to design an imaginative poster, including PowerPoint, Illustrator, Photoshop, InDesign; Microsoft Publisher and PosterGenius (12).

10. After designing your poster you should do your best to successfully present it in your assigned session. Take the necessary cautions for transportation and mounting it in the allotted place. Remember that your willingness to discuss the content of your poster with the attendees might increase their willingness to stop by your poster and read it (15).

11. Finally, Figure 1 displays the size, outline and content of a poster as a proxy for a research paper. It should be noted that this poster was designed based on our own research work that will be published later on. Since this is a descriptive study, within the poster we try to essentially say who does what, why, where, when and how and what are the results and the public health implications.

Conclusion

Poster presentation may best suit novice researchers and/or students who would like to present their results for the first time. This article has introduced eleven practical guidelines on how to design a successful poster. It is hoped that by following these guidelines one can increase the likelihood of catching the eyes and perhaps the minds of the attendees in a scientific gathering.

Figure 1. The size, outline and content of a poster as a proxy for a research paper
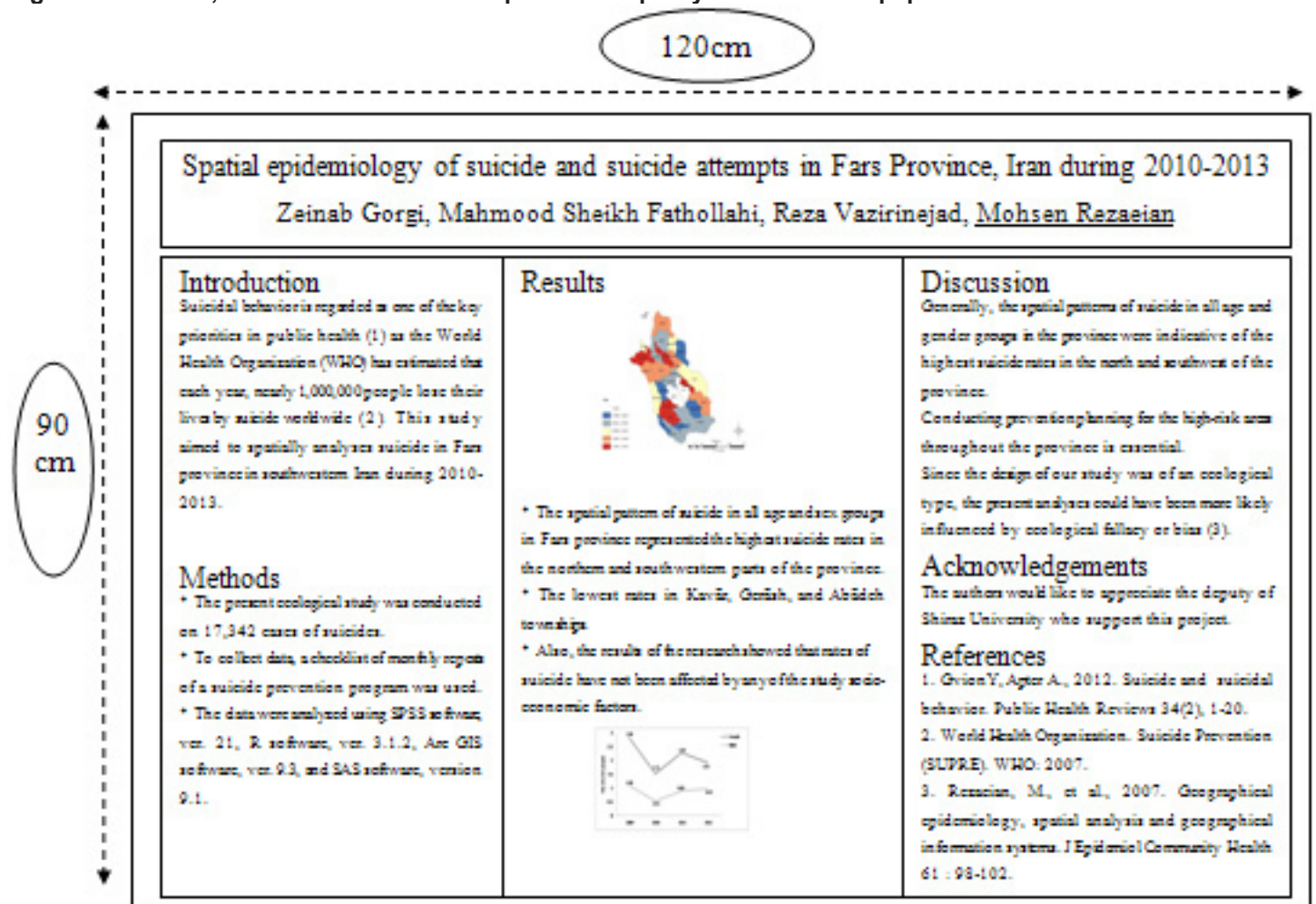
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Adaptive LASSO Logistic Regression applied on gene expression of prostate Cancer

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Abstract

Introduction: The high number of prostate cancer patients has signified the importance of identifying its risk factors. The aim of the present study was to employ stratification method and penalized logistic regression with the adaptive LASSO for selecting appropriate and important genes in prostate cancer.

Materials and Methods: Microarray data used in this study include a prostate cancer gene expression dataset with [HG_U95B] Affymetrix Human Genome U95B Array platform which consisted of 12,620 genes and 167 subjects, among whom 76 subjects were unaffected and the rest were affected with cancer. Using adaptive Lasso regression, important genes in prostate cancer were stratified and the results were analyzed using ROC analysis and gene ontology annotation. To modify and conduct primary measures on the dataset, SPSS software version 22 was used. To fit the models and draw the diagrams, R software version 3.3.1 and penalty specific packages were used.

Findings: According to this research, the obtained adaptive Lasso regression accuracy and confidence interval (CI) were 0.99 and 0.97-0.99, respectively. Considering criteria such as area under the curve and gene ontology annotation, it can be argued that adaptive Lasso regression was fairly effective in stratification and selection of appropriate genes in prostate cancer.

Conclusion: Based on the results of this study, it can be said that in gene expression data, where there are both linear and large scale data, techniques such as adaptive Lasso can be useful in diagnosis of effective genes.

Key words: Regression with adaptive LASSO, Prostate cancer, Gene expression, Stratification, Gene Ontology annotation.

Introduction

Prostate cancer is the most common and most dangerous cancer among men, the fifth most common cancer worldwide, and the second most common cancer among men(1). In 2012, 1.1 million men were diagnosed with prostate cancer and 307,000 of them died(2). This cancer is the most common cancer among men in 84 countries; it mostly affects developed countries and is rising in developing countries. Recent incidence rates of prostate cancer in developed countries and developing countries are 19% and 5%, respectively(3). Autopsy studies indicated that about one-third of over 50 men have microscopic evidence of prostate cancer; however, most of these cancers are so slow growing that they never risk the lives of the affected individuals. Thus, most of men die of prostate cancer rather than other types of cancer(4).

Although prostate cancer may occur at any age, 80% of men diagnosed with this type of cancer are ≥65 years of age and it rarely occurs in men under 50 years. Only 2% of prostate cancer patients are <50 years of age. The average age of diagnosis of prostate cancer is 68 years and 63% of cases are diagnosed after 65. About 1 out of 9 men will be diagnosed with prostate cancer in his lifetime. In recent years, annual rate of prostate cancer has increased by 4% in the United States. Prostate cancer is responsible for 11% of deaths from cancer among American men(5, 6). Doctors rarely know why a man develops prostate cancer and another does not, but statistical studies show a set of causes for incidence of prostate cancer in men, the most important of which are age, genetics, inflammation, infection, genetic predisposition, dietary factors,

sexually transmitted diseases, lack of vitamin D, vasectomy, smoking, fat diet, obesity, some medicines- e.g. daily use of medications such as anti-inflammatory drugs, prostate specific changes, and genome-specific changes(6, 7).

Unfortunately, most prostate cancers are asymptomatic and have no significant symptoms or problems for months or even years. In general, to identify warning symptoms for prostate cancer, we should be familiar with blood in urine, burning while urinating, slow urinary stream, urinary incontinence, urinary retention, abdominal pain, general symptoms of cancer, acute erectile dysfunction, and intense pain during intercourse. These symptoms may also be seen in benign enlargement of the prostate. The main difference between these two is that in benign enlargement of prostate, symptoms appear progressively, but prostate cancer may start quite suddenly(7).

High number of prostate cancer patients has signified the importance of identifying its risk factors. With the onset of microarray technology in 1995, measures were taken to stratify cancers based on genotypic characteristics(8). Several studies have shown that only a small subset of genes have significant association with the investigated diseases and according to cancer stratification, many genes are proved to be non-related. These genes may represent 'noise' to data and reduce stratification accuracy.

In addition, these genes may cause more fitting to model and leave adverse effects on stratifications and due to the presence of the importance of such issues, it was necessary to introduce methods for effective gene selection given the situation and improve the accuracy of prediction. Several statistical methods have been introduced for cancer stratification among which logistic regression is regarded as a powerful method for gene differentiation; however, this method is neither appropriate nor applicable for stratification of large scale data and thus repetitive methods such as Newton-Raphson cannot be applied. Recently, penalized methods have been used for stratification of large-scale cancer data. In order to estimate coefficients of genes and select appropriate genes, Penalized Logistic Regression has been successful in stratification of large-scale cancer data(9). Therefore, the current research was conducted to employ effective stratification method and Adaptive LASSO Logistic Prognosis for selecting appropriate and important genes in prostate cancer.

Material and Methods

This is a cross-sectional study aimed at measuring the application of logistic regression using Adaptive LASSO in studying the association between different genes and prostate cancer. Required information were downloaded from ncbi.nlm.nih.gov website, GEO gene expression data sets. Here, a prostate cancer gene expression dataset with [HG_U95B] Affymetrix Human Genome U95B Array platform was used. A total of 167 subjects participated among whom 76 subjects were unaffected and the rest were affected. Also, 12,620 genes were analyzed. Thus, the prostate cancer gene expression dataset dimension was 12,620 x 167.

Since data obtained from the matrix of microarray technology for prostate cancer data are raw data and require pre-processing to be used, various statistical methods, called normalization, were performed to remove or minimize some of the unwanted changes brought about by biases and laboratory or technical inconsistencies. Then, they were imputed for missing values and filtering methods were used to remove large-scale data effects. Quantiles were used in this method; values less than the first quarter and larger than the third quarter were excluded. Using filtering method, the number of examined genes was reduced to 3,145. To select the most important and significant features used in stratification, the next step was to select important variables which were allowed to participate in stratification. In order to be able to identify significant genes, data scale should be reduced. PLS method was used for reducing data dimensions. PLS model was conducted because of having large scale and correlated data. PLS-DA regression was used for gene expression. Adaptive LASSO method was employed for stratification of important genes in prostate cancer. To modify and conduct primary measures on the dataset, SPSS software version 22 was used. To fit the models and draw the diagrams R software version 3.3.1 and penalty specific packages were used. Finally, the results were analyzed using ROC analysis and gene ontology annotation.

Findings

PLS-DA model fitting for selecting important variables in stratification analysis
After normalization, the goal was to select important variables in stratification. Thus, according to PLS-DA model, variables with p-value <0.01 were included (n=1700) (p-value calculation for Variable Importance in the Projection index). Figure 1 shows variables' significance based on their P-values.

Figure 1: The importance of studied genes using PLS-DA model fitting
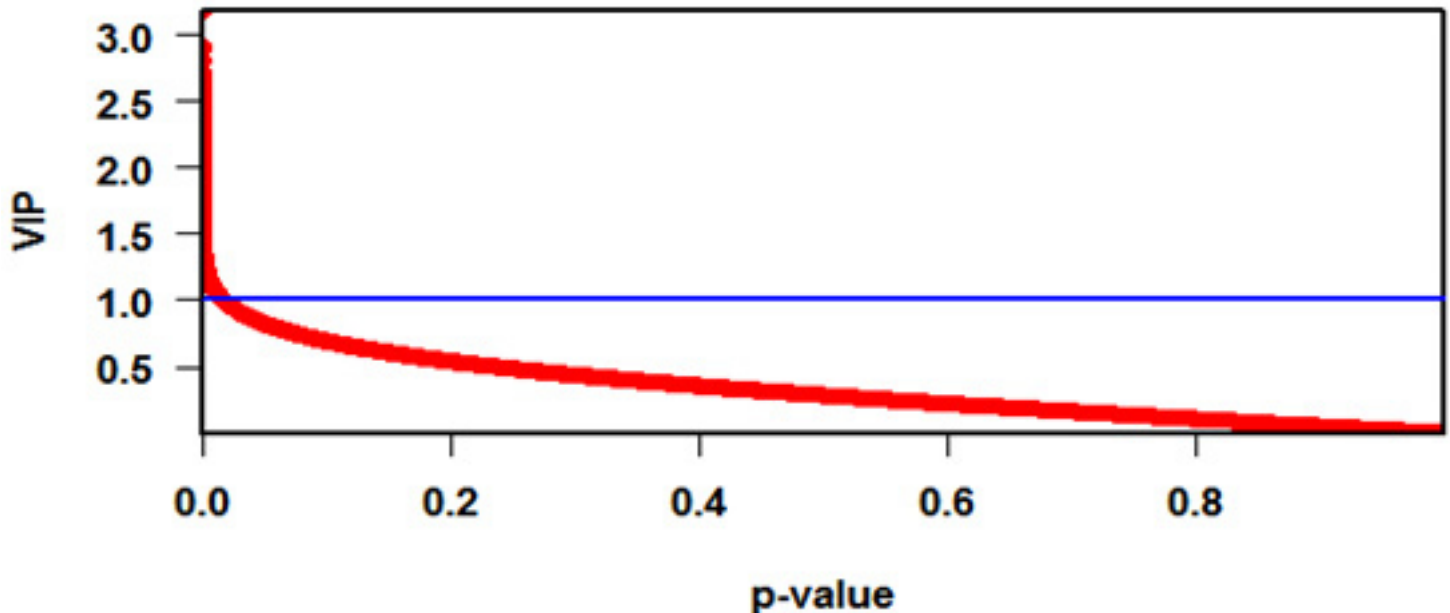
The Application of Lasso Adaptive Regression Model for the studied data Regularization Parameter Estimation
To find the best regularization parameter, 47 different modes are regulated for 47 Lasso adaptive regressions with estimated regularization parameter so as to find the best for the best value (Figure 2).

Figure 2: Regularization parameter estimation in 47 different modes
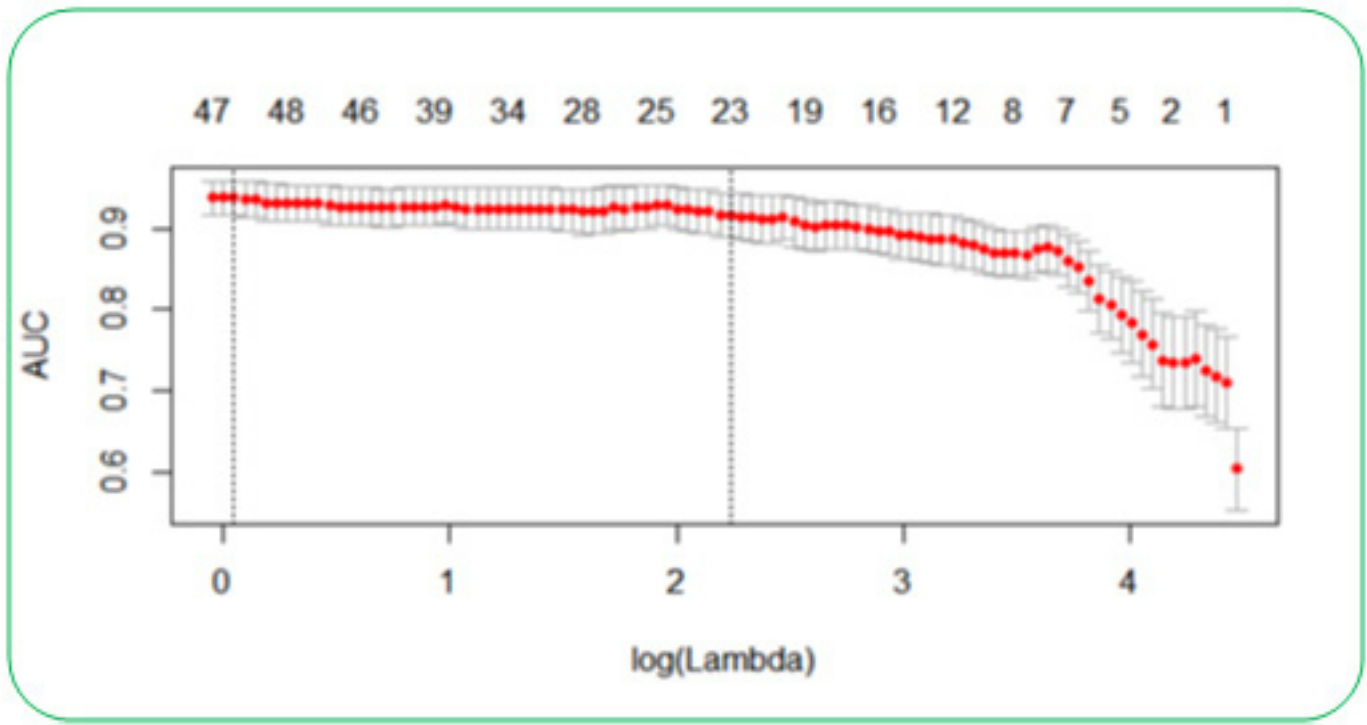
Then, adaptive Lasso regression model with estimated regularization parameter was carried out on the study dataset based on which the variables were stratified. Accuracy of area under the ROC curve was 0.99 (95% CI:0.97-0.99) (Figure 3).

Figure 3: ROC curve obtained from stratification based on adaptive Lasso regression model with estimated regularization parameter
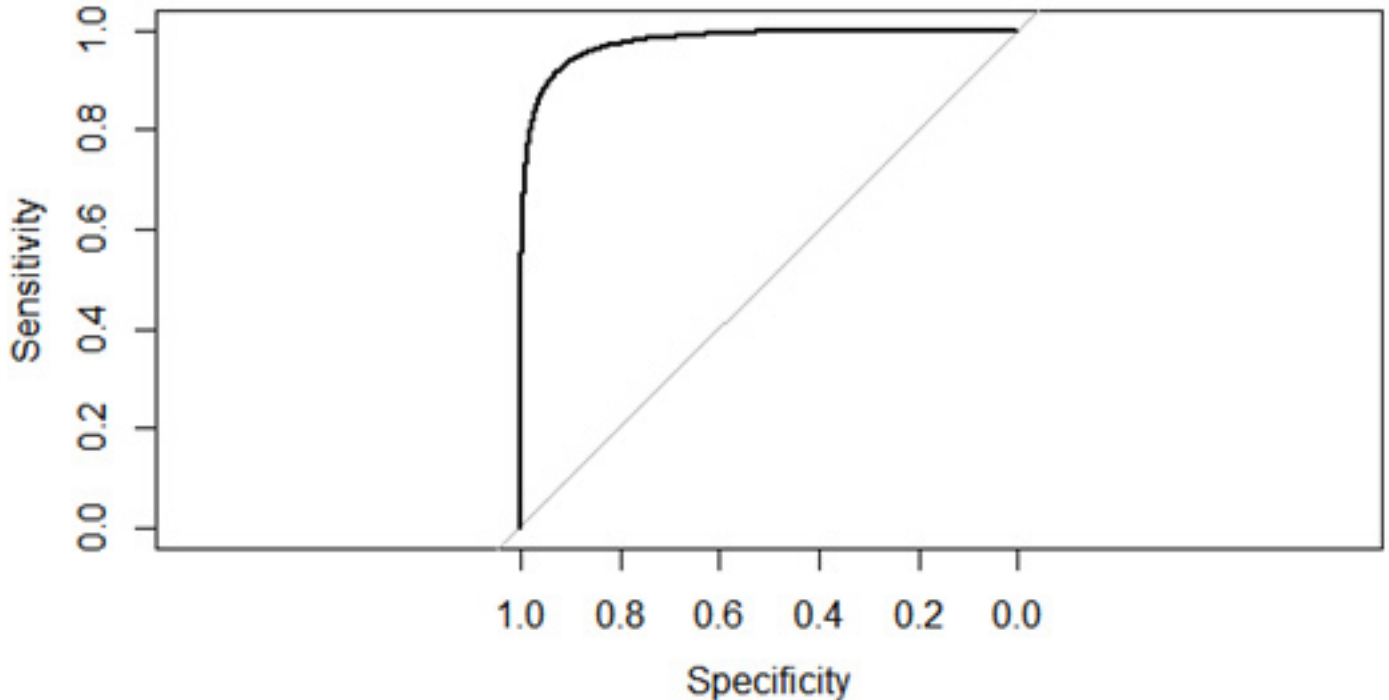
Biovalidation of data from stratification of prostate cancer gene expression data
In order to properly measure predicted models for stratification of prostrate cancer gene expression data using Gene Ontology (GO), it was determined that, based on a specific GO interpretation in different models, whether the set of genes obtained from stratification are significant or not. The most significant GO terms used to describe the identified genes at P-value<0.05 are shown. Stratification rate of the studied models were between 76 to 89% (Table 1).

Table 1: GO analysis of prostate cancer gene expression data

Cellular function	No. of GO terms	Significant term (%)
Biological process		89.3
Molecular function	7116	86.5
Cellular component		76.2

Discussion

Medical studies in recent years, and especially after the publication of information about sequencing the human genome project, have experienced a new field that opens promising ways for researchers to identify and treat incurable diseases, such as cancer. Yet, unlike medical data collected in earlier studies where researchers have been dealing with a small number of variables, the new field of cellular and molecular Medicine is faced with a very high volume of information which is being produced by laboratory-based methods and techniques.

One of the most efficient methods to extract genetic information is microarray method which has given researchers very high potential for extracting huge volumes of information instantaneously and according to arbitrary conditions. It is one of the most controversial scientific topics in the field of computational methods, management methods, and analysis of this type of data. Given the

researchers' goal of using microarray techniques in data mining, which is understanding the function of genes in cell activities, computational methods related to this area, known as stratification methods, are also more important and one of the most important questions which have been raised on the use of these methods was to identify the method or methods with proper function of gene stratification. Adaptive Lasso regression was evaluated in different conditions.

The best value estimated for regularization parameter in 47 different modes was 3.79, with 99% accuracy and CI between 97%-99% for area under the ROC curve which was a very suitable model with more acceptable performance than other values estimated for regularization parameter. Tibshirani investigated the effect of 8 variables on prostate specific antigen using data from the prostate cancer in analysis of Lasso model performance and its comparison with least squares method and the best subset. Results showed equality of the best subset and Lasso and both

introduced 3 variables as influential ones(10). He also used penalized model, for the first time in 1997, for survival analysis and variable selection in Cox model. Using Lasso method, he studied the effect of 6 variables on survival time of patients with lung cancer(11).

Li and Fan (2001) introduced 3 features for a good penalty model, i.e. unbiasedness, sparsity and continuity. As Lasso model may lead to over-estimation with big penalty coefficient, it is not unbiased in all conditions. Techniques, such as ridge regression, lack sparsity features, as well, because it has not the potential of excluding insignificant variables from the model. Also, criteria such as Akaike criterion (for variable selection) or the best subset method lack the third feature because of instability in variable selection. Yet, given these 3 features, Fan proposed a penalty function called Smoothly Clipped Absolute Deviation (SCAD). The major difference between SCAD and Lasso is that the former considers fixed penalties for coefficients bigger than $a\lambda$. Considering 7.3 as an optimum value for "a" resulted in SCAD method notation solely with λ subscript(12).

Efron et al. (2004) introduced least angle regression. Inspired by forward selection, in each step of this method, only one variable can be entered. The advantage of Least Angle Regression (LARS) is that, with a simple modification and no need for complex mathematical algorithms, all estimates may be calculated using Lasso(13).

Zou and Hastie (2005) used elastic net and blood cancer data to identify genetic factors affecting cancer and predict its types (I or II) by these genes. They used blood cancer data of 7,129 genes selected by t1000 gene statistics which had the highest significance level. Sample sizes of training data and test were 38 and 34, respectively(14). Huang et al. (2008) compared Lasso and iterative Lasso (adaptive Lasso with reverse weight of Lasso coefficients) using breast cancer data. At first, they selected 500 genes with the largest absolute values of correlation coefficients and obtained missed values using median values. Then, Leave-one-out cross validation (LOOCV) method was used to calculate prediction error. The obtained results suggested more sparsity of the model proposed by iterative Lasso so that it selected only 22 genes while Lasso selected 42 genes with the same function(15).

Raeisi Shahraki et al. (2016) used Lasso and adaptive Lasso to identify genes affecting bladder cancer. In this study, with sample size of 48, expression of 22 different genes in peripheral blood of people with bladder cancer was compared with control group using logistic regression, Lasso, and adaptive Lasso so as to identify genes which can increase or decrease the risk of bladder cancer. The first notable point was that Lasso and adaptive Lasso methods could be fitted to data, despite high correlation between some variables, by considering all 22 variables; however, logistic regression was not able to converge even by taking one third of variables into account. By controlling the multicollinearity, adaptive Lasso method was well fitted to data and estimated coefficients with a very high accuracy

and low error. The model proposed by this method was a reliable model with many other optimal features such as reliability, compatibility, predictability, sparsity, and ideal flexibility(16).

Due to massive amounts of gene expression data, which is an important characteristic of this study, results obtained from various studies showed that all the previous research has been conducted on a limited number of genes. Since 1996, introduction of microarray technology in simultaneous expression of thousands of genes revolutionized analysis of genes so as not to limit gene analysis to few number of genes. Considering that microarray knowledge is used in this study, various models are predicted and compared, final results are evaluated using ROC analysis and validation of gene ontology, and the most appropriate stratification method is carried out to identify significant genes, it is not so much similar to previous studies.

Conclusion

Based on the results of this study, in gene expression data, where there are both linear and large scale data, techniques such as adaptive Lasso provide higher performance in stratification aid diagnosis of effective genes.

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The prevalence of brain and neck injuries in patients with maxillofacial fractures in teaching hospitals of Rasht in 2016

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Abstract

This study aimed to determine the prevalence of brain and neck injuries in patients with maxillofacial fractures in teaching hospitals of the city of Rasht in 2016. This is an analytical retrospective study. Some 361 patients of the training centers of Rasht which had been diagnosed with maxillofacial fractures entered the study, 286 of which were male and 75 were female. Information collected through questionnaires and records of the patients who admitted to emergency department of Poursina and Velayat hospitals with maxillofacial fractures. The patients were examined to see whether they have brain and cervical spine injuries. The diagnosis of the fracture and brain and neck injuries had been separately written by the related doctors on the records of the patients based on clinical examination and Plain radiography and CT scans. After data collection, the results were analyzed. The results showed that 61 percent of the fractures were due to accidents. Among the most common spine damage, (77 percent) was related to bone fractures. The highest frequency of brain damage was related to Extradural Hematoma by 23.65 percent. Results of the treatments also showed that 76% of the patients partially recovered.

Key words: brain injuries, neck injuries, maxillofacial fractures

Introduction

In the last 20 years, facial bone fractures have been common injuries in patients admitted to emergency departments of hospitals(1) so that nearly one third of injured patients have some kind of trauma in this area. Prevalence and causes of maxillofacial injuries vary in different countries. In developing countries, the most prevalent cause of maxillofacial injuries is car accidents (1). Statistics indicate an increase in death toll of traffic accidents in Iran in recent years (2). In developed countries such as America, damages resulting from trauma (especially vehicle crashes) is the seventh leading cause of death (3). Several studies conducted around the world show that young pedestrians (children and teenagers) and the elderly are two high risk groups in traffic accidents. Motorcycle riders are another high risk group in traffic accidents (2, 3). Mokerjy et al (4) demonstrated in their study that from 714 patients with fractures, traffic accident was the cause of 88 percent of the fractures. Shazia (5) also indicated that in all cases of maxillofacial fractures, the cause was traffic accidents.

The face is one of the most vulnerable parts of the body. At the time of an accident, due to the proximity of vital organs such as the brain and its sheaths, the spinal cord, the cervical spinal cord and eyes and also due to physiological problems (controlling airway and breathing), cosmetic and psychological factors, can lead to serious complications for patients (3).

The most common facial bones fracture is in the bones of the lower face (Mandible) and the less common one is in the upper face. The middle part of the face is in the intermediate state between Mandible and Frontal (6). The upper and middle part fractures are more severe than lower part fractures and if left untreated, will cause a lot of deformity (6). Maxillary bone forms most of the middle part. The bone plays a major role in forming the look and the beauty of the person. It also has a major role in the formation of lower lip and orbital bone. Maxillary fractures are of different types. The most common types of these fractures include fractures of Le Fort I, II, III, and fractures of alveolar maxilla and sagittal maxilla (6 and 7). Maxilla fractures are caused by a direct hit from the front or from the side. Today, most of these fractures are caused by traffic accidents. Face and jaw fractures are accompanied by complications such as nasal airway obstruction, the problem in the cranial cavity and Dura rupture, damage to the anterior part of the brain, dental occlusion disorder, obstruction of Lacrimal system, abnormalities in appearance, blindness, anophthalmia, diplopia, and loss of sensation in the territory of Infra orbital nerve (8). Several studies also show that fractures in the facial area have led to brain and spinal cord problems. The study of Grant et al (9), which was conducted in the US, determined that brain damage in people with facial fractures was generally at 67 percent. A study conducted by Farevash et al (18) revealed that among his population the fracture of Le Fort II was the most prevalent. As for associated fractures, zygomatic fractures were 62%, mandible fracture 25%, nasoethmoidal fracture 9% and skull base fracture was 4%. Hugh et al

(10) in a study showed that the incidence of brain damage associated with facial fractures is estimated to be 17.5 percent. Kraos et al (11) showed that facial fractures are very effective on brain injuries.

In many patients with facial fractures, there is likely not enough attention paid to brain and cervical spine damage and also given the importance of facial fractures and the fairly conflicting results of previous studies (12), we decided to investigate the relationship between maxillofacial fractures and brain and neck damage.

Materials and Methods

In this descriptive-analytical and retrospective study which was conducted as a cross-sectional study in 2016, 361 people who were admitted to the training centers in Rasht with maxillofacial fractures entered the study. 286 of them were male and 75 were female. The majority of the participants in this study (129 people) were between the ages of 21 and 30. Information was collected through questionnaires and patients' records who were admitted to the emergency department of Poursina and Velayat hospitals with maxillofacial fractures. The patients were examined to see whether they have brain and cervical spine injuries. The diagnosis of the fracture and brain and neck injuries had been separately written by the related doctors on the records of the patients, based on clinical examination and Plain radiography and CT scans. Cases that were incomplete for various reasons were omitted. Data was collected by questionnaires and was entered into SPSS software for analysis. To describe the data, descriptive tests were used.

Results

The results of the data collection showed that traffic accidents were the most prevalent cause of the fractures in the patients of this study (61 percent). Data also showed that the pattern of maxillofacial fractures was as follows: mandibular fractures (51%), maxillary fractures (4%), zygomatic fractures (6%), frontal fractures (10%), nose fractures (10%) and compound fractures (8 percent). So, the mandible was the most common area of fractures in patients. In all fractured areas, frequency in men was more than in women. As for the fracture pattern, there was a significant difference between patients (p=0/0001) as well as between the two sexes (men and women).

In Table 1, the results of the most common injuries of the cervical spine in patients are presented.

The most common cervical spine injuries were as follows bone fractures (77.8 percent), cervical vertebrae dislocation (33.34 percent), disc herniation (11.12 percent) and spinal cord contusion (11.12 percent). Considering the types of cervical spine injuries, there was a statistically significant difference between patients (p=0/0001). In Table 2, the most common brain damage in patients is presented.

Table 1: The most common cervical spine injuries

Percent	Number	
77.8	7	Bone fracture
33.34	3	Cervical vertebra dislocation between 5 and 6
11.12	1	Disc herniation
11.12	1	Spinal cord contusion

Table 2: The most common brain injuries

Percent	Number	
23.69	52	Extradural hematoma
18.89	41	Subdural hematoma
12.90	28	Subarachnoid hematoma
35.42	96	Skull fracture

Table 3: Results of treatment (recovery, death, etc) in the patients

Percent	Number	
2	4	Transfer
11	40	Recovery
76	275	Partial recovery
7	27	Personal satisfaction
4	15	Death
100	361	Total

Among the different types of skull fractures, fractures of the frontal bone were of the highest frequency among patients (37.5 percent) which were followed by Ethmoid bone fractures (29.32 percent), orbital roof (16.67 percent) and the sphenoid bone fractures (13.54 percent) (p =0/041). Table 3 presents the results of treatment (recovery, death, etc.) in the studied patients.

The majority of patients (76%) left the hospital with partial recovery. 11 percent improved and 7 percent were discharged with personal satisfaction. 4% of the patients died and 2% transferred to other medical centers.

Discussion and Conclusion

As discussed, trauma is one of the leading causes of death in the communities. Maxillofacial fractures are one of the main problems of trauma patients. Facial Fractures are likely to be associated with complications such as brain and spinal cord damage. With this description, this study aimed to examine the prevalence of brain and cervical damage in patients with maxillofacial fractures. The first finding of the present study was that the most important cause of maxillofacial fractures is car accidents with 61 percent. In most studies in Iran (13, 14, and 15), car accidents have also been considered as the most common cause of fractures. Also, similar results were obtained from studies of Patrocinio et al (16), Adebayo et al (17), Klenk and Kovacs (18). In a review article by Oikarinen et al (19), etiologic differences of maxillofacial fractures in Kuwait, Canada and Finland were compared. The researchers found that traffic accidents were the cause of 55 percent of fractures in Kuwait, 33 percent of fractures in Finland and 7% in Canada. These results are consistent with information obtained by the Kuwaiti researchers who showed that Eastern countries do not observe the traffic rules. However, the percentage of injuries caused by conflict in Kuwait is (12%), Finland (37%) and Canada (54 %).

The second finding of the present study is that the mandible (51%) was the most common site of fractures in patients. This finding was consistent with the findings of Akrami Abargouei et al (20) Kamoliga et al (21), Maliska et al (22), Blasilirov and Pasry (23), Karkaovik et al (24), and it is inconsistent with research of Dongas and Hall (25). Akrami Abargouei et al (20) reported that in patients with maxillofacial fractures, the most common site of involvement is the nasal bone (67.4%) followed by mandible (18.7 percent). In this study, the most common site of involvement in the mandibular condyle (31.47 percent) and the body of the mandible (26.73 percent). Dongas and Hull in their study reached the conclusion that the fracture of the middle third of the face is the most common site of involvement.

The third finding of the study is that the most common injury of the cervical spine of the subjects of this study was bone fracture (77.8%) and cervical vertebrae dislocation (33/34 %). The findings of the study were similar to those of Mokerji et al (4). In his study, fracture and dislocation of the cervical vertebrae was a total of 63 percent and disc herniation and spinal cord contusion were 37% among the patients. The researchers also noted that 70 percent of the injuries of the cervical spine have occurred at levels of C1 / C2 or C6 / C7.

The fourth finding of this study is that among various types of skull fractures, frontal bone fracture had the highest frequency in samples of this study (37.5 percent). This is consistent with the findings of Yadave et al (26). In the study of Yadave et al (26), extradural hematoma, subdural hematoma and subarachnoid hematoma in patients with maxillofacial fractures were also reported 22, 17 and 14 percent, respectively. In this study, frontal fracture, sphenoid fracture and orbital roof fracture were 21, 11 and 14 percent respectively.

Although this study has limitations including lack of generalizability of the results, according to the findings of the study, it can be summarized that the maxillofacial fractures are accompanied by brain and spinal cord injuries and this fact was confirmed in the subjects of this study. Traffic accidents were the main cause of maxillofacial fractures in this study. World Health Organization's guidelines on the main factors in preventing accidents are as follows: the use of safety belts, helmets, seats for children, not using mobile phones while driving and improving the safety of roads. Better design of roads and highways, training courses for drivers and implementation of more serious measures should also be considered. Despite the preventive laws for mandatory use of safety devices, indices of cooperation in the society affect the performance of these safety solutions.

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Cultural competency: a concept analysis in TUMS (Tehran University of Medical Science)

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Abstract

Introduction: In the current century, we are faced with new needs and problems, and we should have appropriate responses. One of these changes is cultural diversity, and our response to it should be cultural competency. But subjectivity of these concepts provides several definitions that makes use of it difficult so we conducted a study in order to represent relevant constructs in the context of Tehran university of medical science.

Method: This study was conducted in two phases: in the first phase concept analysis by evolutionary approach, and in second phase, interview with faculty members conducted to determine appropriate formulation in TUMS.

Results: In the first phase of concept analysis; antecedents, attributes, consequences and surrogate terms and exemplars are extracted from articles and documents and in the second phase they were matched with script gained by interviews with faculties. Results are presented in tables. Antecedents and priorities in this context somewhat varies with others, although need to cultural competency increasingly persist.

Conclusion: Here, there are special historical, social and cultural conditions that form antecedents and also drive our attributes and expectations of consequences of cultural competency. So, we can define this term based on TUMS context.

Key words: cultural competency, concept analysis

Introduction

At the beginning of the twenty-first century, change is a feature of this new century and we are faced with rapid changes in various spheres of technology, social systems, population movements and all of these changes help to increase cultural diversity. That's why we need skills such as change leadership and adapt to changes in the new millennium (1). The World Health Organization recognizes "ability to move toward a changing environment" as a core competency of staff who work in the health system (2) and these changes will not be limited only to technology but also in social, cultural, educational and service areas. The health domain, as well other domains, are affected by these extensive changes. Health is a multidimensional concept that is defined as: The state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Health has many dimensions (anatomical, physiological and mental) and is largely culturally defined (3).

These changes on one side effect on individuals and family health, and on the other side on society, service provider organizations, health systems and human resources staff. Although backgrounds and consequences of change vary in different countries, all communities are faced with it. Also change effects on different social structures such as: communication, Information, education, economy and culture, and this transformation causes:

- Homogeneous culture changes and these would be plural and hybrid (4)
- Production and access to information would be easy,
- New media for communication such as internet and social networks will develop,
- Social and personal growth and development would be facilitated,
- Education would be more individualized (4)
- Encounter within cultures and influence of cultures on each other increases.

We are faced with different local cultures, national and transnational cultures, and subcultures that effect on identity formation, family function and social structures. The sum of these factors cause more important roles of culture in health and service delivery, and need for cultural competency training increases.

Cultural competency is defined by the U.S Department of Health and Human Service as: "a set of values, behaviors, attitudes and practices within a system that enables people to work effectively across cultures. The term refers to ability to honor and respect the beliefs, language, interpersonal styles and behaviors of individuals and families receiving services, as well as staff who are providing such services" (5). According to references, different definitions of cultural competency, results to limited evaluation and research in this area that causes a defect in program development (6).

We see:
- This concept contains various dimensions and aspects in different countries (7, 8).
- This concept has evolved over time (9, 10).
- This concept in different fields and professions has different characteristics (11, 12).

According to above, this concept is highly context dependent and analyzing it is essential for application in different contexts. In this study, we analyze the concept of cultural competency by evolutionary approach (13) and its compliance with the TUMS.

Method

This study was conducted in two phases: the first phase was conducted to analyze the concept by evolutionary approach. In the second phase, interview with faculty members was conducted to determine appropriate formulation in the present context. Following steps was used for evolutionary analysis (13):

1-identify and select appropriate realm (setting and sample) for data collection
2-collect relevant data to identify:
  a) the attributes of the concept
  b) the contextual basis of the concept, including interdisciplinary. Socio-cultural, and temporal (antecedent and consequential occurrences) variations.
3-analyze data regarding above characteristics of the concept.

At the end of the first phase of study we analyzed codes in categories: antecedents, attributes, consequences, and surrogate term. In the second phase, based on gained results, semi-structured interviews with faculties were conducted to determine the appropriate approach in the present context.

A) Search sources and strategy for data collection: we used electronic resources and databases: PubMed, Google scholar, Science Direct, Scopus. OVID, Web of Science, by 2016, which resulted in more than 1500 articles. We limited results to documents that focused-on definition, concepts, and models of cultural competency so that there remained 350 articles and after reading the abstracts 135 articles were introduced into the study.
B) Data analysis (first phase): Coding was conducted in regard to antecedents, attributes, consequences, and surrogate terms.
C) Interview: in order to determine appropriate approach to context of Medical University, semi-structured interviews with 10 faculties in different groups were carried out, and after preparing the transcript of interviews, data were analyzed.
D) Data analysis (second phase): Data of first stage and second stage of study were compared and formulation of concept was determined according to context.

Results and Findings

A) History

Records about cultural competency go back to the 1980s. Social work and psychology were among the first areas that paid attention to this issue. Sue in psychology and Cross in social work   presented their models (38,40),but utilizing this topic in medical science was by Lininger in the nursing profession. Leininger presented her first model of cultural competency in 1980s (14) and completed it within two decades. Medical anthropology in medicine studied relationship between culture, health and disease (15), although, because of the dominant paradigm of Bio-Medicine in the medical profession, culture was not in focus of this profession. In the last decades in medicine, registry organizations such as ACGME, LCME introduced cultural competency into their requirements (16,17), due to increasing awareness of physicians learning knowledge and skills in this area and its effect on patient adherence, lead to establishment of training courses, mandatory or optional, at many universities in the U.S (18) Also among different countries, those who accept more immigrants such as America, Australia and New Zealand are involved with this issue. According to the latest statistics, rank of Iran in reception of immigrants /refugees is 5 and the largest group of these are from Afghanistan (19). Iran is in southwest of Asia in the heart of the Middle East. This region is composed of different races: Arabs, Turkish and Persians. Also, this country consists of more than 32 states and several ethnicities such as: Turks, Baluch, Kurds, Arabs, Fars etc., and each of them have their own culture and language (20). This rich variation of culture causes diversity of believers and behaviors in health and disease and also different treatment choices: Traditional medicine, herbal medicine and western medicine. Education of health and medicine professions in Iran is integrated in the health system and medical universities deliver health services and training of the needed workforce for their services (21).

B) Antecedents

Antecedents are those instances that precede the concept (13). Antecedents of cultural competency varies in different studies. SUH in an analysis that was conducted in nursing in 2004 categorized it in four domains: cognitive, emotional, behavioral, and environmental that consisted of cases such as knowledge, sensitivity, awareness, skills, and cultural exposure (22). Also, other researchers offered cases such as: cultural diversity, cultural encounter (23, 24, 25).

Inability to communicate with other cultures, lack of attention to interests and beliefs of another culture, desire to reject people from other cultures result from lack of cultural competency such as globalization of societies, health inequalities, cultural arousal (25) cultural diversity, racial diversity, ethnic, economic and social status, education, religion, language, etc. Reductions in the quality of health care due to cultural differences between health care providers and recipients of services (26) have been recorded. In this study, these cases extracted as antecedents of cultural competency are decreasing in: quality of physician – patient communication, effectiveness of care, patient compliance occurrences, and also cultural competency as: a requirement for customer satisfaction, patient safety, and as a requirement for professional, moral and ethical competency, as a requirement for enhance effectiveness of health organizations, and as a legal requirement.

Cultural diversity and encounter between them result in the need for cultural competency training in communities that are in globalization process. This encounter (without necessary competency) results in lack of effective and efficient communication and also stereotypes and prejudice in dealing with people from different and "other" cultures.

 In order to explain antecedents of cultural competency in this study, we classified them into:

1- Values: Political systems and social values impact on formation of concepts widely .in this document analysis, values of justice, equality, and ethics are at the basis for demands in various spheres including in health. In fact, this term applies to these values in the health field.

2- Legal: Philosophical views, values and also needs of society, are foundations for definition of "right" in terms of human rights and civil rights. Cultural competency is influenced by laws and social attitudes, as superior structures of the health system. Different people from various cultures have the "right" to receive appropriate and effective health services, and be safe in front of stereotypical thoughts and prejudice of health care teams. This right leads to formation of the term "cultural safety" which emphasizes on "right" of patients to be safe of malfunctions caused by lack of understanding and recognition of cultural differences. Terms such as racism, minority rights and social accountability strengthen the legal approach to cultural competency. Cultural competency as a solution and also a response to avoidance of discrimination in services is a legal assumption in defining cultural competency.

3- Professional level: after Legislation for meeting "social needs", different professions apply superior rules and laws to their specific needs. Education, leadership, social services and sociology, anthropology and psychology have performed measures on cultural competency. Undoubtedly, the first step in each of these actions is definition. Actually, profession is the location that superior needs (values and laws) meet with inferior needs (social and costumer needs) and Theoretical bases. So, this term has been defined in each profession or specialty according to their theoretical foundations and paradigms. Sometimes professions borrow some elements of definition from adjacent professions and cause a variety of different approaches to the concept. For example, customer-oriented approach, quality improvement approach, managerial approach, business approach, etc. In medical and health professions, according to share issue of "health", concepts are close together, the main focus of these professions are: patient safety, professional capabilities and best practice, patient-centered services, professional ethics, physician – patient communication form professional needs of this concept.

4- The nearest factors are in last level as: "encounter factors", cultural diversity and encounter between them. As long as there is no diversity, cultural competency will not be

needed, therefore, cultural diversity and exposure to it, is a direct antecedent in this level, factors such as globalization, immigration and development of communications and media can be effective in increasing diversity and cultural encounter.

C: Attributes
Attributes of the concept constitute a real definition, it is the cluster of attributes that makes it possible to identify situations that can be characterized appropriately using the concept of interest (13).\

In previous studies that conducted conceptual analysis, the following features are mentioned:

Ability - Openness - Flexibility - (22) - knowledge awareness - understanding - sensitivity - Interaction - Skills - competence - a dynamic process – desire-(26,23,24) domains: affective, cognitive, behavioral - characteristics: sensitive, justice, activity. Three dimensions of consciousness, openness, and integrity (25)

Three dimensions: awareness, attitude and behavior, and a key way: dynamic and continuous process (26) - awareness, ability to take care of people, openness, long-term and continuous process.

We summarize attributes as below:
1- Ability- Openness- flexibility (22)
2- C. Awareness- C. Knowledge- C. Understanding- C. Sensitivity- C. Interaction- C. Skill- C. Proficiency (27)
3- C. Awareness- C. Sensitivity- C. Knowledge- C. Skill- C. Dynamic process (23)
4- C. Awareness- C. Knowledge- C. Skill- C. Encounter- C. Desire (24)
5- Three Domains: Cognition- affection. Behavior Attributes: sensitivity-equality-activity. Three dimension: awareness-openness-coherence (25)
6- Three dimension: awareness, attitudes, behaviors a key aspect: there is no end point to achieve. As a fluid dynamic process from the point of unconscious incompetence to unconsciously competent (26)
7- Awareness - Ability to care for individuals- Non-judgmental openness- C.C as a long term continuous process (28).

Consequences
Consequences: it is of interest to note the consequences that result from the concept that is under study (13)
According to values, assumptions and antecedents and attributes, expected consequences are different. Overall, the results are listed below;

- Equality and reduce discrimination in health services (29)
- Improving the quality and effectiveness of care (31)
- Increased satisfaction with services (31)
- Increased patient compliance and increased employee effectiveness of care (31)
- Ensure justice and equality in service
- Promotion of attitudes, knowledge and skills of individual

employees.
- Participation of social, political, historical processes, on the health of people (32)
- Improving physician - patient communication (31)
- improving accessibility and acceptability and effectiveness of services for people of diverse communities (33 and 34)
- Improve clinical outcomes and reduce discrimination of health (31)
- Improving cultural responsiveness and appropriateness (30)
- Awareness of the prejudices and assumptions and stereotypes (35)
- Accountability of services to cultural features (36)
- Flexibility in relations with "different" people (32)
- Increased cultural awareness in practice, good practice in fair access to care and treatment for patients, equal opportunities of education and employment, employee promotion, and protection of forces and minority groups (37)

For ease of explanation results can be classified as follows:

Based on target group:
Service provider - recipient of the service - the organization / society
Based on antecedents:
Values - rights laws - professional - cultural encounter
Based on attributes:
Cognitive - Attitudes - Skills – meta-competencies (reflection on competencies)

D) Surrogate Term
Multicultural competencies (38 and 39) – transcultural care -Civil competencies (37) - Culturally Sensitive Care - Critical cultural care (36) - cultural safety, cultural sensitivity (36) Cultural understanding (35) - cross-cultural interaction (39) intercultural competency (refers to the interaction between two cultures) (40) - cultural sensitivity (41) - language ability (42) - cultural knowledge (35) - cultural awareness (35) cross-cultural communication (35) - cultural humility (43) - culture safety (44) - cross cultural competence (36) These terms are used according to specific scope or need of programs or researchers or societies to cultural competency. Multicultural competency focuses on knowledge and understanding different cultures in society (45), while cultural special care refers to create settings for specific cultures such as hospital for Hispanics or Asians. Cross-cultural encounter focuses on communication skills that are applied to handle cultural differences(39). Language competency focuses on interpreter services for reduction of language barrier between service providers and customers(44) Cultural safety refers to patient's right for receiving services without discrimination and without prejudice and judgment(46). Also, other terms of cognitive, affective, cultural competency emphasize on special skills. In different contexts, based on condition and situations each of these terms is used. Consequently, targets and methods and educational content are prepared in relevant terms.

Exemplars:
The identification of exemplars in some form is a common and useful part of concept analysis. Because the evolutionary method is an inductive technique, exemplars should be identified rather than constructed by the investigator. The purpose of an exemplar is to provide a practical demonstration of concept in relevant context (13). In most resources these cases are mentioned: minority groups (race and ethnicity, religious), gender, disabilities, sex orientation, and elderly (30).

In our context:
In interview with medical faculties of TUMS:
Appropriate term is defined as cultural competency and antecedents of this term in our context is: fair service, professional values and increasing encounter factors such as: globalization, international education, international service, development of new media. Unfortunately, there is no law or requirement for implementing programs of cultural competency.

Attributes of the term are classified as:
a) what : it contains domains of cognitive, attitudes and skills in different degrees
b) how: quality of articulation of the constructs is an important factor in achieving it, fluidity, non-judgmental openness, dynamic process, flexibility, long term continuous process, can explain way of arrangement of constructs. c) Areas: individual, organization, society.

Consequences: improvement of: quality of care, adherence of patient, communication of physician and patient, effectiveness of treatment, cost-effectiveness, fairness in service, accessibility to health service, are main consequences of cultural competency.

Exemplars: in our interviews, all of the exemplars in review are accepted except sex orientation that in Muslims is a taboo of course, there is different emphasis and priorities in them.

Conclusion

During four decades, multiple models of cultural competency in different professions have been developed. These models are based on various contexts and professions that are affected by their ultra-structure and also regulation systems. LCME in U.S introduced it in their standards: ED-22. Medical students must learn to recognize and appropriately address gender and cultural biases in themselves and others, and in the process of health care delivery (17). ACGME outlined general or common program requirements for specialty as the basis for accreditation of programs (16). In New Zealand indeed indigenous Maoris, a large number of immigrants with various cultures live and cause diversity of population because more health care providers are from new residents, regulatory bodies authorized laws for delivery of appropriate cultural services in terms of cultural safety (47). In US, Native Americans and coloured people are more suppliant for these programs. Here in RAN historical and geographical situation of our country is a source of diversity and seems to be a priority for our society and also educational and professional structures for designing and implementing relevant programs.

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Table 1: some of antecedents, attributes, consequences, and surrogate terms for cultural competency

	antecedents	attributes	consequences	surrogate terms
1	-Discrimination and inequity in health resulted from cultural, racial, ethnic and gender differences		-Equality and reduction of discrimination un health services -justice in health services - Equality in training, recruitment and retention, and promotion of minority groups - good Practice in relation to fair access and appropriate care and treatment for patients -	-Cultural safety -multicultural competency -transcultural care -civil competency -sensitive cultural care -cultural sensitivity -cultural understanding -transcultural interaction -Intracultural interaction -inguinal competency -cultural knowledge -cultural awareness -cultural humility -intracultural competency
2	-Social accountability to pluralistic cultural societies	-Cognitive and cultural understanding of the patient to provide services tailored to different cultures	- Contributing social, political, and historical processes to the health of people - Services for people of diverse societies will be accessible and effective - improving cultural responsiveness and appropriateness - Customer Service Responsiveness (301) - Equality of training, recruitment and retention, and promotion of minority groups	
3	-Globalization and increasing cultural diversity and encounter			
4	-Reduction of health service quality because of cultural difference between health professions and recipients of services -Reduction of quality in practitioner – patient communication -reduction of effectiveness of care -reduction of compliance	- improving intracultural skills	-Increasing quality and effectiveness of services -increasing satisfaction of services - Increasing compliance of health practitioners and improving effectiveness of care -improving clinical consequences and reduction of health disparities - improving accessibility, acceptability and effectiveness of services	
5	Cultural competency as one of requirements for Customer Orientation	-sensitivity, awareness and understanding of patient needs	-improving attitude, knowledge and skills of practitioners -- improving cultural responsiveness and appropriateness - flexibility in relation between different patients.	
6	Cultural safety	Respect and patient rights to receive appropriate cultural services.		

Table 1: some of antecedents, attributes, consequences, and surrogate terms for cultural competency (continued)

7		As a requirement for professional competencies, professional ethic and ethic requirement	
8	A Necessity in the Patient Manage and Increasing the Effectiveness of Health Organizations		-improving patient- practitioner communication - improving cultural responsiveness and appropriateness
9	As a law requirement		
10	Stereotype and labeling and prejudice to other cultures		-to gain self-awareness to stereo types, prejudices and assumptions.
11	Prevalence of dominant culture to minority and other cultures		

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The Effect of Proprioceptive Neuromuscular Facilitation (PNF) on Activities of Daily Living of client with Cerebrovascular accident

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Abstract

Introduction: Stroke is a significant event in the life of a patient and the disruptions cause many problems for the person's performance and the changes in their lifestyle. Thus, considering the various aspects of stroke patients and its impact on the lives of these patients, this study was done to examine the effect of Proprioceptive Neuromuscular Facilitation (PNF) exercise on activities of daily living of stroke patients admitted to the martyr Beheshti hospital of Yasuj in 2016.

Methods: This study is an interventional clinical trial. The study population for this study included 60 patients with stroke referring to martyr Beheshti hospital of Yasuj which lasted 4 months to 2 years from their illness. These patients were selected by random sampling, then assigned to two groups of 30 as control and intervention. Initially, the activities of daily living were assessed using the elderly activities of daily living (ADL) questionnaire. Then, the intervention group received proprioceptive neuromuscular facilitation (PNF) exercise. Immediately and one month after the last training session patients were evaluated in activities of daily living. Then, the collected data were analyzed by SPSS statistical software with 95% confidence level and P <0.05.

Results: In this study, 60 patients with stroke participated in two groups of control and intervention (30 each). Based on the findings of this study, 34 (56.7%) of the samples were male and the remaining were female. The mean age of the samples was 72.1 ± 10.7 years (range 90-60 years). No significant difference was observed between the two groups in terms of age, sex, marital status, education, occupation and other demographic variables (P> 0/05). The findings of the study showed that there was no significant difference between the two groups in the pre and post intervention (immediately after the intervention and one month after the intervention) between the two groups of intervention and control in terms of the average scores of activities of daily living (P> 0/05).

Conclusion: According to the findings of this study, proprioceptive neuromuscular facilitation exercise didn't effect on the activities of daily living patients with stroke.

Key words: Proprioceptive Neuromuscular Facilitation (PNF), Activities of Daily Living (ADL), Cerebrovascular Accident (CVA) or Stroke.

Introduction

Stroke is caused by disorders of the nervous system(1). The disease is acute nerve damage caused by impaired blood supply to part of the brain due to a blockage or rupture of an artery that feeds it(2). It is an important event in the life of the patient, while creating a functional disorder causing mental health problems, and social and economic difficulties(3).The World Health Organization defined stroke as follows: "The acute onset of neurological dysfunction due to disturbance in cerebral circulation that results in signs and symptoms which depend on the local area involved in the brain and its duration longer than 24 hours"(4). Stroke is the third cause of death(5) and the second leading cause of disability(6, 7).

In the United States almost 700 thousand people annually are affected to this disease(8). A World Health Organization study in partnership with 12 countries regarding the incidence of stroke in the study population showed that /2 up to 2/5 in a thousand is variable. The standard rate for men, have been 2 per thousand in Colombia, 4 to 8 thousand in most European countries and 15 per thousand in Japan. Risk for women is on average 30 percent lower than men(9). In Asia, the number of deaths from stroke and coronary heart disease mortality, are equal(10). According to the report of World Health Organization in 2011, the incidence of stroke in India, was 130 per hundred thousand inhabitants per year(11). Data in Iran in the field of epidemiology of stroke, is inconcise and scattered (12). In Iran, stroke is the fourth leading cause of death after heart disease, cancer and accidents (13). The disease, in addition to a high mortality rate causes substantial morbidity as well(14). Studies show that over time, the problems and the results are changed by approximately 30% improvement and 40% is associated with disabilities(15). The cost to the United States of America directly attributed to stroke, is estimated at $ 30 billion(16). Depending on the severity and type of stroke, patients with varying degrees of impairment of physical, mental and social experience can have these changes affect their quality of life(17). Including cerebrovascular accidents effects, muscle weakness and stiffness affects limb function(18). Disability from stroke,is due to decreased quality of life after the onset of the disorder(19). Many patients suffering from stroke, needed care and rehabilitation measures after discharge from hospital. These patients will be unable to perform daily living tasks and need the help of others(20). The goal of treatment for these patients,is improving quality of life by reducing the effects of the disease(21). So, it seems that using an effective method to improve neuromuscular function can lead to improved quality of life and reduce medical and social costs and one such method is possibly PNF techniques.

In a study by Victoria et al(2013) as Proprioceptive Neuromuscular Facilitation stretching technique (PNF) was done,and it stated that PNF technique was a valuable part of any program of rehabilitation(22). According to the study on various aspects of stroke patients and its impact on life, and individual and social performance of these patients, this study was conducted to examine the effect of proprioceptive neuromuscular facilitation exercise on activities of daily living in stroke patients admitted to the martyr Beheshti hospital Yasouj.

Materials and Methods

This study is a clinical trial The sample study, was conducted on 60 patients with stroke admitted to the neurology ward of the martyr Beheshti Yasouj hopsital with criteria such as: Personal and informed consent to participate in the study, over 4 months to 2 years after stroke Adults over 60, once having a stroke, non-active phase of the disease, lack of orthopedic and neurologic diseases and the ability to communicate. The sample size for each group of 30 people was considered.

In connection with the sampling, after first obtaining approval from the Ethics Committee, first; the samples were chosen as convenient and accessible and then randomly allocated to two groups of 30, who were assigned as .intervention (14 women and 16 men) and controls groups (12 females and 18 males). Then, the activities of daily living in both intervention and control groups were assessed, before doing the exercises, using a questionnaire to assess activities of daily living elderly (ADL) containing 30 questions, with four option Likert scale, and with five subscales consisting of extensive (9items), personal activities (7items), social and religious activities (8items), work fine (4 items) and the activities of the washing machine (2 items) were measured. Scores of 0 to 90 were allocated with the higher scores indicating high mobility activities, extensive and productive individual (23). A score of 0 to 30 indicates that it requires full or most of the time with the help of others. From 31 to 60, this indicates that it requires less time and somewhat other people's help and From 61 to 90, it represents complete independence that does not require anyone's help. Then a proprioceptive neuromuscular facilitation exercise program for 8 weeks, each session lasting 30 to 45 minutes (16 sessions during 2 months) in the intervention group was administered(24). The control group received no intervention.

In this study, we used the two following patterns:
1-Arm joint patterns (Upper limb):
Flexion-Abduction-External rotation (Elbow flexed and Elbow extended)
Extension- Adduction- Internal rotation (Elbow flexed and Elbow extended)
Flexion-Adduction- Internal rotation (Elbow flexed and Elbow extended)
Extension-Abduction- External rotation (Elbow flexed and Elbow extended)
2. Knee joint patterns (lower limb):
Flexion-Abduction-External rotation (Knee flexed and Knee extended)
Extension-Adduction-Internal rotation (Knee flexed and Knee extended)
Flexion-Adduction-Internal rotation (Knee flexed and Knee extended)

Extension-Abduction-External rotation (Knee flexed and Knee extended)

The therapist firstly placed the member in a balanced position with respect to the three axes of motion and in this case, the muscles were drawn as far as possible (not up to the end of the range of motion). The exercises two times a week for 30 to 45 minutes lasted for 8 weeks(24).

First stage: An active or inactive stretch was applied within 10 to 20 second, and the muscle or target muscle, slowly and gradually, was taken to the end of the range. This situation was kept for moments.

Second stage: Immediately or after a rest of about 2 to 3 second, the contraction was done unlike the resistance of the therapist. This contraction can be isometric or static, or less likely to be shortened and concentric. The duration of this contraction is usually 3 to 6 seconds. At this stage, the target muscle is calmed down by the "self-restraint" or "reciprocal tension reflection" mechanism and ready for further stretching.

The third stage: Immediately or after an interval of about 2 to 3 seconds, again, the muscle or target muscle stretched to reach a new point in the range of motion. (25).

Immediately and 4 weeks after the last exercise session, activities of daily living in both intervention and control groups using the questionnaire (ADL) was measured (23). The collected data were analyzed by SPSS software using descriptive statistics(Tables and charts, indicators centrist and dispersion indicators) as well as inferential statistical tests (Kolmogorov Smirnov, V-test Repeated measurements ANOVA and paired t-test) with 95% confidence level and P <0.05.

Results

The results of this study showed that samples of study in both groups in terms of age, are in the range of 60 to 90 years. 56/7% of samples were male and 43/3% were female. In terms of job, most of the samples (35%) were unemployed. In terms of education, 40% primary education, 36/7% illiterate and 23/3% were middle and high school education. 20% of the samples in the intervention group, and 30% in the control group were rural, and 80% of the samples in the intervention group, and 70% in the control group were urban. 30% of the samples in the intervention group and 23.3% in the control group were single, and 70% of the intervention group and 67/6% of the control group were married, and divorced. In both groups, 55% have a positive family history of stroke. 61.7% of samples in the right hemisphere, and 38/3% in the left hemisphere, suffered from stroke.61.7% of the samples were paralyzed in the left half of the body and 38/3% in the right half. The mean scores and mean differences in the activities of daily living in both intervention and control groups are presented in the following tables (opposite page):

Discussion

Based on the results of this study, proprioceptive neuromuscular facilitation exercises on the parameters of activities of daily living (extensive, personal, belief-social, delicate and washing by car) of patients with stroke in the intervals before intervention, immediately after the intervention and one month after the end of the intervention, showed no significant statistical difference(P>0/5). Also, the findings of the study indicate that there is no significant difference between the mean and standard deviation of daily activities in the two groups before and immediately after the intervention, but one month after the end of the intervention, the extensive activities in the intervention group were more than control, but the difference was not significant. Also, belief-social activities and personal activities have shown a similar situation. In addition, delicate activities and washing by car did not show a significant change in the situation. In general, before intervention, immediately after the intervention and one month after the intervention, there was no significant difference in the mean of activities of daily living between the two intervention and control groups(P>0/05). By searching in databases and various sources, a study consistent with the current study that the effects proprioceptive neuromuscular facilitation exercises on the activities of daily living of patients with cerebrovascular accident have not been obtained. Most of the studies used in these exercises are for neuromuscular problems, rehabilitation, motor function, vascular function, quality of life and even pain.

In a study by McMillan et al, stated that, the quality of life of patients with stroke is significantly lower than the quality of life of the control group (26). In a study by Ruth Dickstein and colleagues in 1986, entitled "Rehabilitation of a stroke with three methods of training", covering 131 patients, stated that these patients underwent three treatment methods, finally, they concluded that there was no significant difference in the improvement of daily life activities in all three groups(27). Attar Sayyah et al (2016), in a clinical Trial study, examined the effect of proprioceptive neuromuscular facilitation exercises on fatigue and quality of life in patients with multiple sclerosis. Their results showed that these exercises significantly reduced fatigue and increased the quality of life in patients with MS(28). Also, a study by Sadeghi D. Cheshmeh et al. To compare the effects of closed and PNF chain motion on the static and dynamic balance of the elderly between 60 and 80 years of age, the findings suggest that these two methods of training can improve balance Static and dynamic elderly people to be used(29). PNF technique is commonly used in athletes and clinical settings to increase the active and passive motor range and to optimize motor function and rehabilitation (30). Evidence suggests that active exercises after cerebral stroke lead to neural plasticity in the cerebral cortex, resulting in improved motor function after the stroke of the brain (31). However, this study was designed with the idea that proprioceptive neuromuscular facilitation exercises with muscular rehabilitation can provide more flexibility in the muscular congestion of stroke patients, the physical fitness of the patient increases and this event

Table 1: Compare the activities of daily living score before and after intervention in both experimental and control group

	Parameter	time	Intervention group M±SD	Control group M±SD	Statistical test Statistics(k^2)	P-value
Activities of daily living (ADL)	Course activities	Before intervention	10/7±2/7	11/9±4/4	0/2	0/9
		Immediately after the intervention	11/6±4/4	11/5±4/7	0/9	
		A month after the intervention	12/5±4/4	11/1±5/1	0/3	
	Personal activities	Before intervention	11/1±3/5	11/9±4/5	0/3	
		Immediately after the intervention	12±5/2	12/1±5/3	0/9	0/8
		A month after the intervention	12/7±4/6	12/4±4/6	0/8	
	Religious and social activities	Before intervention	12/4±3/7	12/8±4/1	0/6	
		Immediately after the intervention	13/8±3/9	13/4±4/9	0/6	0/8
		A month after the intervention	14/2±2/9	13/7±4/3	0/6	
	Delicate activities	Before intervention	3/1±2/2	3/5±2/3	0/5	
		Immediately after the intervention	3/6±1/7	3/8±2/4	0/7	0/8
		A month after the intervention	3/8±1/6	3/6±2/4	0/6	
	Activities washing machine	Before intervention	1/4±0/8	1/5±0/8	0/2	
		Immediately after the intervention	2/1±1	1/7±1/1	0/4	0/8
		A month after the intervention	2/1±0/5	1/9±0/6	0/1	

Table 2: Compare the mean difference in activities of daily living before and after the intervention in experimental group

	Parameter	Mean difference					
		T2 - T1		T3 - T1		T3 − T2	
		Mean difference	P-value	Mean difference	P-value	Mean difference	P-value
Activities of daily living(ADL)	Course activities	0/9	0/01	1/8	0/001	0/9	0/5
	Personal activities	0/9	0/03	1/6	0/001	0/7	0/3
	Religious and social activities	1/4	0/001	1/8	0/001	0/4	1
	Delicate activities	0/5	0/04	0/7	0/06	0/2	0/2
	Activities washing machine	0/7	0/001	/0/7	0/001	0	0/2

Table 3 : Compare the mean difference in activities of daily living before and after the intervention in control group

	Parameter	Mean difference					
		T2 - T1		T3 - T1		T3 − T2	
		Mean difference	P-value	Mean difference	P-value	Mean difference	P-value
Activities of daily living(ADL)	Course activities	-0/4	0/05	-0/08	0/005	-0/04	0/07
	Personal activities	0/2	0/5	0/5	0/2	0/3	0/3
	Religious and social activities	0/6	0/1	0/9	0/09	0/3	0/3
	Delicate activities	0/3	0/2	0/1	0/7	0/2	0/05
	Activities washing machine	0/2	0/4	0/4	0/06	0/2	0/3

will improve the activities of daily living the patients and their final result is to improve their quality of life. Possible reasons for not having an effect on this intervention include the lack of adequate time for muscle recovery in patients Also, muscle weakness and fatigue resulting from the severity and intensity of continuous exercises may be another reason for this. In addition, since everyday activities of daily living are measured by a questionnaire and the questionnaire is a subjective tool, there may be some problems in responding. Differences in the type of CVA, high age, physical and psychological dependence on others for activities of daily living and impaired central and peripheral nervous system of the patients can be affected by other causes. Therefore, it is suggested that these exercises be taught as a general method of rehabilitation and in the following studies, the above considerations should be considered.

Conclusion

So, according to the results, among the mean muscle strength scores of these patients before and after PNF, Significant differences indicating the progression activities of daily living after proprioceptive neuromuscular facilitation exercise compared to before intervention, does not exist, which indicates a lack of improvement in the activities of daily living, people with stroke.

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Evaluation of the ratio of T helper 17 and T regulatory cells in patients with chronic idiopathic urticaria

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Abstract

Chronic idiopathic urticaria (CIU) is a common skin disorder characterized by the emergence of hives for at least 6 weeks without any known etiologic agents. The T helper 17 (Th17) and regulatory T-cells (Treg) balance plays a critical role in both suppressing immune response and maintaining immunological homeostasis. In this study, the gene expression of RORγt and FOXP3 were evaluated to exam the potential immunological roles of Th17 and Treg in CIU patients. In a cross sectional study twenty CIU patients and twenty healthy individuals were evaluated for RORγt and FOXP3 genes expression. Peripheral blood mononuclear cells (PBMCs) were isolated and stimulated by phytohemmaglutinin. Real-time PCR, two standard curves TaqMan method was applied to quantify gene expression. The mean age of patients and controls was 30.5±2 and 30.2±1.6 years, mean duration of disease: 17.3±5 months. FOXP3 gene expression significantly increased in activated PB-MCs of CIU patients (2.28 ± 0.6) compared to controls (0.24±0.1) (p=0.05). Non-activated PBMCs demon-strated remarkable increase in gene expression but it was not significant (p=0.054). Patients and healthy individuals did not show significant alteration in RORγt gene expression. Meanwhile, the ratio of RORγt/FOXP3 in patients was significantly lower than controls (p<0.05). The high expression of FOXP3 in patients without any significant changes in RORγt might indicate the presence of an independent inflammatory pathway such as neurogenic inflammation, which induces Treg cells and mediates inflammation through the degranulation of mast cells.

Key words: Urticaria, T lymphocytes, Forkhead transcription factors, Inflammation.

Introduction

Chronic urticaria (CU) is usually described as the persistence of wheal and flare for at least 6 weeks. When the other causes of disease including drugs, foods, aeroallergens, vasculitis, and/or physical factors are excluded; it is entitled "chronic spontaneous urticaria" (CSU). CSU is divided into two groups: the autoimmune (45%) and chronic idiopathic urticaria [(CIU) (55%)]. In the autoimmune form, the auto-antibody such as anti-α-subunit of FCεR antibody or anti-IgE is present while in the CIU form, autoantibody is absent (1). CIU affects approximately 0.1 percent of the population (2) and has a great impact on life quality, satisfaction, and performance (3). It has been shown that the health status scores for these patients are comparable to those suffering from coronary artery disease (4). Furthermore, psychological conditions such as depression and anxiety are prevalent among CIU patients (5).

T helper 17 (Th17) and forkhead box P3 positive (FOXP3+) regulatory T cells (Treg) are two important T-cell subsets (6, 7). The most important function of Th17 is secretion of interleukin17 (IL-17) (8). IL-17 production is dependent on retinoid orphan receptor C (RORγt), the main master regulator transcription factor for the conversion of the naïve T-cell into Th17 (9). In addition to this primary secretion role, Th17 also plays a positive role against harmful microorganisms, and a negative role in promoting some disorders such as autoimmunity, allergic reactions, and inflammation (10-12).

Treg cells play a fundamental regulatory and inhibitory role on immune cells such as B cells, CD4+ and CD8+ T cells, monocytes and dendritic cells (DCs)(13). The regulatory effects of Treg cells are mediated through IL-10 and TGF-β production (14). The FOXP3 transcription factor gene is essential for the induction of inhibitory function (15). Interestingly, recent studies have shown that Th17 and Treg have controversial affects on immune reactions (16). TGF-β and IL-6 presence promotes Th17 development, while in the presence of only TGF-β, naïve T-cells shift towards Treg (17). Evaluation of the Th17/Treg ratio has significantly expanded our knowledge about the pathogenesis of many disorders such as rheumatoid arthritis (18), graft versus host disease (19) and coronary artery disease (20).

Considering the importance of Treg and Th17 in immune responses, in this study the gene expression of RORγt and FOXP3 were evaluated in CIU patients and healthy individuals.

Materials, Patients and Methods

Twenty CIU patients (male: 6, female: 14) and twenty healthy people (male: 6, female: 14) participated from the Allergy clinic of Qaem hospital (Mashhad, Iran) in this study. The patients were selected as CIU if they had recurrent wheals occurring at least three times per week for more than six weeks without any particular cause, as we previously reported (21). Patients with lesions which had lasted more than 24 hours were excluded. The patients with IgE-mediated urticaria or with any other known cause such as urticarial vasculitis, physical urticaria, autoinflammatory diseases and food allergy were also excluded from the study. Standard laboratory work-ups included: complete blood cell count, stool exam, urinalysis, complement evaluation, function of thyroid hormones and anti-thyroid antibodies, anti-nuclear antibodies, anti-H. pylori and total serum IgE. Patients and controls gave written informed consent and the study design was approved by the Ethics committee of Mashhad University of Medical Sciences (number 91641).

Autologous Serum Skin Test (ASST)

None of the patients participating in the study had taken an oral corticosteroid or other immunosuppressive agents before the test. The patients did not use antihistamine for the 3 days prior to the test. The ASST was performed according to the Grattan protocol (22). Briefly 0.05 ml of fresh autologous serum and normal saline (as control) were injected separately and intradermally into the volar surface of the forearm and evaluated 30 minutes later. The test was considered as positive if the difference of wheal diameters between serum and controls was more than 1.5 mm.

PBMCs isolation and stimulation

Up to 4 ml of venous blood was taken from each participant. PBMCs were then isolated by a Ficoll-Hypaque (Sigma, UK) density centrifugation. A total of 1.5×10^6 cells/well were cultured in RPMI-1640 (Gibco-Bio-Cult, Glasgow, Scotland) supplemented with 10% fetal bovine serum (FBS) and stimulated by phytohemmaglutinin (PHA) (2µg/ml) (Sigma Chemical, USA) for 48 hours at 37 ^{0}C in a 5% CO_2 atmosphere. The cells were collected and Tripure (Roche) was added to extract RNA.

RNA Extraction, cDNA Synthesis, and Gene Expression

RNA extraction was performed using Tripure (Roche) according to the standard protocol. cDNA was produced using a RevertAidTM H Minus First Strand cDNA Synthesis Kit (Fermentas, Germany). FOXP3 and RORγt gene expressions were measured using Real-time PCR. Primers and probes were designed using Beacon Designer 7 software (Premier Biosoft International, USA). Real-time PCR was performed in Taqman method for FOXP3 and RORγt PCR kit. The sequence of primers and probes of respective genes are shown in Table 1. β2 –microglobulin, which express in all nucleated cells, was used as an endogenous control. The Real-time PCR was performed on a Rotor-Gene6000 Cycler (Corbet, Hilden, Germany). Real-time PCR was performed according to the Taqman method in a 10 µl volume using 4 µg total cDNA, 5 µl PrimeScript RT Master Mix (Takara Corporation), 0.4 µl forward and reverse primers and also 0.2 µl probe. All reactions were performed in duplicate. After adjustment of the respective concentrations of primers, probes, and Mg2+, cycling protocols were finally implemented as

follows: 40-cycle amplification program consisting of 10 s at 95 °C and 40 s at 60 °C. Gene expression level for each gene was calculated using the standard curve method. Target efficiency (FOXP3, RORγt) and reference genes were approximately equal.

Statistical Analysis
The Statistical Package for the Social Sciences, version 16 (SPSS 16.0, WinWrap Basic, Polar Engineering and Consulting, Nikiski, AK, USA), was used to conduct statistical analysis. Kolmogrov–Smirnov (K-S) Test and Mann-Whitney U Test were used to compare the gene expressions between the CIU and control groups. The significance level of this test was estimated at less than 0.05, with a confidence interval of 95%.

Results

Totally, 40 subjects completed the study (20 CIU patients, and 20 healthy cases). The mean age of patients and controls was 30.5±2 and 30.2±1.6 years, respectively. The mean duration of disease for the CIU group was 17.3±5 months.

RORγt and FOXP3 expression before PHA stimulation
The mean of RORγt mRNA expression in the lymphocytes of the healthy group showed an expression index (ei) of 0.065±0.01. In the CIU patients, the mean RORγt mRNA expression was 0.17±0.1 ei. No significant difference in RORγt gene expression was found between the CIU and control groups ($p > 0.05$).

The mean FOXP3 mRNA expression in the lymphocytes of the CIU patients was higher (0.023±0.01) than control groups (0.0003±0.0001 ei), however the result did not reach significant levels ($p = 0.054$).

RORγt and FOXP3 expression after PHA stimulation
The mean of RORγt mRNA expression in the lymphocytes of the healthy group and patients was 1.14±0.2 ei and 1.17±0.3 ei, respectively. No significant difference in RORγt gene expression was found between the CIU and control groups ($p > 0.05$).

The mean FOXP3 mRNA expression in the lymphocytes of the CIU patients was significantly higher than healthy ($p < 0.05$) (Table 2).

The ratio of RORγt to FOX3 in non-activated PBMCs of CIU patients and controls was 387±377 and 147±116 respectively and no significance ($p > 0.05$) was observed between two groups.

The ratio of RORγt to FOX3 in activated PBMCs of CIU patients and controls was 0.4±0.1 and 3030±2477 ($p < 0.001$), respectively which was significant.

Table 1: Primers and probes sequences of FOXP3 and RORγt genes

Gene	Primer	Probe
FOXP3*	Forward: 5-ACTACTTCAATTTCCACAACACGC-3 Reverse: 5-GAG TGT CCG CTG CTT CTC TG-3	Fam-TCACCTACGCCACGTTCATCCGCT-BHQ1
RORγt**	Forward: 5-GCT AGG TGC AGA GCT TCAGG-3 Reverse: 5- TGTTCTCATGACTGAGCCTTGG-3	Fam-CCTTGGCTCCCTGTCCTTCTCAGCA-BHQ1
B2-microglobulin	Forward: 5- CGGAAGGAACCATCTCACTGTG-3 Reverse: 5-AGAAATCAGGAAGGCTGCCAAG-3	Fam-ATGGTTCACACGGCAGGCATACTCATCT-BHQ1

* Forkhead box P3 positive, ** Retinoid orphan receptor C

Table 2: Expression of FOxp3 and RORγt expression in patients with CIU and healthy controls

Groups	Before stimulation			After stimulation		
	RORγt	FOXP3	RORγt FOXP3 ratio	RORγt	FOXP3	RORγt FOXP3 ratio
Healthy group	0.065 ±0.01	0.0003±0.0001	147±116	1.14 ±0.2	0.24±0.1	3030±2477
Patient group	0.17 ±0.1	0.023 ± 0.01	387±377	1.17 ±0.	2.28 ± 0.6	0.4±0.1
Significance (*p*-value)	$p=0.38$	$p=0.054$	$P=0.2$	$p=0.9$	$p=0.003$	$P<0.001$

Discussion

In this study, we examined the expression of FOXP3 and RORγt and also the ratio of these factors in CIU patients and healthy individuals. The increase in FOXP3 gene expression and subsequently decrease in Th17/Treg ratio in activated PBMC of CIU patients were significant compared to healthy individuals.

The result of this study does not support the hypothesis of a reciprocal relationship between Th17 and Treg cells reported in the previous studies (18-20), but it could be justified with another important mechanism, neurogenic inflammation (23), in which the number of Treg cells is increased (24). Neuron fibers and mast cells are within a close proximity to the skin, therefore many factors such as stresses, hot weather, physical factors, and histamine, affect neuron fibers and trigger the secretion of the chemical mediators, neuropeptides. Several neuropeptides are present in the skin, of which the most important are calcitonin gene-related peptides (CGRP), substance p (SP), and vasoactive intestinal peptides (VIP) (25). These mediators induce NI in two main pathways (26): directly binding to micro vascular or mast cell receptors, the latter stimulates the release of histamine. It has been shown that CGRP and VIP also have regulatory functions in NI (27-29). Smith et al. showed that the effects of VIP are more severe than the other wheal inducers in CIU patients (30). Furthermore, VIP has an important immunomodulatory function in this kind of inflammation (31-33), especially after the acute inflammation phase that induces FOXP3 expression (34, 35). It is consistent with our finding in which FOXP3 expression is increased after activating PBMCs in CIU patients.

The Th17 plasticity has been demonstrated in several studies (36-38); it is probable that in CIU patients, VIP secretion induces Treg and therefore decreases the ratio of Th17 to Treg. The serum level of SP in CIU patients is controversial (39, 40), and to our knowledge there is no study regarding the role of VIP in patients with CIU. Further studies are needed to clarify the role of VIP and other neuropeptides in CIU.

Taken together, our results showed that FOXp3 expression is increased in CIU patients and therefore the ratio of Th17 to Treg is decreased. It seems that the production of neuropeptides factors such as PS, VIP, and CGRP might be involved in this issue. Thus further studies should be taken into account to determine the relation between these mediators and Treg cells in patients with CIU.

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The Effect of Health System Development Plan on Reduction of First Cesarean in Kohgiluyeh and Boyer Ahmad in 2016

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Abstract

Preserving health and promoting it is one of the transcendental goals of health systems of countries which is being scrutinized every day by utilizing financial, human, and modern methods. Cesarean delivery in all countries is one of the indicators for evaluating the performance of health programs (Nematzadeh, 2015). Considering the known complications of cesarean delivery and the growing trend of this practice in Iran, for the purpose of preserving and promoting the health of mothers and babies and improving the conditions of delivery, promoting normal delivery is one of the guidelines for the development of the health system (Farzighi et al., 2015). The aim of this study was to measure the success of this project in decreasing first cesarean delivery in Kohgiluyeh and Boyerahmad province in 2016.

Materials and Methods: In this study, the database of hospitals was used to collect data. Separate data related to the causes of cesarean section were introduced from the hospitals' delivery offices to the Excel form and then statistical methods were used to analyze the data. In the first step, using descriptive statistics methods including mean, standard deviation, the minimum and maximum values and plotting the tables and the percentages as graphs and charts. We describe the information gathered. Then, using inferential statistical methods including independent t-test and one way and two-way analysis of variance analysis, we analyze the information. It should be noted that the SPSS software version 24 and Excel 2010 were used to analyze the data of this research.

Findings: The findings indicate that the percentage of cesarean section decreased after the implementation of the health system reform plan. Regarding the equality of variances (F = 0.39, p = 0.53 <0.05), the value of the T 2.3 was statistically significant (p <0.05). Therefore, the hypothesis of equality of meanings before and after implementation of the plan is rejected at a significant level of 5%. In other words, the percentage of cesarean section had a significant change at the 5% level after the implementation of the health system reform plan.

Conclusion: In summary, according to the findings of this research and the analysis of the other studies, one can conclude the implementation of the health system reform plan is effective in reducing cesarean section in the province and can be hoped that by continuation of this plan and implementation of all its related items to the global standard and the ultimate goal of the Ministry of Health and in principle to reduce mortality and increase the health of mothers and babies has increased in this area.

Key words: Caesarean, Natural delivery, Health system development plan, Painless delivery

Introduction

Reforming the health system in other countries is done in different ways, but at the same time, with common goals. In Iran, one of these reforms is the implementation of the Health System Development Plan (Nematbakhsh, 2015). Considering the announcement of general health policies, the plan for the development of the health system from 2014, the approach to protecting people from the financial system, creating equity in access to health services and improving the quality of services, the health service package was officially implemented in all medical universities affiliated with the Ministry of Health and Medical Education in order to provide, maintain and promote the health of mothers and babies and improve the conditions of delivery; the promotion of normal delivery was included in the guidelines for the development plan. In the health system's development plan, the program for the promotion of normal labor has four distinct goals: first, cesarean section cessation, second, increased satisfaction of pregnant mothers, third, the reduction in payout from the people's pocket and fourthly increase in incentives for service providers (Farzgi et al., 2015). The process of delivery due to the importance of maternal and fetus health, the involvement of different levels of service delivery, high rates of cesarean delivery are among the most important considerations in medical science studies in the world (Lamee et al., 2014). The increasing rate of cesarean delivery is one of the problems of the health system of all societies, and Iran is no exception (Amiri Farahani and Abbasi, 2012). Certainly caesarean section is essential as a way of protecting the mother and baby's life during difficult labor (Ghasemi, 2009). But according to the World Health Organization, a maximum of 15 percent can be acceptable (John Babaie et al., 2015). While the incidence of cesarean delivery in many countries is more than this, as cesarean section has grown from 5% to 25% in the last 20 years, in our country, in recent years, cesarean rates have increased significantly in public and private centers, so that after three countries, Brazil, Cyprus, Colombia, Iran was the fourth largest in terms of cesarean section rate, and was 46 percent in 2014 (Zahedi et al., 2015). Normal delivery is a physiological phenomenon without need for intervention (Abbaspour et al, 2014). It is a natural condition in humans as well as animals; caesarian is a medical intervention (Sorani et al., 2016). Compared with cesarean delivery, natural birth has many benefits, including reducing maternal and infant mortality, it is cost effective, lactation of these mothers is faster and better, the emotional relationship between the mother and the baby will be faster in natural delivery, which makes these babies less susceptible to respiratory problems. Resuming sexual activity is faster in these mothers and most importantly, research has shown that mothers with normal living have a better quality of life (Shams et al., 2016).

Instead, cesarean section has many problems and complications for the mother and the baby. Some of these complications include post-operative infections, bleeding, thromboembolism, re-admission within 60 days after cesarean section (Hajian et al., 2010). Pelvic damage is due to surgery, blood transfusion, pathogenicity may be exacerbated by rupture of the uterus, hysterectomy and adhesions (Yarandi et al., 2002). Post-caesium adhesions cause abdominal pain, pain in the vicinity of the stomach and pelvic pain (Sekhava et al., 2007), and an important complication that leads to intestinal obstruction, infertility and clinical problems in subsequent surgical procedures (Dehghani Firoozabadi et al., 2015). The risk of maternal death in cesarean delivery is eight times that of normal delivery (Schuitemake et al, 1997). And the complications of the wound are up to 2.5-5% higher (Basha et al, 2010). In women with a history of cesarean section, the incidence of placentaemia is 10 times higher than that of women whose previous delivery was normal, causing uncontrollable bleeding in 40-40% of these women (Jurkovic et al, 2003). Research has also shown that elective cesarean section has a negative effect on the physiological response of the infant such as increased lung volume, pulmonary arterial resistance; biochemical responses and acute respiratory syndrome increase the risk of regeneration in newborns (Pouragal et al., 2009). However, midwifery interventions from administration of sedative medicines to the creation and intensification of contractions during labor and delivery can have significant effects on the perinatal outcomes and in some cases lead the mother to the cesarean section. Therefore, physiological delivery and reduction of midwifery interventions can reduce cesarean delivery (Bolandhemat et al., 2011). Maternal stress and anxiety can be reduced by promoting natural delivery and delivery of painless medication, drug analgesics such as epidural, spinal, and gazentonox, and topical analgesics such as massage, hot water bags, and air fresheners, and music therapy (Abbasi et al., 2005). Several researchers have shown that a significant reduction in the number of cesarean sections can be made without increasing the number of pathogens. The plans presented to reduce unnecessary cesarean section generally focused on educational efforts and careful examination, normal delivery after one cesarean section, limiting cesarean section due to dystocia (Ranaei, 2004). Normal delivery in mothers who once had a cesarean section is safe and acceptable (Michael et al, 1996). Participating in childbirth classes is evident in reducing the fear of giving birth and increasing normal delivery in nursing women attending these classes (Abuzari Gozafroudi et al., 2015). Lack of knowledge and mothers anxiety increase medical interventions, especially cesarean section (Firozbakht et al., 2013).

The purpose of this study was to investigate the effect of health system reform on reducing cesarean section in Kohgiluyeh and Boyer Ahmad provinces. The probable results of this study can affect the current process of affairs and planning to reduce the total cesarean section in the province.

Methodology

In this study, the database of hospitals was used to collect data. Separate data related to the causes of cesarean section were introduced from the hospitals' delivery offices to the Excel form and then statistical methods were used

to analyze the data. In the first step, we describe the information using descriptive statistics methods, which includes average, standard deviation, minimum and maximum amounts, and plotting the charts and graphs. Then, using inferential statistics including independent t test and one way and two-way analysis of variance analysis, we analyze the information. SPSS software version 24 and Excel 2010 was used to analyze the data of this research. The current research is descriptive analytical and in terms of applied purpose. This study was conducted longitudinally in the year 2016 on the information collected about the deliveries before and after the development of the health system in hospitals affiliated with Yasouj University of Medical Sciences. In this regard, comparing the statistics of year 1992 as the base year, one year before implementation of the health care reform plan with the data of 1993, 1994 and 1995, was performed three years after the implementation of the health system reform plan. Also, training was completed for the completion of the form to the delivery staff. The statistical population includes all pregnant women who were referred to hospitals with delivery blocks in Kohgiluyeh and Boyerahmad provinces (university hospitals including Imam Sajjad (AS), Shahid Rajai, Imam Khomeini (RA) and non-university hospitals including Besat, Gomnam Shohada and Zagros) and were first cesarean deliveries. These statistics were compared. The sample is the same as the statistical population. Also, the moral rights of the university were reserved.

Research findings

In Table 1, the descriptive information related to the percentage of cesareans is reported for the first time in the entire province. On average, the percentage of cesarean deliveries was 37.44 before the implementation of the health promotion plan and after running it, it was 28.75. The dispersion of data is based on standard deviations and the lowest and maximum values are approximately the same.

In Table 2, descriptive information regarding the percentage of cesarean sections among the university centers is reported.

On average, the percentage of cesarean delivery is 29.59 before the implementation of the Health Promotion Plan, and after the implementation of it are 29.20. The dispersion of data is based on standard deviations and the lowest and the most different values and dispersion of information for the percentage of cesareans is more common among university centers before implementing a health promotion plan and this should be taken into consideration when using the test.

In Table 3, descriptive information about the percentage of cesarean sections among non-university centers is reported. On average, the percentage of cesarean delivery is 43.93 before the implementation of the Health Promotion Plan, and after it is 37.20. The dispersion of data is based on standard deviations and the lowest and maximum values are approximately the same.

According to Table 4, independent T-test data for the first cesarean were reported after the implementation of the Health Promotion Plan. Considering the equality of variances (F = 0.39, p = 0.53 <0.05), the value of the T 2.3 was statistically significant, which was significant based on p-value of 0.00 (> 0.05). Therefore, the hypothesis of equality of means before and after. On the other hand, the percentage of cesarean sections had a significant change in the level of 5% after the implementation of the health system reform plan. As shown in the table; an average of 8% was counted for the first cesarean.

According to Table 5, independent t-test data for the percentage of cesarean section at university centers before and after implementation of the health promotion plan are presented. Due to the lack of equality of variances (F = 44.73, p = 0.00), the t-test was found to be 29.5, which is significant based on the p-value of 0.00. Therefore, the hypothesis of equality of meanings after project implementation is rejected at a significant level of 5%. In other words, the percentage of cesarean section in the university centers has changed significantly at 5% level. As shown in the table, an average of 9.26% of the cesarean sections has been reduced for the first time.

According to Table 6, independent T-test data for the percentage of first cesarean in non-university centers before and after implementation of the health promotion plan have been presented. Considering the equality of variances (F = 1.40, p = 0.24), the value of T 45.1 was obtained, which is not significant at the p-value of 0.15, and so the hypothesis of equality of meanings after the implementation of the plan is not rejected at a significant level of 5%; In other words, the percentage of first cesarean has not changed in the non-university centers since the implementation of the health promotion plan. As shown in the table, an average of 6.72% of the first cesarean was decreased, but this decline is not statistically significant.

Discussion and Conclusions

In order to provide, maintain and promote the health of mothers and infants and to improve the conditions of delivery, promotion of normal delivery was included in the guidelines for the development plan and implementation of this plan has provided satisfaction to all segments of society (Farzighi et al., 2015). Childbirth can be considered one of the most beautiful events in women's lives (the acquisition of motherhood) and at the same time a tense reality. Sometimes it is difficult to prevent the risk of a mother or newborn baby and so delivery of cesarean section can be done as a lifesaver (Zahedi et al., 2015). But in many cases, cesarean is not due to medical necessity, but the unwillingness of women to give birth in a natural way (Aghayee et al., 2015). Attitudes, behaviors and misconceptions (Badie Aval et al., 2011) and social and economic factors determine the type of delivery (Delaram and Vardis, 1997). Fear of the inability of normal delivery and associated pain (Yvonne et al, 2016) and reducing pelvic floor injury are factors (Alderdic et al, 2003). And choosing cesarean as a way for physicians and family to set their work and life plans is another reason for more women

Table 1: Descriptive statistics of percentage of first cesarean in the province

After implementing the health promotion plan	Before implementing health promotion plan	Percentage of first cesarean in the country
28.75	36.74	Average
20.02	17.48	Standard deviation
0.00	13.78	minimum amount
92.59	74.80	maximum amount

Table 2: Descriptive statistics of percentage of cesarean section among academic centers

After implementing the health promotion plan	Before implementing health promotion plan	Percentage of first cesarean in the country
20.29	29.56	Average
4.99	10.11	Standard deviation
11.03	13.78	minimum amount
34.20	47.10	maximum amount

Table 3: Descriptive statistics of percentage of cesarean sections among non-academic centers

After implementing the health promotion plan	Before implementing health promotion plan	percentage of first cesarean in the country
37.20	43.93	Average
25.23	20.29	Standard deviation
0.00	14.82	minimum amount
92.59	74.80	maximum amount

Table 4: Independent T test for the first cesarean in the province

T test for equality of averages				Lions test for equality variance	
Difference of averages	P-value	Degrees of freedom	t	P-value	F
7.99	0.00	286	3.24	0.53	0.39

Table 5: Independent T-test for the first cesarean percentage in university centers before and after the implementation of the health promotion plan

T test for equality of averages				Lions test for equality variance	
Difference of averages	P-value	Degrees of freedom	t	P-value	F
9.26	0.00	40.84	5.29	0.00	44.73

Table 6: Independent T-test for the first cesarean percentage in non-university centers before and after implementation of health promotion plan

T test for equality of averages				Lions test for equality variance	
Difference of averages	P-value	Degrees of freedom	t	P-value	F
6.72	0.15	142	1.45	0.24	1.40

choosing cesarean section (Khani and Shabankani, 2004). To reduce non-emergency cesareans, it is necessary to delay early admission of primipara women in latent phase and the most common cause of their cesarean section is fetal distress, until the patient has entered the active phase of the delivery, unless there is indication for admission (Rahnama, 2005).

Different non-pharmaceutical methods may also be used to induce labor (Aghamohamadi et al., 2014). Instead of using oxytocin, it is possible to use other methods such as catheter to prepare the cervix and terminate the pregnancy in pregnant women, which is effective and safe and has a more favorable delivery outcome and it somewhat reduces surgical interventions (Malekzadegan et al., 2008). There are other ways to reduce cesarean delivery, including the continuous presence of midwife at the mother's bedside and providing effective emotional and physical support during delivery (Muslim Abadi Farahani et al., 2006). Participating in childbirth classes is evident in reducing the fear of giving birth and increasing normal delivery in nursing women attending these classes (Abuzari Gozafroudi et al., 2015). Delivery in water due to reduced labor length and reduced pain and decreased need for medical interventions can be a suitable substitute for selective cesarean section (Akbari et al., 2008) and the use of pain relief methods, especially non-prescription pain relief methods that are less costly and have less side effects, can promote normal delivery and make the beautiful birth process a memorable one for the mother (Rahmanian, 191).

Seidali and Namazi, in a descriptive study in the Shoosh hospital of Khuzestan, in 1993, concluded that implementation of health system development plan was effective in reducing cesarean section and cesarean section indications. The results of this study are consistent with the present study. Aghaei et al., in a descriptive analytic study in Shiraz in 2015, concluded that the implementation of the health system development plan has led to an increase in the normal delivery rate and reduction of cesarean section in hospitals affiliated to Shiraz University, which is consistent with the findings of this study.

Surani et al (2016) in his cross-sectional descriptive study in Shahrekord concluded that implementation of health system development plan was effective in decreasing cesarean section in the first year of the project. The results of this research are also consistent with our research results.

Piroozi et al (2015) in his retrospective descriptive, longitudinal, and retrospective study, in Kurdistan Province concluded that the plan for the development of the health system to its predetermined goal, namely, a 10% decrease in the rate of cesarean section within a year after the implementation of the development plan relative to the amount was founded.

According to Table 4, there is a significant relationship between reductions of cesarean section after implementation of the development plan at a 5% level. That is, the development plan of the health system has reduced caesarean section in the province. In Table 4, there is a significant relationship between reducing the percentage of cesarean section after the implementation of the health system development plan in the provincial universities. The implementation of the health system reform plan in this province has been able to reduce cesarean section at university centers. And in Table 5, there is no significant relationship between decreasing the percentage of cesarean section after the implementation of the health system development plan in the non-university centers of this province. Despite the fact that implementation of the health system reform plan in this province has been able to reduce first cesarean at non-university centers but because the average three years after the implementation of the plan was taken into account, the total number of hospitals in the first and second year did not drop significantly and declined more in the third year than the independent T-test. This decline is not statistically significant. Educational planning can be useful for empowering physicians and midwives, performing painless and pain-free deliveries, and holding maternity-benefit classes at these centers. Taken together, according to the findings of this research, it can be concluded that the implementation of the health system reform plan (freeing from normal delivery, starting without pain, starting classes for childbirth, empowering and increasing motivation in service providers, protecting privacy and giving credit to pregnant women, and using incentive and hinting methods) is effective in reducing the caesarean rate of this province and it can be hoped that with the continuation of this plan and the full implementation of all related issues, the global standard has essentially reduced mortality and increased maternal and neonatal health.

Practical suggestions

According to the results of this study, although the first cesarean section in this province after the implementation of the health system development plan has decreased significantly at 5% with the implementation of the following suggestions, it is possible to expect a decrease in the cesarean section in the province.

- The prevalence of physiological delivery, including maternal limitations in the mother's bed and positions, uncontrolled attachment of serum, the use of birth balls, techniques and exercises that the mother saw when attending childbirth classes.
- Reducing childbirth interventions, including induction and strengthening of labor, episiotomy will reduce the fetal distress and related cesarean section.
- Training personnel in the beliefs of the physiological delivery and their empowerment. Certainly, the implementation of all items related to the guidelines for the promotion of normal delivery will lessen cesarean delivery in this province. In this regard, our proposal is as follows:
- Timely payment of staff remuneration to motivate employees.
- The development of maternity unit blocks with single-room rooms for the mother, which will satisfy the mothers.

- A companion to the mother who encourages and reduces stress for the mother.
- Permission of delivery by the mother or a privately appointed obstetrician or midwife. Not only the development of painless labor pain but also the use of non-prescription pain relief methods such as aromatherapy, music therapies, massage, hot water bin, etc.
- Respect for the mother.
- Provide retraining courses for midwives responsible for holding childbirth classes.

It seems that lack of awareness of families is the reason for the high incidence of cesarean section therefore, it is suggested that the localization of codes and culture-building be more influential according to the native beliefs of each region, including the holding of festivals for the promotion of normal delivery, lectures, meetings with women and their families, film and media production in accordance with beliefs.

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Carbamazepine-induced toxic epidermal necrolysis treated with intravenous immunoglobulin and amniotic membrane: A case report

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Abstract

Introduction: Toxic epidermal necrolysis (TEN) is a distinct clinical entity within a spectrum of adverse cutaneous drug reactions. The common causative drugs are anticonvulsants, non-steroidal anti inflammatory drugs, sulfonamides and other antibiotics. Carbamazepine is an important antiepileptic drug used to treat bipolar disorder, seizures and nerve pain such as trigeminal neuralgia and diabetic neuropathy, which is considered to be one cause of TEN.

Case report
We describe TEN in a 7-year-old Iranian girl with no mucosal involvement treated as an emergency burns case with intravenous Immunoglobulin and amniotic membrane. At the end of the treatment period, there were no scars and good cosmetic results achieved.

Conclusion: We conclude that early diagnosis, supportive care and careful monitoring for complications comprise crucial management in TEN. Moreover, using an effective co-adjuvant treatment (amniotic membrane and intravenous immunoglobulin), will improve the skin lesions of TEN totally without scars.

Key words: Amniotic membrane, toxic epidermal necrolysis, intravenous immunoglobulin

Introduction

Toxic epidermal necrolysis (TEN), known as Lyell's syndrome, lies within the spectrum of severe cutaneous adverse reactions (SCAR) induced by drugs or infections. TEN is an acute life-threatening dermatosis characterized by extensive epidermal sloughing at the dermo-epidermal junction, resulting from hypersensitivity complex and keratinocyte apoptosis (1). This medical emergency presents mucocutaneous tenderness and typically hemorrhagic erosions, erythema and more or less severe epidermal detachment presenting as blisters and areas of denuded skin (affected body surface more than 30% of total body surface area). The incidence is approximately one case per million people per year and the mortality rate varies from 27% to 31% (1, 2). The drugs commonly implicated as the cause of TEN are anticonvulsants, non-steroidal anti-inflammatory drugs, sulfonamides and other antibiotics. Carbamazepine, an important antiepileptic drug, has been reported as having potential to cause serious cutaneous reactions (2). Here, we present a case of TEN occurring 2 days after beginning the use of carbamazepine.

Case Report

On 21 October of 2015, a 7-year-old Iranian girl of Caucasoid origin was admitted to Velayat burn care center in Rasht, a city in north of Iran, with extended skin detachment. 10 days before admission, due to epilepsy disorder, she was treated with Carbamazepine, prescribed by a_ neurologist, starting at curative dosage (150 mg twice daily). Forty-eight hours after beginning the treatment, she presented with fever and developed generalized rash all over her body. Then she was admitted to an internal medicine department. The carbamazepine treatment was stopped and the drug was replaced with Sodium-Valproate. During 7 days, despite treating with topical anti-inflammatory creams and oral non-steroidal anti-inflammatory drugs (NSAIDs), she presented with fever and maculo papular skin eruption extended with few bullae on friction-prone areas and erosions on her oral mucosa and lips. So the doctors made a consultation with a burn fellow and the patient was transferred to this burn care center, 10 days after beginning the use of carbamazepine. On admission, she was suffering from confluent generalized erythema and widespread epidermal necrosis on 54% of her body surface (based on rule of nines: legs (18% ×2 = 36%), the front chest (9%) and the abdomen (9%)) (Figure-1a). Her mental status examination showed total alertness. Also, erythematous papules and vesicles, erosive and crusted lesions, purpuric macules and papules and a flask bulla, with 9x7 cm diameter on the base of the right foot, were presented. She had eroded lesions on the lips covered with hemorrhagic crusts and severe edema of eyelids and lips (Figure-1b).

A positive Nikolsky's sign (denudation of the skin with gentle tangential pressure) was also presented. A bacterial culture test from her skin lesions revealed no growth. She showed no lesions on genital area and conjunctiva. The skin lesions were covered with petrolatum- impregnated gauze. Physical and laboratory data at the first day of admission are shown in Table 1.

Of all SCORTEN (severity-of-illness score) parameters (3), she had 2 positive indexes: Initial surface of epidermal detachment more than 10% and Serum urea more than 10 mmol/l. So she was not managed in the intensive care unit, but transferred to an isolated room and medical treatment with intravenous immunoglobulin (at a dosage of 20 gr daily) and fluid replacement (intravenous dextrose 5%) was initiated. Also, burn wounds were initially cleaned with gentle brushing and using soap and water. Using IVIG for 2 days, 9 day after starting manifestations, her lesions improved with a marked decrease in the flask bulla on the base of the right foot, decreasing body temperature on normal state (no fever), generalized scaling and decreasing in face edema. Figure 2 shows her clinical manifestations after using IVIG.

Due to her situation and because she was not totally cured, we decided to cover the areas of epidermal detachment with two amniotic membranes approved by FDA taken from Iranian Tissue Bank (ITB) which is a multi-tissue bank in Tehran. In the operation room, debridement was performed using gentle mechanical techniques, and then we placed the membrane on her body surface. She was intubated during the whole procedure, and IVIG was maintained. Amniotic membranes dried and were consequently fixed to the skin during the next 4 days. We stopped using IVIG 3_ days after beginning. She improved dramatically during the following 24_ hours after procedure, with a marked decrease in her generalized erythema and swelling (Figure 3).

After time, all erythematous papules and vesicles disappeared and her appetite rose significantly. Complete re-epithelization of the affected skin was observed four days after the membrane placement (Figure 4).

All symptoms and skin lesions resolved progressively. The skin lesions healed without scarring but with hyper-pigmentation (Figure 5). The patient left our department in a good general state on 5 November of 2015.

Figure 1a: the patient's manifestations at the first day of admission.

Figure 1b: the patient's manifestations at the first day of admission

Figure 2: The patient's manifestation improves two days after using IVIG.
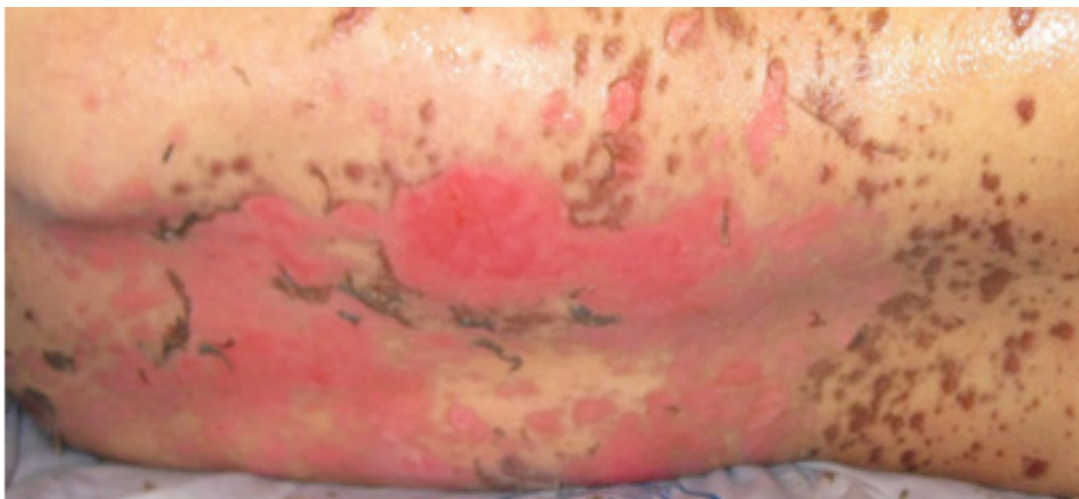
Table 1: Physical and laboratory data of the patient at admission

PATIENT FINDINGS		SCORTEN index
Age (year)	7	(0)
Body surface affected (%)	54%	(1)
Blood pressure (mmHg)	110/70	
Malignancy (history)	No	(0)
Temperature (°C)	38.9	
Pulses/min	78	(0)
Hematocrit (%)	31	
Hemoglobin (g/dl)	11.2	
White blood cell (count/ml)	3.22×10^3	
Platelets/ml	202×10^3	
Glucose (mg/dl)	179	(0)
C-reactive protein (mg/dl)	8.7	
Erythrocyte sedimentation rate (mm/h)	11	
Uric acid (mg/dl)	21	(1)
Creatinine (mg/dl)	0.8	
Sodium (meq/l)	132	
Potassium (meq/l)	4.01	
(meq/l)bicarbonate	19	(0)
Total serum protein (g/dl)	6	
Alanine aminotransferase (u/l)	42	
aspartate aminotransferase (u/l)	41	
Alkaline phosphatase (ng/ml)	121	
Total SCORTEN: (2)		

Figure 3: The patient's manifestations 24 hours after membrane placement

Figure 4: the patient's manifestations 4 days after membrane placement

Figure 5: The skin lesions healed without scarring but with hyper- pigmentation

Discussion

TEN is considered as a medical emergency which may be potentially fatal and carries a high mortality rate (2). The disease started with general malaise, myalgia, and prodromal symptoms. A burning, painful eruption spread from the face to the neck and shoulders and later to the entire trunk and proximal parts of limbs. The peak manifestation of lesions usually occurs in a week. In nearly all cases, mucous membranes are involved and Nikolsky's sign is usually positive (3). Different immuno-inflammatory pathways with early participation of activated CD8 T-lymphocytes are involved. Microscopically, there is sub-epidermal bulla formation, with eosinophilic epidermal necrosis. The dermal vessels show endothelial swelling without any vasculitis or necrosis. Ultra-structurally there is damage to the basal and lower spinous levels of the epidermis and cleft formation at the lamina-densa. Immunofluorescences is always negative (1-3).

Drugs are considered to be the commonest cause of TEN. More than 100 different drugs are considered as having caused TEN, but only a minority of them accounts for the majority of cases (2, 3) (Table 2).

Table 2: Drugs that most commonly cause SJS/TEN

Drugs that most commonly cause SJS/TEN	
Antibiotics	Cotrimoxazole/ Sulfonamides, e.g./ Penicillins/ Beta-lactams i.e./ Cephalosporins
Antifungals	Imidazole antifungals
Antivirals	Nevirapine (non-nucleoside reverse-transcriptase inhibitor)
Allopurinol	
Non-steroidal anti-inflammatory drugs (NSAIDs of the Oxicam-type)	Naproxen / Ibuprofen
Anti Convulsants	Carbamazepine/ Phenytoin/ Phenobarbital/ Vaiproic acid/ Lamotrigine

Carbamazepine is used to treat bipolar disorder, seizures and nerve pain such as trigeminal neuralgia and diabetic neuropathy. Some studies showed that among anticonvulsant drugs which induced TEN, the majority of cases were due to Carbamazepine. Also, Konishi et al (4) performed a prospective survey on 335 children treated with carbamazepine and the result showed that the incidence of TEN was 0.6%. So this antiepileptic drug plays an important role in skin reactions and hospitalizations due to these kinds of side effects. Nowadays, according to most authors, systemic corticosteroids are of unproven benefit in the early disease stage and are clearly deleterious in advanced forms of TEN. On the other hand, other investigators consider systemic corticosteroids to provoke prolonged wound healing and increased risk of infection, hiding early signs of sepsis, severe gastrointestinal bleeding and increased mortality (5).

So we did not use systemic corticosteroids for treatment of our patient. Historically, natural amniotic membranes have been successfully used for wound and reconstructive purposes since the early 20th century. Amniotic membrane forms the innermost layer of the placenta which consistos of an epithelial layer and an avascular matrix (6).

There are many reports of using amniotic membrane in treatment of ocular reactions leads to good results. Enhancement of granulation tissue production, production of angiogenic and anti-inflammatory proteins, induction of macrophage apoptosis and a decrease in wound infection rates are advantages in using this method (6-7). In 2002, Dr. John et al (7) presented two patients who were the first cases of acute toxic epidermal necrolysis treated with amniotic membrane transplantation and the first use of the procedure on external eyelid surfaces with good healing of the eyelids. He reported that this new treatment for acute toxic epidermal necrolysis preserves normal ocular and eyelid surfaces and may prevent blindness.

In 2012, Maylon-Hsu et al (8) presented the first case-control study using amniotic membrane in management of 91 cases with Acute Stevens–Johnson Syndrome and TEN ocular lesions. The results showed patients with no acute ocular surface signs (such as our patient in this article) or mild ocular surface inflammation have a good prognosis.

To the best of our knowledge, this is the second case treated with amniotic membrane and IVIG together on skin detachment sites rather than ocular surface on a patient with TEN disorders (9). Today, the effect of amniotic membrane on burnt skin of children is approved (10). But we found no reports of using this method on skin detachment due to TEN in children. So we report this case to present this method as an effective choice to cure TEN detachment lesions on skin. The amniotic membrane plays the rule of an effective barrier to prevent dehydration and infection. On the other hand, we used IVIG which caused a rapid cessation of skin detachment and decreased her temperature.

We believe, despite rare incidence, TEN is a condition with a high level of complications and mortality and it must be considered as an important burn emergency which should be treated in burn emergency units, so that both adequate wound care and essential intensive supportive treatment can be given. Patients with a large degree of affected surface area should be treated as patients with intensive burn injuries, with close monitoring and anticipation that life threatening complications might arise.

We conclude that early diagnosis, supportive care and careful monitoring for complications comprise crucial management in TEN. Moreover, good cosmetic results are an important goal which must be considered during treatment period. Using an effective co-adjuvant treatment (amniotic membranes and IVIG), our patient's lesions improved and her skin was totally without any scars.

Consent:
Written informed consent was obtained from her parents for the publication of this report and accompanying images. A copy of the consent is available in the end of this paper.

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Consent form

Patient Informed Consent:

I .... hereby consent to allow dr.Mobayen to review my health information for the purpose of presenting my de-identified information at a research conference and to publish as a case report in a scientific journal. I understand that my name will not be associated in any way with the information presented or published. Any information that is obtained that can identify me will remain confidential and will be disclosed only with my permission or as required by law.

If I have any questions about the above, I can contact Dr.Mobayen on this phone number: +989125139506 or this Address (Department of surgery and burn. Velayat Hospital, Parastar Street, Rasht, Iran).

I have read the information. I have been given the opportunity to discuss it. All of my questions have been answered to my satisfaction. This signature on this consent form means that I agree to allow access to my personal health information for the purposes of presentation and publication.

_____   _____   _____ / _____ / _____

Signature of Patient   **Name (Printed)**   **Year Month Day***

_____   _____   _____ / _____ / _____

Signature of Patient's parents   **Name (Printed)**   **Year Month Day***

Right Thoracotomy Beating Heart Technique in Emergency Re-Do Mitral Valve Surgery: Is it Still Justified?

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Abstract

Background:
With the progressive aging of the western population, cardiac surgeons are faced with treating an increasing number of critically ill and elderly patients. Controversy exists as to whether the ordinary mid-sternotomy approach to these malfunctioning mitral valves will do the job or if the new right thoracotomy approach without cross clamping the aorta is better suited to take care of the problem. The potential to avoid mid-sternotomy surgery in re-do patients with little chance of survival and poor quality of life postoperatively would spare unnecessary suffering, reduce operation mortality, and enhance the use of resources.

Methods: We managed 125 cases of severely ill patients admitted to our department on referral from rural areas with malfunctioning prosthetic mitral valves from July 15, 2000 through to August 30, 2012. In our study of 23 patients with right thoracotomy approach, 13 patients were women. Preoperatively most of the patients were not moribund, but 59% had ischemia. All of the patients had prosthetic mitral valves. Hospital mortality and morbidity modes, based on our overall experience with 125 patients operated on for malfunctioning mitral valves during the period of the study were developed by means of multivariate logistic regression with preoperative and intra operative variables used as independent predictors of outcome.

Results: Our overall hospital mortality was 13% compared with 21% of standard median sternotomy procedures. There was no intraoperative mortality. All patients who survived had one or more postoperative complications. Mean hospital stay was 17 days with an average of 10 days in the intensive care units. All of the survivors (21 patients) discharged from the hospital were able to function independently and their survival at 6 months was 100%. Statistical analysis of the overall experience with this new operation for malfunction of prosthetic mitral valves confirmed that via Right Thoracotomy, the cross-clamping of the aorta is the most important independent patient risk factor associated with 30-day mortality and morbidity.

Conclusion: Operations for critically ill patients involve increased hospital mortality and morbidity. Short-term survival is unfavorable and is associated with poor quality of life. With additional corroborative studies to endorse the present findings, the use of right thoracotomy approach to have access to malfunctioning mitral valve without the cross-clamping of the aorta remains a substantiated concept. In the context of these critically ill patients, the hypothesis that right thoracotomy approach without the cross-clamping of the aorta should be advocated for surgical intervention to save these patients and to conserve resources is supported by the presented data.

Key words: Emergency heart surgery, mitral valve malfunction, thoracotomy

Introduction

With important demographic changes taking place in cardiac surgical practice, critically ill patients are more frequently undergoing complex operations (1-4). Controversy exists as to whether the classical mid-sternotomy approach with cross-clamping of aorta is better tolerated by patients compared to right thoracotomy without the cross-clamping of the aorta. Published studies on elective coronary bypass graft and valve surgery reveal that elderly and critically ill patients should not be denied these procedures, although the treatment of older patients involves increased hospital mortality and morbidity, and longer hospital stays (1-3).

Malfunctioning prosthetic mitral valve is generally an acute condition and mortality from this remains high despite important advances in operative therapy. Recent reports indicate that cardiac function is a risk determinant of early results after emergency valve surgery. The study reviews our experience with a particular subset of patients with malfunctioning prosthetic mitral valves referred to our center.

Patients and Methods

We reviewed the records of 23 malfunctioning mitral valve patients who underwent surgery via right thoracotomy from July 15, 2000, to August 30, 2012 at Heart Hospital, in Tehran, Iran. They represented 18% of 125 operations for prosthetic valve malfunction performed in the same period.
The clinical characteristics of these patients, consisting of 13 women and 10 men are presented in Table 1. The mean age of patients was 43.8 years (median 33; range 20-55 years). All the patients had associated diseases. On admission, no patient was moribund and none required external chest compression for cardiopulmonary resuscitation, although 67% of the patients had hemodynamic instability. One patient was unconscious on admission, and 2 had a preoperative stroke. Renal and respiratory insufficiency was present before admission in 29% and 70% of the patients, respectively. A total of 57% of the patients had a reduction in renal function preoperatively, which was largely attributable to hemodynamic instability.

Ischemia was encountered in only one patient. Moderate to severe chronic cardiac failure was present before admission in 29% of the subjects.

No patient was refused surgery because of age or concomitant disease. On admission, all the patients had severe coagulation disorders. Platelet aggregation (aggregometry) and homeostasis (thromboelastography) were markedly reduced in all the patients. In addition, variable degrees of thrombocytopenia, low levels of the thrombin inhibitor angiotensin III, and coagulation factors (fibrinogen, V, VU, \mi, and DC), and high levels of plasmin degradation of cross-linked fibrin (D-dimer) were measured. All procedures were performed with emergency status within 24 hours after the initial onset of dyspnoea on exertion and chest pain, and all the patients were operated on within 4 hours of their arrival. The operative techniques used are summarized in Table 2.

Operative Technique

All the operations in this series of 23 cases were performed through right thoracotomy incision according to previously described standard surgical techniques. In the last case, ascending aortic cannulation was done instead of femoral cannulation, which was due to a history of recent bilateral femoral artery embolectomy procedure. Preoperative coagulation disorders were aggressively treated from the time of admission with the aid of blood bank products, antithrombin III, aprotinin and coagulation factor concentrates.

Continuous ultra filtration during CPB was occasionally used as was a cell saver device (Haemonetics Corp., Braintree, Mass). Arterial pressure monitoring lines were routinely placed in radial arteries. Systemic anticoagulation for CPB was accomplished with heparin at an initial dose of 3 mg/kg body weight. Adequate heparinization for CPB was assessed with the activated clotting time (Hemochron FTK-ACT; International Technique Corp., Edison NJ), with further dose of heparin administered as required so as to maintain an activated clotting time greater than 750 seconds. At the end of the procedures, heparin was neutralized with protamine (0.8 mg of protamine per milligram of heparin). CPB was established with cardiac indices of 2.0, 2.5 L. Min-1 m-2. Cooling was stopped at 33° C in patients operated on without the cross-clamp technique under mild hypothermia. Arterial inflow adequacy was assessed clinically. Acid-base management during mild hypothermia was via an alpha-stat approach. Before opening the left atrium, the head-down position (Trendelenberg) was established and immediately after opening the left atrium, provision was made to render the mitral valve incompetent so that the left ventricle would pump into the left atrium instead of the aortic root.

The postoperative homeostasis protocol used was derived from that proposed by Szefner, and included tests for platelet function, thrombin formation and its regulatory pathways, and for the fibrinolytic system. Treatment included the administration of small doses of protamine, modulated doses of aprotinin, fresh frozen plasma as well as fibrinogen. Dosages were adapted to each patient's clinical profile as well as to test interpretation criteria in order to provide personalized treatment.

Statistical Methods

Medical records of all the 125 patients operated on for malfunctioning mitral valve between July 18, 2000, and August 30, 2012, were reviewed and preoperative variables that were believed to have an impact on outcome were obtained (Table 1). Data were studied by descriptive and statistical analyses. The SPSS application software version 10.0 (SPSS Inc., Chicago, ILL) was used for statistical analyses.

Table 1: Clinical data

Incision Clinical data	Right thoracotomy	Media sternotomy
Mean age ±SD (range) (y)	43.8±3.3 (22-55)	41.2±2.9 (24-59)
Female	13 (46%)	99 (80%)
Hypertension	6 (28%)	16 (13%)
Smoking	8 (33%)	23 (22%)
Diabetes	0	13 (13%)
PVD	2 (14%)	9 (7%)
Angina	2 (14%)	9 (7%)
COPD	7 (28%)	22 (20%)
Cardiac Insufficiency	21 (86%)	113 (93%)
Hypotension	16 (71%)	94 (75%)
Mitral valve Regurgitation	8 (32%)	81 (65%)
Pericardial effusion	10 (43%)	86 (69%)
Cardiac tamponade	3 (14%)	34 (28%)
CPR	3 (14%)	16 (13%)
Myocardial ischemia	3 (14%)	12
Oligoanuria	12 (43%)	24
Visceral Ischemia	1 (8%)	20
Coagulation disorder	20 (86%)	117

Table 2: Operations

	Right thoracotomy	Median Sternotomy
No. of patients	23	125
Aortic cross-clamping	0	125 (100%)
Mean myocardial ischemic time ± SD (range, min)	0	65±33 (43-127)
Mean pump time ±SD (range, min)	71±27 (45-118)	120±43 (63-260)
Associated procedures		
CABG	1 (6%)	2 (2%)
Aortic valve surgery	0	5 (4%)

SD indicates standard deviation;   CABG (Coronary Artery Bypass Grafts)

Significant differences between the two procedure groups (i.e. median sternotomy and right thoracotomy without aortic cross-clamping) were assessed with univariate analysis (Tables 1 to 3): categoric data were compared by means of the x^2 test or the Fisher exact test (as appropriate) and continuous variables with the student t test. Data were further analyzed by univariate and multivariate logistic regression with the response variable on the one hand being hospital mortality (30 days mortality), and on the other hand, morbidity. All variables with a zero or near zero cell count were treated as continuous so that convergence could be obtained. Multivariate models were applied to isolate the effect of each factor adjusted for all other factors: the 0.25 level (P< 0.25) was used as a screening criterion for the selection of candidate variables. In order that problems created by multi collinearity could be avoided, variables that were too highly correlated among them were included at different times in different models. A background procedure was used. A Wald x^2 test was used for testing the significance of individual coefficients. The results are shown as odds ratios with 95% confidence intervals.

Results

Descriptive Analysis

Mortality: Overall hospital mortality was 13% (three patients, Table 3).

Table 3: Complications

	Right Thoracotomy (n=23) Without X-clamp	Median Sternotomy (n=125) With X-clamping
Hospital mortality (30 days)	3 (13%)	26 (21%)
No complication	0	14 (12%)
One or more complication	10 (44%)	109 (88%)
Intra-operative death	0	12 (9%)
Re-operation	0	9 (8%)
Prolonged ionotropic support	12 (33%)	34 (28%)
Post operative death (30 days)	3 (13%)	19 (15%)
Multi-organ failure/ Sepsis (death)	3 (13%)	9 (8%)
Death	0	5 (4%)
Permanent stroke	1 (4%)	8 (7%)
Hemodialysis	0	5 (4%)
Prolonged Respiratory support	1 (4%)	39 (31%)

Intra-operative mortality was 9% (12 patients). Intra-operative deaths included all 9 patients with bleeding from coagulation disorders. The bleeding was due to the poor quality of the ventricular tissue at the site of adhesional release in 9 patients and to the technique of repair in the other patients.

Mortality from cardiac causes was 12% (15 cases); 12 patients could not be weaned off the CPB because of intractable cardiac dysfunction and 2 died postoperatively of low cardiac output on postoperative days 8 and 15 respectively. Permanent neurologic damage with cerebral death occurred in 9 (7%) patients. Sepsis complicated by multi-organ system failure (specifically renal and respiratory failures), was the cause of death in 10 (8%) patients. Multiple reoperation for bleeding were required in 9 (8%) other patients. Intravascular disseminated coagulation (DIC) in its different phases was present in all patients from the time of admission. Despite aggressive management and routine blood coagulation tests, coagulation factor levels and fibrinol: vsin remained abnormal for the duration of CPB. Factor V, factor VIII, Fibrin degradation products (FDP), antithrombin III, D-dimer levels, and platelet counts were the most evident defects before, during, and after CPB and in the postoperative period.

Prolonged postoperative inotropic support for low cardiac output was required in 34 patients. Respiratory failure necessitating tracheostomy for prolonged assisted ventilation occurred in 39 patients, of whom 9 died of sepsis before hospital discharge. Stroke with neurologic damage complicated the postoperative course of 8 (7%) patients.

Five patients required hemodialysis treatment. The presence of renal failure in the postoperative period was associated with death in all patients with this complication. The mean duration of hospital stay was 38 days with an average of 10 days in ICU.

Late Mortality:
Six patients who had preoperative moderate COPD required prolonged ventilator weaning and were discharged from ICU from 32 days to 44 days afterwards. Of these, 3 died of pneumonia later on and the remaining succumbed to malignant arrhythmias during re-hospitalization later on for respiratory failure. One patient who had post operative renal failure died of cardiac arrest during dialysis 5 months after the operation.

Statistical analysis
The two procedure groups examined (right thoracotomy vs. median sternotomy) were not significantly different from each other with respect to the majority of perioperative characteristics that are believed to have an impact on outcome in patients with malfunctioning prosthetic mitral valve (Tables 1 and 2). As indicated by univariate analysis, perioperative patient variables correlated to operative mortality were median sternotomy (P<0.001), bleeding (P<0.001), and cardiac ischemia (P=0.02). For morbidity, univariate analysis indicated the following significant variables: median sternotomy (P<0.0001), and

preoperative myocardial ischemia (P=0.05). Mortality and morbidity models based on multivariate logistic regression analysis confirmed that median sternotomy (as a continuous variable) is by far the most important risk variable.

Discussion

In recent years, technical improvement in emergency redo mitral valve operation for malfunctioning prosthetic mitral valves, associated with better perioperative management and postoperative care of the patient, has resulted in an acceptable decline in hospital mortality rate. In our hospital, the results obtained in right thoracotomy incision without cross clamping of the aorta (Tables 1 to 3) confirm these achievements. The dismal outcome that we have observed in patients with median sternotomy with the cross clamping of the aorta indicates that the procedure and the consequent cross clamping of the aorta further exposes this population to the risk of complicated outcomes. Median sternotomy patients have higher hospital mortality and more complications, even though preoperative differences between the two procedural groups are trivial. This is particularly the case for the variable found to be critical in the statistical model of mortality and morbidity elaborated in this study. The same models indicate that many preoperative factors traditionally associated with a poor outcome such as renal insufficiency, stroke, cardiac insufficiency and chronic obstructive pulmonary disease, do not serve here as predictors of mortality and morbidity, thus confirming the advances made in the management of patients with acute malfunctioning mitral valve. The critical influence of median sternotomy as the most important variable on the postoperative outcome is demonstrated by our study. From a statistical point of view, the variable "redo median sternotomy with cross-clamping of aorta "condenses a variety of factors that are very difficult to categorize and quantify" . These include physiologic and pathologic factors related to the normal degenerative processes of tissues that are beyond the control of the surgeon. As such, significant reductions in mortality rates appear very difficult to achieve. Our study corroborates the hypothesis that median sternotomy with the cross-clamping of the aorta goes beyond the limits of surgery in very ill patients, unlike other cardiac operations, which can be performed via right thoracotomy without arresting the heart with a high risk but with a favorable long-term outcome.

In this era of diminishing economic resources for health care, the question of whether such a new approach of surgical therapy should be offered to these patients is very relevant.

Society must always face the reality of limited medical resources and must find mechanisms for distributing these resources fairly and efficiently. In recent years the focus for the evaluation of health services has shifted from unnecessary treatment, especially unnecessary surgery, to the appropriateness of the treatment. Treatments that are extremely unlikely to be beneficial and are extremely cost-ly may be considered inappropriate and hence inadvisable, but they should not be labeled futile. Three sources of value are defined that give meaning to "appropriateness" in patient care: the clinical point of view, the point of view of each individual patient, and the societal point of view(4). These concepts necessitate that the ethical and economic implications of medical services be integrated into outcome-based guidelines.

The aim of this study was to examine whether surgery for redo mitral valve malfunction in critically ill patients via median sternotomy and arresting the heart is beneficial to this population. In light of the data presented, we conclude that such surgical treatment is inappropriate while right thoracotomy without cross-clamping the aorta remains our other option.

In all these cases the surgeon is emotionally and ethically involved. As stated by Daniel J. Ullyot(5) the appropriate application of technology begins early in the clinical encounter. Very often, in the presence of very ill subjects, what appears as inappropriate is to refer the patient for surgery. A surgical consultation offers the patient more than the simple agreement to do the procedure, because it creates expectations in the patient or patient's family, making the decision how to operate extremely difficult. So that these difficulties can be overcome, practice guidelines based on scientific data need to be written. The present work aims to provide a small contribution to this commitment.

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The effectiveness of life skills training on happiness, mental health, and marital satisfaction in wives of Iran-Iraq war veterans

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Abstract

Background: Injury due to war or accidents causes numerous mental, physical, and social adverse effects on affected individuals and their family.

Aims: This study was conducted to determine the effectiveness of life skills training on happiness, mental health, and marital satisfaction in wives of Iran-Iraq war veterans.

Methods and Material: In this semi experimental, controlled study with pretest-posttest, 102 veterans in Shahrekord, southwest Iran were randomly assigned to two groups, intervention and control, after they filled out a written consent form. The intervention group alone received training on four domains of life skills, coping with stress, problem solving, decision-making, and communication skills, for eight weeks. Oxford Happiness Questionnaire, General Health Questionnaire (GHQ-28), and ENRICH Marital Satisfaction Scale were administered at three steps, before intervention, immediately after intervention, and six months after intervention (as follow-up). The data were analyzed by analysis of covariance in SPSS 23.

Results: The mean scores of happiness and mental health indicated a significant difference between the two groups at posttest (P=0.000). But in follow-up, the difference was significant for neither of the variables (P>0.05). Mean scores of marital satisfaction exhibited significant difference at both posttest (P=0.000) and follow-up (P=0.001) between the two groups.

Conclusion: Life skills training for veterans' wives can help them promote their mental, physical health, and marital satisfaction, but the findings on follow-up indicate that this effect is not lasting. Therefore, life skills training should be done continuously particularly to promote mental health and happiness.

Key words: Mental Health, Happiness, Life, War veterans

Introduction

World Health Organization (WHO), with UNICEF coordination, has launched Life Skills Training Program as a primary prevention and comprehensive project of health promotion in children and adolescents. WHO defines life skills as "the ability to behave adaptively and positively to be capable of coping with life necessities and challenges". Furthermore, WHO has introduced ten skills as main life skills including decision-making, problem solving, creative thinking, critical thinking, effective communication skills, interpersonal relationships skills, self-awareness, empathy, and coping with stress and emotions (1). Chronic diseases can cause negative effects on quality of life and various aspects of health (2-9).

Making attempts to understand and assist the psychiatric victims of wars and accidents requires psychiatric and psychological interventions to promote and maintain their health (10). Studies have shown that posttraumatic stress disorder (PTSD) affects not only the patients but also their family function such as family cohesion, parents' satisfaction, relationship with spouse, spouse self-identification, and children's emotional and functional safety (11-14). The veterans of Iran-Iraq War suffer from different complications and trauma, decrease in libido, offensive disorder, conflict, and psychotic symptoms (15, 16) which can influence the happiness, mental health, and marital satisfaction in them and their families.

Happiness is a kind of feeling positive. Happiness means increase in positive feelings, high life satisfaction, and relief of negative feelings (17). Experiences of happiness depend on self-concept. People with low self-esteem and self-worth are often unhappy (18). Happiness rate is likely to increase through training in the ten life skills.

Mental health is a state of well-being in which people realize their potential, cope with routine life stresses, can function usefully and efficiently, and help

community (WHO, 2005), and marital satisfaction refers to individual experiences of marriage that are only measured by response to the degree of the pleasure derived from marriage (19). Studies have indicated that dissatisfaction with married life is associated with development of depression (20, 21), and marriage compatibility is lower in the wives of the veterans with PTSD.

Moreover, marriage compatibility was considerably lower in the couples both with PTSD than those with only the veteran suffering from PTSD (22). A study has shown that the chemical veterans of the Iran-Iraq War are dependent on others, particularly their wives, and cannot do even their daily activities and hence are under stress (23).

Many studies have been conducted on the effect of life skills training on different populations with different problems indicating the efficiency of this method. The effect of life skills training on relief of stress, prevention of high risk sexual behaviors, and abuse of alcohol and substances in adolescents has been reported (24-27). Codony et al found that life skills training for adolescents caused increase in self-confidence, life satisfaction, and improvement of problem solving (28). In a study in Mexico, life skills training for girls led to increased self-efficacy and self-esteem after training (29).

The soldiers with PTSD have been reported to be involved in family aggression more frequently than those without PTSD (30). The studies have shown that the families of the war-afflicted people suffer from many problems requiring therapeutic interventions. Accordingly, a significant decrease in severe psychiatric disorders was seen in the war-afflicted families following psychological training (31).

The studies of the people injured due to war or trauma (psychiatric and physical injuries) and their families have indicated that it causes not only psychological, physical, and social impacts on the injured people but also affects their family members, particularly wives, indirectly, and is associated with many adverse effects in different domains, including marital, family, and interpersonal, as well as psychiatric disorders, depression, and anxiety. Previous studies have mainly described the problems in these families and less frequently investigated the educative and therapeutic interventions.

The training on managing anger and stress, decision making, problem solving, and communication skills delivered to the relatives of this subpopulation of the community is likely to contribute to both prevention and resolution of the current problems.

Therefore, the present study was conducted to investigate and follow up the effect of life skills training on happiness, mental health, and marital satisfaction in the veterans' wives in southwest Iran. The findings of this study can help plan for mental health promotion in the veterans' wives to resolve the marital and familial problems and increase the rate of life satisfaction in these families.

Material and Methods

In this controlled, quasi-experimental study with pretest and posttest, the study population consisted of the wives of all veterans with 25-70% physical and psychiatric injuries due to war in Shahrekord, southwest Iran. Sampling was random and convenience. Because the participants were selected from the Martyrs Foundation, primary sampling was convenience. Then, as the list of veterans with 25-70% injuries was provided, 102 veterans were selected according to convenience sampling and then their wives were enrolled in the study. Regarding first type error=0.05, power=0.80, happiness mean score of 13.20 in a previous study (32), and 87.2 difference in effect size (delta=2.87), 48 people were assigned to each group. To further the rigor of the study and deal with possible attrition, 51 people were included in each group and totally 102 people were investigated. The participants were randomly assigned to two 51- people groups, case and control. The research protocol was registered as 89-5-10 by the ethics committee of the university.

The participants in the intervention group attended eight sessions of life skills training on four domains, stress management, problem solving, decision making, and communication skills. The control group underwent no treatment.

The protocol of life skills training
The intervention group received life skills training on four domains consisting of stress management, problem solving, decision making, and communication skills within eight sessions, and the control group underwent no intervention. To increase the efficiency of training, the intervention group was subdivided into three groups of 17 each and the training was conducted within one 2-hour session per week separately for each subgroup.

In each of these sessions, a skill was discussed and the homework, including special forms appropriate for the session content, was developed prior to that session and assigned to be done at home, in addition to the assignments within sessions. This training was conducted by a trained and experienced clinical psychologist. At the beginning of any session, the previous session was examined and assessed and then the new subject was introduced. The subjects for stress management were an introduction to stress, positive and negative stress, stress impacts and consequences (physiological, psychological, and behavioural), different methods of coping with the problems specific to the veterans' families, and assigning homework.

For problem solving skill, the sessions included introduction to problem, steps of problem solving, the ways of gathering data to arrive at solutions, detecting different solutions in coping with life problems and adopting the best one, the ways of clear thinking and problem solving in critical conditions, regulation and control and precision, reconciliation to resolve conflicts, the effect of problem solving on solving the daily problems of the veterans' families, and assigning homework.

For decision making skill, the sessions included the introduction to decision making, the significance of decision making in life, steps of decision making, gathering data as much as possible in decision making, decision making precisely based on the situations, planning for life, acceptance of decision making consequences, and assigning homework.

For communication skills, the sessions included the introduction to communication, definition of communication and associated factors, the process of establishing communication, being a good listener and the required skills for listening efficiently, verbal and nonverbal communication (features), effective methods of communicating with others, assertiveness, understanding others' feelings, respect for others' ideas, the methods of saying no to insensible requests, and assigning homework.

The study was conducted at three steps, i.e. pretest, posttest after two months of life skills training, and follow-up (six months after the last intervention). The two groups were assessed at each step of the study by administration of the research instruments. Follow-up was considered to assess the stability of the training in the intervention group.

Methods of data collection:
The data were gathered by three questionnaires as follows:

1. Oxford Happiness Questionnaire
This questionnaire, developed by Argyle et al, consists of 29 four-choice items. Each item is aimed to judge the happiness level of respondents. Argyle et al (1989) reported the reliability of this questionnaire 0.90 by Cronbach's alpha and 0.78 by test-retest with a seven-week interval (33). This questionnaire was translated into Persian by Alipoor and Noorbala and its reliability has been reported 0.98 by Cronbach's alpha, 0.92 by split-half reliability, and 0.79 by test-retest with a three-week interval. Furthermore, the face validity of the questionnaire has already been confirmed (34).

2. General Health Questionaire-28
This 28-item questionnaire investigates the illness, medical diseases, and general and mental health within the past month with minimal and maximal score of 0 and 56, respectively. This questionnaire was developed by Goldberg in 1972 and has been translated into 38 languages and is being administered in 70 countries. Its subscales are physical symptoms, anxiety symptoms and sleep disorder, social functioning, and depression symptoms. High reliability and reliability have been reported for different versions of this questionnaire (35-37). Williams et al in a study in England reported the reliability of this questionnaire as approximately 80% (37). Furthermore, its reliability has been confirmed for an Iranian population with Cronbach's alpha 0.97 (38).

3. ENRICH Marital Satisfaction Scale:
The original version of this scale consists of 115 items and 12 subscales. Given the large number of the scale's items and the participants' tiredness, a shortened, 47-item version of the original scale was developed. The subscales of this scale were personality issues, marital relationship, resolution of conflict, financial management, leisure activities, sexual intercourse, marriage and children, relatives and friends, and religious orientation. The replies to the scale's items were scored by a five-point Likert scale consisting of severely dissatisfied, moderately dissatisfied, very satisfied, and extraordinarily satisfied. The reliability and validity of this Scale have already been confirmed (39).

The demographic data of the participants (marital status, education level, age, place of residence, occupation, disability percentage of the veterans, and disability type) were recorded in a separate checklist. To study the association of happiness in the veterans wives, the mean (SD) scores of the two groups at three steps of the study were compared and the effect of difference on happiness was investigated in the intervention group by analysis of covariance. The data were analyzed by SPSSv23.

Results

The mean age of the participants was 40.61±5.49 years. 97.06% of the participants had at least elementary education. The highest frequency of education level was obtained for guidance education completion. 63.7% of the participants were living in cities and the rest in villages. 90.2% were housewives and only 9.8% were employed (mainly civil servants). Regarding the types of veterans' injuries, 26.5% were neurologically injured, 18.6% were injured by chemical weapons, 22.5% were physically injured, and 32.4% had combined injury. 85% of the veterans were 25-40% disabled (Table 1).

Table 2 shows both frequency and percentage of injuries of the participants' spouses. As shown, the percentage of the injuries of most participants' spouses was 40% and the percentage of the least number of participants' injuries was 45%-55%.

The mean score of happiness in the intervention group (49.39) increased more markedly than the control group (36.98) at follow-up (Table 3). Furthermore, Table 4 indicates a significant difference was seen in happiness mean scores between the two groups at posttest so that the mean difference was not significant after controlling for pretest scores as covariate.

Statistical power (0.998) indicated that the sample size was adequately large. Therefore, the difference between the two groups at posttest was confirmed and life skills training resulted in increased happiness in the veterans' wives at posttest, but no significant difference was seen in the mean scores of happiness between the two groups at follow-up, so that after controlling for pretest scores, the mean difference was not derived as significant (Table 2). Therefore, life skills training had no stable effect on happiness and the happiness rate decreased over time in the participants.

Table 1: The types of the injuries of participants' spouses

Type of injury Statistical index	Neurological	Chemical	Physical	Combined
Frequency	27	19	23	33
Percentage	26.5	18.6	22.5	32.4

Table 2: The frequency and percentage of injuries of the participants' spouses

Percentage of injury Statistical index	25	30	35	40	45	50	55	60
Frequency	24	11	21	31	2	2	5	6
Percentage	23.5	10.8	20.6	30.4	2	2	4.9	5.9

Table 3: Statistical indexes of crude scores of happiness in participants of two groups

groups	Steps of study	Mean	Standard deviation	Standard error	Minimum	Maximum
intervention group	Pretest	34.33	12.17	1.705	33.51	35.15
	Posttest	49.39	12.69	1.759	45.85	52.83
	Follow-up	41.54	13.41	1.765	38.04	45.04
control group	Pretest	36.3	11.04	1.705	34.73	37.87
	Posttest	36.98	13.17	1.759	33.53	40.52
	Follow-up	37.96	11.61	1.765	34.46	41.46

Table 4: Results of analysis of covariance for effect of life skills training on happiness in participants at posttest and follow-up

Statistical indexes Sources		F	P-value	Eta coefficient
posttest	Pretest	7.04	0.009	0.066
	Group membership	24.49	0.000	0.198
follow-up	Pretest	0.117	0.733	0.001
	Group membership	2.05	0.155	0.02

The mean score of mental health decreased markedly at follow-up in the intervention group (22.96). This means that after life skill training, mental health in the intervention group improved but did not change in the control group (37.57) (Table 5). Table 6 indicates that there is a significant difference in the mean scores of mental health between the two groups at posttest. Eta coefficient (0.635) indicated that 63% of the observed difference was explained by life skills training. Therefore, life skills training led to improvement of mental health in the veterans' wives at posttest. The mean scores of mental health were not significantly different between the two groups at follow-up (Table 7). In other words, life skills training had no stable effect on mental health in the veterans' wives and the mean score of the two groups was approximately equal six months after the last intervention.

The mean scores of marital satisfaction in the intervention group at pretest, posttest, and follow-up (135.68, 176.77, and 159.20, respectively) increased markedly compared to the control group (136.43, 141.05, and 140.70, respectively). This indicates increase in marital satisfaction in the participants (Table 7).

Table 5: Statistical indexes of crude scores of mental health in the participants of two groups

groups	Steps of study	Mean	Standard deviation	Standard error	minimum	maximum
intervention group	Pretest	36.23	6.53	0.985	33.55	38.92
	Posttest	22.96	5.26	0.796	21.08	24.23
	Follow-up	34.57	6.44	0.932	32.72	36.42
control group	Pretest	35.57	5.79	0.985	32.73	38.41
	Posttest	37.57	6.31	0.796	35.99	39.15
	Follow-up	36.42	6.59	0.932	34.57	38.27

Table 6: Results of analysis of covariance for effect of life skills training on mental health in participants at posttest and follow-up

Statistical indexes / Sources		F	P-value	Eta coefficient
posttest	Pretest	7.67	0.007	0.072
	Group membership	172.5	0.000	0.635
follow-up	Pretest	0.017	0.897	0.000
	Group membership	1.947	1.666	0.019

Table 7: Statistical indexes of crude scores of marital satisfaction in the participants of two groups

groups	Steps of study	Mean	Standard deviation	Standard error	Minimum	Maximum
intervention group	Pretest	135.68	25.53	3.74	132.53	138.84
	Posttest	176.77	27.66	4.05	168.73	184.81
	Follow-up	159.20	26.82	3.67	151.91	166.48
control group	Pretest	136.43	27.85	3.74	134.01	138.85
	Posttest	141.05	28.03	4.05	133.01	149.09
	Follow-up	140.70	24.49	3.67	133.41	147.98

Table 8: Results of analysis of covariance for effect of life skills training on marital satisfaction in participants at posttest and follow-up

Statistical indexes / Sources		F	P-value	Eta coefficient
posttest	Pretest	1.497	0.224	0.015
	Group membership	36.04	0.000	0.267
follow-up	Pretest	5.10	0.026	0.049
	Group membership	11.77	0.001	0.106

Table 8 indicates that a significant difference is seen in mean score of marital satisfaction between the two groups at posttest. In other words, life skills training led to increased marital satisfaction in the veterans' wives in the intervention group at posttest but this difference was not notable in the control group.

Furthermore, a significant difference in mean score of marital satisfaction was seen between the two groups at follow-up. Therefore, the significant difference in marital satisfaction between the two groups was confirmed at follow-up, and life skills training had a stable effect on marital satisfaction in the veterans' wives.

Discussion

Obviously, the veterans' families are affected with certain psychological and marriage incompatibility-associated problems and therefore their quality of life is affected (32). Meanwhile, veterans' wives are likely to experience greater levels of stress with mental health and life satisfaction being at higher risk than other family members (33).

These findings indicate that these problems have many negative effects on the veterans' family members particularly their wives, and life skills training can greatly enhance the methods of coping with these problems and their happiness. The present study indicated that the life skills training on four domains of coping with stress, decision making, problem solving, and interpersonal and social relationships could result in the relief of the problems in these families. More clearly, life skills training had no long-term effect on happiness in the veterans' wives. Carroll et al study demonstrated that training life skills can promote coping skills in the families of military staff to deal with adverse and unexpected circumstances (34).

Life skills training like mental health and resilience intervention for military staff's wives can reduce negative mental health symptoms, enhance resiliency, and improve coping skills (40).

Elliott et al's study found that training of problem solving as a life skill was effective in relieving depression in the family caregivers of disabled women (41).

The wives of war-afflicted people were mainly responsible for both caring for the veterans and the related problems and looking after children. This leads to heavy psychological and physical consequences in people under such circumstances. Therefore, the treatment of these people is far more complex.

Naturally, the problems in these families are much more complicated, representing that they require continuous training to cope with the problems, and no training and failure to support them leads to incidence and exacerbation of the problems.

In the present study, life skills training caused promotion of mental health in the veterans' wives. Similarly, Weines et al indicated that psychological education of Kosovo War-afflicted families suffering from severe psychiatric disorders led to remarkable relief of symptoms and improvement of mental health (31). Consistent with the present study, Layne et al reported a 58% decrease in PTSD and 20% decrease in depression after interventions (42).

However, in the present study, no significant difference was observed in the mean score of mental health between the two groups at follow-up. In other words, life skills training had no continuous and long-term effect in treating symptoms and promoting mental health in the veterans' wives, which is partially inconsistent with the study of Layne et al that reported an 81% decrease in PTSD symptoms and 61% decrease in depression symptoms four months after the last intervention (at follow-up) in war-afflicted adolescents (42). As previously argued, this inconsistency could be due to differences in the participants' experiences.

The results of marital satisfaction indicated that life skills training led to a stable increase in marital satisfaction in the veterans' wives. The findings of the present study are consistent with the study of Hojjat et al of PTSD effect on the spouses of veterans with PTSD. They conclude that education of coping with stress was effective in increasing the marital satisfaction in these women (43).

The researchers of this study argued that the symptoms of emotional indifference and anger should be especially addressed in such people and treatment of the patients with PTSD should be based on life skills training and support for family (44).

The present study can demonstrate that the families of military staff with PTSD suffer from some problems that may be transferred even from one generation to another, including the problems related to intimacy and sociability, marriage incompatibility, adaptive communication and physical aggressiveness, disorders of interpersonal skills, and marital issues (45-47).

The life skills training used in the present study could relieve the above problems and strengthen adaptation to life circumstances, and lead to individual and interpersonal improvement and increased satisfaction with marriage and family life in these families.

Life skills training could lead to positive effects on mental and physical status and marital satisfaction in veterans' wives. The important implication of the present study was that life skills should be educated continuously for veterans and their families because the participants had recurrent symptoms and problems in the follow-up. Unfortunately, veterans' families have been recently abandoned unaided and only Counseling Center of Martyr Foundation is delivering individual and voluntary services to these families. In contrast, most of the necessary training for such families should be conducted in a group, continuously, and depending on the type of disability. This issue is more urgent for the families with veterans with more severe disability and neurological problems.

Further studies are recommended to study the effect of psychological interventions on veterans' wives and other family members depending on the type of their injuries.

Conclusion

Veterans suffer from different types of handicaps and therefore their families, including wives, are variously affected. For example, the effects on the family of a veteran with PTSD may be widely different from those on the family of a veteran with a handicap from shooting. However, we decided to enroll veterans with different types of handicaps to have an adequate sample size. Consequently, the findings should be cautiously interpreted and generalized.

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