

Background Determinants of Physical Activity among Iranian Nurses: A Cross Sectional Study

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Abstract

Introduction: Physical activity as an important health promoting behavior requires understanding and identifying the factors that affect it. Although it is difficult to discover all the factors and components that affect behavior, achieving a number of factors and influential factors in these behaviors facilitates predictive power and helps practitioners to formulate educational programs and interventions. Research has shown that, one of the determinants of physical activity is the underlying and demographic factors. This study aimed to identify the underlying factors affecting physical activity among Iranian nurses.

Methods: This cross-sectional descriptive study was conducted on 418 nurses from Kurdistan and Isfahan Universities of Medical Sciences. In this study, hospitals were considered as class, and nurses were randomly selected using proportional allocation method. Data were collected by a two-part questionnaire including physical activity questionnaire and demographic characteristics questionnaire. Data analysis was performed by statistical tests such as t-test and chi-square test using SPSS 21 software at a significant level of 0.05.

Results: Based on the results, 273 (66.6%) nurses had low physical activity, 104 (25.4%) subjects had moderate physical activity and 33 (8%) subjects had intense physical activity. There was a significant relationship between marital status and physical activity ($\chi^2 = 3.525$, $P = 0.041$), and also membership in sports clubs and physical activity ($\chi^2 = 3.651$, $P = 0.036$) but in other cases, there was no significant relationship. Independent t-test showed a significant relationship between age and physical activity ($P = 0.043$, $t = 2.039$). However, there was no significant relationship between work experience and duration of exercise in the past with physical activity.

Conclusion: Inactive living and physical activity lower than the standard in nurses who are responsible for community health are a danger to health authorities. Given the effectiveness of some of the underlying factors on physical activity, custodians should develop appropriate strategies to moderate these factors. However, some underlying factors may not be adjusted but knowing these factors and their impact, can greatly reduce their negative effects.

Key words: Background Determinants, physical activity, nurses

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Introduction

Regular physical activity as a significant health promoting behavior can prevent or delay the occurrence of chronic diseases and early mortality. There is also evidence that regular physical activity leads to mental health promotion, decrease of depression and anxiety symptoms, life satisfaction, and quality of life promotion [1]. It is also effective in reducing the risk of brain diseases [2]. Performing regular exercises (30 minutes in a day, two or three times a week) is a proven way to reduce total cholesterol, increase high density lipoprotein, reduce low density lipoprotein, improve general health [3]; exercise is also effective in improving blood pressure and those exercising if they have a heart attack, they will recover sooner and their blood pressure will be comparatively normal, compared to those who are not physically active [3 and 4].

Physical activity can also have positive psychological effects, with reduced levels of anxiety and depression and promotes self-confidence. In addition, epidemiological studies have shown that life without physical activity increase earlier mortality rates [5]. Many researchers have emphasized exercise and physical activity as one of the ways to strengthen the immune system and prevent the spread of non-communicable diseases [6]. Physical activity can also promote women's health and prevent major diseases and disabilities in women [7]. Unfortunately, despite the great benefits of physical and mental health, many people do not have enough physical activity [8].

The results of the national survey in Iran, published by the World Health Organization, have shown that the inactivity rate in rural and urban areas with an emphasis on physical activity of leisure time between men and women in the age group of 15-64 years was 76.3% and 58.8%, respectively, and in the same age group was 67.5% [9]. Inactive living is one of the main risk factors for heart disease and it is estimated that in people with low mobility, the risk of these diseases is about two times higher [10].

Physical activity as an important health promoting behavior requires understanding and identifying the factors that affect it. Although it is difficult to discover all the causes and factors affecting behavior, achieving a number of factors and variables that affect these behaviors facilitates predictive power and assists practitioners in their initial prevention and development of educational programs and interventions [9].

Research has shown that one of the determinants of physical activity is the underlying and demographic factors [11] and many studies have been done to identify these factors and how they affect physical activity in different occupational groups [11-12-13-14].

The findings show that the average physical activity of nursing staff is less than average and lack of adequate physical activity and low mental health in nurses are common and this group has a lower level of health than

other health care providers and are exposed to health injuries 4.2% more than doctors [15-16-17-18]. Stressful work conditions and intensive work shifts have put the cortex at risk of developing non-respiratory diseases such as cardiovascular, musculoskeletal, and mental illness [19]. This is despite the fact that the special status of nurses among the members of the health team and their various roles, such as clinical care, counseling and training of patients requires that the nurse has adequate physical fitness and ability [17-20] and nurses cannot meet the needs of the clients unless much attention is paid to promoting their lives and health [16-17].

Therefore, paying more attention to the health status of nurses and determining their risk factors in this group that caters to other people's health is very important [16]. In this research, we have tried to study the underlying factors affecting physical activity among Iranian nurses. The results of this research can be effective in increasing organizational awareness especially among nurses and hospital managers regarding the provision of health promotion programs for nurses and their health improvement. In this study, the status of physical activity among nurses working in Kurdistan University and Isfahan Universities of Medical Sciences has been studied; it is hoped that this research can provide useful results in order to increase physical activity among nurses and thereby increase their health and consequently that of the society.

Methods

This cross-sectional descriptive study was conducted on 418 nurses from Kurdistan University and Isfahan Universities of Medical Sciences. In this study, hospitals were considered as classes then, using random sampling method with appropriate assignment among nurses, participants were randomly selected and a two-part questionnaire including International Physical Activity Questionnaire and demographic information questionnaire was provided to them and the required information was collected. It should be noted that, the subjects of research were instructed on how to make the design and the confidentiality of the information as well as the purpose of this project and all of them volunteered and willingly entered the study. The study population included all nurses working in educational and therapeutic hospitals in Isfahan and Sanandaj. All questionnaires were unnamed and incomplete questionnaires were excluded from the study. The sample size in this study was 348 by the following formula.

$$n = \left(\frac{Z_{1-\alpha/2} \sigma}{d} \right)^2$$

In this formula, for a confidence level of 0.95 from the normal distribution table, $Z_{1-\alpha/2}$ of 1.96 was obtained σ is the standard deviation of the physical activity score and d is the maximum acceptable error in the estimate, which is considered equal to 0.15 σ . Considering the probability of a 20 percent drop in samples, 418 questionnaires were provided to the subjects. Data analysis was performed by statistical tests such as t-test and chi-square test, using

statistical software SPSS 21, at a significance level of 0.05.

Measurements

The information collection tool in this study was a two-part questionnaire and the information was collected by self-report from nurses.

Part One - Demographic Information

This part contains 12 questions that evaluated items such as age, gender, marital status, education, weight, height, waist circumference, membership record in a sports club, membership duration in a sports club, current membership status, work experience, and history of drug or alcohol use.

Part Two - Performance Questions (Physical Activity)

A standard short-form physical activity questionnaire (IPAQ) (21) was used to measure physical activity. This questionnaire contains questions that examine the status of physical activity and categorizes physical activity into three categories: poor, moderate, and intense. This questionnaire has been used to measure physical activity

by the World Health Organization and has been used in various studies in the country and its validity and reliability have been confirmed [22-9-23].

This questionnaire measures physical activity in the last 7 days and according to the final score, the intensity of the activity in the last 7 days is determined. The way it scores is that activities such as aerobics, high-speed cycling, climbing and basketball, which require more than 6 calories per minute, are called intense physical activity; and activities such as volleyball, badminton, room cleaning and walking, which require 3-6 calories per minute, are considered as moderate physical activities. In addition, any activity with a duration of less than 10 minutes will be eliminated. Calculation of energy intensity of total activities in the last 7 days was performed according to the IPAQ instruction and if the total energy calculated during the week is less than 600 met / cal / week, the intensity of the physical activity is poor and, if it is between 600 to 3000 met / cal / week, it is in the moderate class and if it is more than 3000 met / cal / week, it will be classified in the intense category [21].

Results

The findings of 418 completed questionnaires showed that 303 (72.3%) subjects were female participants and 111 (26.5%) were male and four did not answer this question. Of these, 88 were single, 268 were married and 63 did not respond to the marital status question. The average age of people was 33.10 years old and the age range in this study was 21 to 53 years old. In examining the status of educational degree, 90.9% had a bachelor's degree and 9.1% had a master's degree. According to the standard physical activity questionnaire, of 418 nurses participating in the study 273 (66.6%) subjects had poor physical activity, 104 (25.4%) cases had moderate physical activity and 33 (8%) cases had intense physical activity.

Table 1: demographic characteristics related to physical activity - Chi-Square Tests

Variables		physical activity		Statistics
		1= low, 2= moderate + high		
		1 n (%)	2 n (%)	
Sex	Female	201 (74.4)	98 (72.1)	X ² = 0.265 P=0.344
	Male	69 (25.6)	38 (27.9)	
Marriage	Married	176 (78.2)	85 (69.1)	X ² = 3.525 P=0.041
	Single	49 (21.8)	38 (30.9)	
Education	Bachelor	232 (91.7)	112 (89.6)	X ² =0.451 P=0.311
	Masters(MA)	21 (8.3)	13 (10.4)	
Sport club	Yes	89 (35.0)	59 (45.0)	X ² = 3.651 P=0.036
	No	165 (65.0)	72 (55.0)	
BMI Level	Normal	76 (27.8)	47 (34.3)	X ² = 3.267 P=0.352
	Overweight	39 (14.3)	20 (14.6)	
	Obesity	151 (55.3)	69 (50.4)	

Table 1 shows the results of the relationship between demographic variables and physical activity. In this table, the relationship between sex, marital status, educational status, history of physical activity and BMI status with physical activity status were analyzed using Chi-square test. Considering that among the nurses under study - according to the IPAQ questionnaire - only 33 (8%) subjects had intense physical activity; therefore, in order to determine the most important demographic factors affecting physical activity, intense and moderate physical activity have been combined and physical activity has been analyzed in two levels of people without physical activity (people with poor physical activity) and those with physical activity (those with moderate and intense physical activity).

Findings of this study showed a significant relationship between marital status and physical activity ($X^2 = 3.525$, $P = 0.041$), and also membership in sports clubs and physical activity ($X^2 = 3.651$, $P = 0.036$) but in other cases, there was no significant relationship.

According to the results of Table 2, the average age of nurses with physical activity was 31.95 years ($SD = 7.91$) and the mean age of nurses with no physical activity was 33.61 years ($SD = 7.37$), the results of independent t-test showed a significant relationship between age and physical activity ($P = 0.043$, $t = 2.039$). However, there was no significant relationship between work experience and duration of exercise in the past with physical activity.

Table 2: demographic characteristics related to physical activity - Independent Samples Test

	Physical Activity	N	Mean	Std. Deviation	t	P-value
Work experience	1.00	256	10.0293	7.47795	1.303	P=0.193
	2.00	126	8.9762	7.32471	1.312	
Age	1.00	273	33.6117	7.91240	2.039	P=0.043
	2.00	136	31.9559	7.37249	2.088	
Past exercise duration	1.00	76	3.1579	3.34286	-.950	P=0.344
	2.00	46	3.7826	3.80008	-.920	

Discussion

This study examines the underlying factors affecting physical activity among nurses in Iran. In total, 33.4% of nurses had physical activity (moderate and intense) and the majority of them were physically active in the poor category (66.6%). In this regard, a study conducted by Jalilian et al in 2010 among the staff of Hamedan University of Medical Sciences indicates a high prevalence of physical inactivity among Iranian employees; in his paper, he reported that about 65% of women working in Hamadan University had no physical activity [23], Gharlipour et al. in their study on medical emergency staff in Hamadan province in 2009 reported that, of the 102 participants in the study, 75 subjects (73.5%) had poor physical activity, 25 (24.5%) had moderate activity, and only 2 (less than 2%) had intense activity [24]. Mazloomi et al. also in the investigation of physical activity in employees in Yazd in 2008 showed that 73.6% of employees did not have physical activity [25]. The results of the study by Skaal et al. on employees of a state hospital in South Africa showed that 75.5% of the staff of the hospital had no physical activity [26]. These statistics are consistent with the results of this study and show that nursing society, like other employees, does not have a favorable status in terms of physical activity.

Other findings of the present study showed that there was no significant difference in physical activity among male and female nurses. The incidence of inactivity in women was 67.2% and in males 64.5%, and 32.8% of women and 35.5% of men had moderate and intense physical activity that, in this regard, there is no significant statistical difference between the two genders ($X^2 = 0.265$, $P = 0.344$). In line with the findings of this study, McNeill et al., in a 2012 study of 850 employees with an average age of 44 years reported that, no significant relationship was found between gender of employees and their physical activity [13]. Contrary to these findings, Miller et al. reported that women have less physical activity than men of all ages [27]. Dishman and colleagues also state that men are twice more engaged than women in participating in sports activities [28]. Heinen

et al reported in their study of 1,370 employees in 2013 that there was a statistically significant difference between gender and physical activity ($P = 0.001$) [29]. This can be due to the fact that in the nursing profession there is no difference in the hard work and labor pressure due to the job situation with unusual working hours between male and female nurses and this can have adverse and deterrent effects on activities beyond the hours of work such as recreation and sports activities in both women and men's groups.

According to the findings of this research, a significant relationship was found between the current sports club membership (having basic physical activity) and the physical activity score ($X^2 = 3.651$, $P = 0.036$). Robroek et al. also confirmed the same in a study of 726 employees with an average age of 40 in 2010 [11]. The findings of the study by Gazmararian et al. (2013), which was performed with the participation of 410 employees with an average age of 41.2 years, were in line with the results of the present study [30].

The results of independent t-test showed a significant relationship between age and physical activity ($P = 0.043$, $t = 2.039$). In this regard, there is a negative relationship between the level of physical activity and age in various studies [31-32] and the studies mentioned suggest that with increasing age, the amount of attention to physical activity is reduced. Studies by McNeill et al. (2012), Bopp et al. (2013), Heinen et al. (2013) and - VanWormer et al. (2012) were also consistent with the results of this study and had a significant relationship between age and physical activity and this is in line with the results of the present study [14-13-33-29]. As the age increases, the potential and energy of the individual naturally diminishes and on the other hand, the person is more involved in other issues such as family matters, occupations, children's issues, etc. Therefore, it is predicted that there is an inverse relationship between age and physical activity. However, many underlying factors affecting physical activity such as age cannot be adjusted. However, by adopting specific measures, such as reducing work pressures in line with age and placing nurses with

more work experience in lighter areas of work, greatly reduces this adverse effect and allows for addressing side affairs such as physical activity.

Conclusion

Inactive living and physical activity below the standard are known as a risk factor for various diseases and this is among the group that is responsible for the health of the community, and can be a danger to health officials, and this issue should be investigated as to what are the factors affecting physical activity among nurses. Knowledge about physical activity and its effective factors among nurses can help health researchers and planners to develop appropriate strategies for increasing physical activity of nurses and ultimately improving their health and by appropriate educational and executive planning, and timely intervention in modifying the moderating factors, and encourage nurses to take physical activity at an acceptable level. However, some of the underlying factors affecting physical activity may not be adjusted but recognizing these factors and their impact will help to reduce the negative impacts of these factors by planning and appropriate strategies.

This study also has limitations, such as information gathering through a questionnaire and the collection of information from nurses working in the medical university (which should further inform other people about the benefits of dealing with Physical activity); in this regard, it should be noted that, in questionnaire and self-report studies, it is assumed that the person supplies the correct and true information, however, some respondents may not honestly complete the questionnaires and this is true for the current study. Another limitation of the study was the collection of information from the nursing corps that, it is suggested that in future studies, other staff at different levels of medical and non-medical (health and administrative) will also be examined so that more appropriate analysis can be done on health behaviors and the generalization of its results.

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