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## From the Editor

This is the second issue this year with papers from Saudi Arabia, Yemen, India, Libya, Kuwait, and Nigeria. These papers are alluding to various aspects of diseases and problems facing primary care in the World. Diabetes mellitus (DM) is more prevalent in Asians as compared to White Caucasians. People with diabetes have a risk of IHD two to five times greater than that in the non-diabetic individuals. There is limited data available in the literature about IHD and its association with the known risk factors in the Yemeni diabetic population. Therefore the authors conducted a comparative study looking at 200 known type-2 diabetics with and without IHD to establish the relative prevalence of hyperglycemia, dyslipidemias, hypertension, smoking, obesity and microalbuminuria, among type 2- diabetics with IHD as compared to those who did not develop IHD. The authors concluded that the prevalence of conventional cardiovascular risk factors is quite significant in the Yemeni diabetic population.

There are innovative informatics solutions made for efficient healthcare delivery, and electronic medical record systems (EMR) is one of such. A paper from Nigeria looked at the challenges associated with setting up an electronic medical record. The authors stressed that implementing functioning EMRs in environments like theirs is 'frothy' with many practical and peculiar challenges. Using the experience garnered from the Wesley Guild Hospital EMR project, this paper highlights these challenges and how some of them were overcome. Their aim is to sensitize other workers interested in doing similar projects in this environment about the likely challenges they might face.

A paper from Libya examined the literature relating to the knowledge and attitudes of patients and others, and the behaviours (KAB) connected with genital warts.

GWs are one of the commonest sexually transmitted diseases (STDs) that entail considerable morbidity in terms of social, psychological and economic consequences.

The author stressed that her review demonstrates a gap in knowledge among many women worldwide about genital HPV. This varies according to ethnicity and socio-economic characteristics, even if women seemed to be educated.

A cross sectional community based survey paper from Saudi Arabia to evaluate patients' beliefs of bad news and their perception and attitude towards breaking bad news. Breaking bad news is considered one of a physician's most difficult duties. A validated self-administrative questionnaire in Arabic language was designed and used for data collection. The study included 1086 participants. Half of the samples were male and 46% of them were between 30-39 years old. Almost 75% of them defined bad news as the diseases that are highly fatal. Only 50% of

the participants had a satisfactory experience in the way of breaking bad news. Around 81% of participants insist on being informed about any news related to their health. Educational level seems to be one of the influencing factors ( $p < 0.001$ ).

In general, participants had a good understanding of the situation and respect honesty. Medical professionals are urged to learn more about the importance and the techniques of breaking bad news to gain patient's satisfaction and build sound doctor-patient relationships.

A cross-sectional study of 116 out of 120 female medical students who were selected randomly in Al Wahda Educational Hospital, Yemen was conducted to measure the various menstrual dysfunction manifestations. Premenstrual syndrome (PMS) was assessed. The prevalence of dysmenorrhea was 72.4%. Of those, 14.2% had severe pain. The prevalence of self-reported PMS was 24.13%. The absenteeism from college was reported in 42 female medical students (36.2%). The authors concluded that female medical students during their study, had been shown to have several menstrual cycle problems. Dysmenorrhea, PMS, and Menorrhagia are commonly reported in this study. Sickness absenteeism from the college is the most significant sequel which results in disruption of the student's training and academic performance.

Perceived Social Problems Influencing Management in Primary Care in a Semi-Urban Tertiary Hospital was studied in Nigeria. Research has shown that social problems do influence clinical decision making. Primary healthcare providers, such as doctors are also prone to social influences both from self and patients which may affect clinical patient management.

The survey revealed that 94% of doctors were influenced by social problems of patients in the choice of management. 88% of respondents considered financial status of patients the most influencing factor, while only 24% regarded patient loneliness as a factor in clinical decision making. The authors concluded that in this environment, perceived social problems of both doctors and patients do significantly influence choice of management in 9 out of every 10 doctors in their consultations and clinical management.

A paper from India assessed the level of awareness of different diseases and explored the role of mass media in spreading health awareness in Aligarh Muslim University campus. A total of 1040 subjects of different intellectual levels, who were representative of the AMU community, participated in this study. These subjects responded to a structured questionnaire on awareness of different diseases and sources of information.

Having heard of the different diseases in question was defined as awareness. About 80 percent of respondents got information about health from newspaper and magazines. 71 percent reported that television/radio is among the best sources to get information on health related issues. The study reveals that those exposed to mass media had reported significant knowledge about various morbidities and are likely to seek better health care services. The results underscore the importance of mass media exposure in prevention and control of diseases.

In this issue we have also made some changes to the journal in response to feedback from our Survey. We have re-introduced an interactive CME section, as well as a small news section dealing with breaking medical news in the region.

All articles will now be available as separate pdf files along with the full pdf which will now carry cover 'art' - as a gift to our readers.

**A. Abyad**  
(Chief Editor)  
Email: [aabyad@cyberia.net.lb](mailto:aabyad@cyberia.net.lb)

**Chief Editor:**  
A. Abyad  
MD, MPH, AGSF, AFCHSE  
Email: [aabyad@cyberia.net.lb](mailto:aabyad@cyberia.net.lb)

**Ethics Editor and Publisher**  
Lesley Pocock  
medi+WORLD International  
11 Colston Avenue  
Sherbrooke 3789  
AUSTRALIA  
Phone: +61 (3) 9005 9847  
Fax: +61 (3) 9012 5857  
Email:  
[lesleypocock@mediworld.com.au](mailto:lesleypocock@mediworld.com.au)

**Editorial enquiries:**  
[aabyad@cyberia.net.lb](mailto:aabyad@cyberia.net.lb)

**Advertising enquiries:**  
[lesleypocock@mediworld.com.au](mailto:lesleypocock@mediworld.com.au)

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# Prevalence of Cardiovascular Risk Factors in Type-2 Diabetic Patients with IHD

Mohammed Bamashmoos

## Correspondence:

Dr. Mohammed Bamashmoos(MD)

Assist. Prof. of Internal Medicine,

Sana'a University, Yemen

Email: mabamashmoos@yahoo.com

## Abstract

**Objective:** Diabetes mellitus (DM) is more prevalent in Asians compared to White Caucasians. People with diabetes have a risk of IHD two to five times greater than that in non-diabetic individuals. There is limited data available in the literature about IHD and its association with known risk factors in the Yemeni diabetic population.

**Methods:** A comparative study was carried out in AL-Kuwait University Hospital (KUH) Sana'a City, Yemen (on 200 known type-2 diabetics with and without IHD) to establish the relative prevalence of hyperglycemia, dyslipidemia, hypertension, smoking, obesity and microalbuminuria, among type 2- diabetics with IHD compared to those who did not develop IHD. Data was collected from the patients attending KUH and detailed scrutiny of hospital records of admitted cases. The patient population was divided into two groups depending upon the presence or absence of IHD i.e., group A (n=100) and B (n=100) respectively. Both groups were studied independently for various risk factors including glycemic control, lipid profile, hypertension, smoking habits, obesity and microalbuminuria. The results obtained in each group were compared with each other to find out the statistical significance of each risk factor.

**Results:** Type 2- diabetic patients with IHD group (group A) was more frequently males, had long diabetic duration ( $11.2\pm 3.1$  vs  $8.4\pm 3.1$ ), and were more frequently smokers (42% vs 23%) than those without IHD group (group B). Group A (DM+IHD) patients were more frequently obese (38% vs 13%) and had high blood pressure (77% vs 35%) than group B (DM alone) p-value =0.0001. Poor glycemic control in group A (HbA1c > 7) (71% vs 34%) was positively correlated with IHD (p < 0.01). High serum triglycerides level (66% vs 27%), low serum HDL (70% vs 32%) and high serum LDL (58% vs 28%) was higher in group A (DM + IHD) than in group B (DM alone) and the results were statistically significant (p=0.0002).

The value of microalbuminuria was significantly higher in group A than in group B (60% vs 22%). Overall results have clearly shown that the prevalence of these risk factors is higher in diabetics with IHD compared to those without IHD.

**Conclusion:** It is concluded that the prevalence of conventional cardiovascular risk factors is quite significant in the Yemeni diabetic population.

**Key words:** Type 2- DM, IHD, MA

## Introduction

Diabetes mellitus is the 8th health related cause of death all over the world and the fourth most common cause of death in the United States. Diabetes mellitus is one of the leading public health problems globally especially in the industrialized world, and it has a profound effect on the cardiovascular system affecting nearly 100 million cases worldwide(1). Diabetes mellitus is a chronic hereditary or acquired metabolic disorder characterized by persistent hyperglycemia due to relative or absolute deficiency of insulin. This condition is invariably associated with an altered carbohydrate metabolism leading to secondary alteration of fat, protein, water and electrolyte metabolism(1).

Ischaemic Heart Disease (IHD) is a syndrome, which remains a major cause of death worldwide. It includes Angina Pectoris, Acute Myocardial Infarction (AMI) and sudden cardiac death. As per WHO report 55/100,000 of Americans die of IHD and 45.3% of all deaths in USA are due to IHD (2).

However, in the UK 25,000 patients suffer from AMI annually (3) with an overall mortality three folds greater in diabetics. Cardiovascular disease is the main cause of death and disease in persons with diabetes mellitus (4,5). The prevalence of ischemic heart disease in patients with type 2- diabetes mellitus ranges from 10%-25% (6). Moreover, the presence of diabetes mellitus causes the protective effect of female sex to disappear in ischemic heart disease, as shown in the Rancho Bernardo study (7). Risk factors that predispose to atherosclerosis and resultant IHD have been identified by means of a number of prospective studies in well established population groups like the Framingham study and Multiple Risk Factor

Intervention Trial (8) i.e Dyslipidemia (hypercholesterolemia, high level of LDL, hypertriglyceridemia and low level of HDL)(9), Hypertension(10), Cigarette smoking (11) and Diabetes Mellitus(8). Type 2 diabetes mellitus is a complex disease, with disorders in the lipid profile, blood pressure and clotting factors. However, traditional risk factors explain just 25% of the excess cardiovascular risk in patients with diabetes (12). The presence of insulin resistance might also partly explain this excess risk.

The study was designed to investigate the correlation of the most prevalent conventional risk factors in the diabetic population of Yemen .i.e. poor glycemic control, dyslipidemia, hypertension, smoking and microalbuminuria and to support the theory that DM is a major independent risk factor in the development of IHD among diabetics in terms of hyperglycemia and other risk factors.

## Materials and Methods

### Data Collection

A case control study was carried out at Al-Kuwait University Hospital (KUH), in Sana'a City, Yemen, from September 2010 to March 2011. Data was collected from outpatient departments as well as hospital records. The study was approved by the Joint Ethics Committee of the Faculty of Medicine and Health Sciences (Sana'a University).

### Case Selection

Patients with age ranging between 40 to 55 years and diagnosed to have Type 2- DM with and without IHD, were selected for this study. Those diabetics were preferably selected who had the duration of DM 15 years or less because the longer the duration of the disease, the greater is the incidence of the associated risks and complications.

A total of 200 subjects who met the following inclusion/exclusion criteria were selected for further study.

### Inclusion Criteria

§ Biochemically proved diabetics with or without history of IHD

§ Age > 40 years < 55 years  
§ Patients on oral Hypoglycemic agents and or insulin

### Exclusion Criteria

§ Age < 40 and > 55 years  
§ Type- I DM  
§ History of Diabetic Ketoacidosis  
§ Known cases of Hyperlipidemia  
§ Patients with advanced liver or renal disease or malignancy were excluded from the study.

The selected patients were divided into two age and sex matched groups depending upon the presence or absence of IHD.

### Group A (number =100)

Patients having Type-2-DM and IHD

### Group B (number = 100)

Patients having Type 2- DM but no evidence of IHD.

### Study Protocol

The patients were studied through a structured questionnaire proforma and the following parameters were recorded for each subject.

Age (years), sex of the patient, weight in kilograms (indoor clothes), height in centimeters without shoes, occupation of the patient, duration of DM in years, duration of IHD, history of Hypertension, smoking habits, family history of DM, treatment history, socio economic class, body mass index (weight in kgs / height in m<sup>2</sup>), blood pressure in mmHg.

Type 2- diabetes mellitus was defined according to ADA 2004 (13), fasting blood sugar of 126 mg/dl on more than one occasion, random blood sugar of 200 mg/dl in the presence of polyuria and polydipsia, taking hypoglycemic drugs or insulin, or physical exercise therapy for diabetes and not having any episodes of ketosis.

Blood pressure (BP) was measured early in the morning and prior to drawing of blood samples using a suitable mercury sphygmomanometer after a 10 minute rest with the patient in the sitting position. BP was measured twice at 5 minute interval. The first

and the fifth Korotkoffs sound were used to determine the systolic and diastolic blood pressure measurement respectively. The second blood pressure measurement was used as the blood pressure for the individual. The WHO definition of hypertension was used in this study: systolic blood pressure 160 mmHg or more and/or a diastolic blood pressure 95 mmHg or more (14), or if the patient is on treatment with antihypertensive drugs.

Height was measured without shoes, and weight was recorded while wearing indoor clothing. Body mass index (BMI) (weight in kg, divided by height in meters squared) was calculated. The WHO (1995, 2002) classification for BMI was used to estimate the degree of obesity (15). Fasting blood samples were taken to assess lipid profile, blood sugar and glycated hemoglobin (HbA1C) levels. Total lipid profile (high density lipoprotein (HDL) , low density lipoprotein (LDL) and triglycerides) was measured by a capillary tube whole blood method using the Cholesterol LDX lipid analyzer.

Dyslipidaemia was taken to be present when the total cholesterol was >5.60 mmol/L and/or triglycerides >2.10 mmol/L, LDL >3.4 mmol/L, and/or HDL <0.91 mmol/L. Fasting blood glucose was measured by glucose oxidase method; Clinical Chemistry Analyzer. Glycated haemoglobin (HbA1C) was measured using the Bayer DCA 2000+ analyzer and a value of less than 7% was taken to indicate good glycemic control.

Urine samples were collected in the early morning after overnight fast. Urine creatinine was measured using Jaffes method. Urine microalbumin concentration was measured using commercially available immuno-turbidometric assay kits from Randox, on Opera Technicon Auto Analyser). The urine sample was added to a buffer containing antibody specific for human serum albumin. The absorbance of the resulting turbid solution is proportional to the concentration of the albumin in sample solution. By constructing a

standard curve from the absorbance of the standards, the albumin concentration in the sample can be determined. According to the American Diabetes Association (ADA), when using the random collection technique, normal albumin excretion should be defined as <30 mcg/mg of creatinine; microalbuminuria 30 to 299 mcg/mg of creatinine, and macroalbuminuria is 300> mcg/mg of creatinine (16).

IHD is evidenced by documented clinical history of angina pectoris or myocardial infarction, or diagnosed on resting ECG with the following criteria:

- Significant Q waves (> 40 ms) consistent with a prior MI
- Resting ST segment depression (> 1 mm in limb leads and 2 mm in chest leads), or
- T wave inversion suggestive of myocardial ischaemia.

The diagnosis of IHD was also supported by positive Exercise Tolerance Test (Bruce Protocol).

### Statistical Analysis

The data was computerized and analyzed using SPSS version 7.5. The results are expressed as mean + SD. The difference between the groups was assessed by chi-square test and student's two tailed test for independent samples.

### Results

A total of 200 diabetic patients comprising 100 males (50%) and 100 females (50%) with the age ranging from 40 to 55 years were studied. Depending upon the presence or absence of IHD, the selected subjects were divided into two groups i.e.,

Group A (n= 100) Diabetics with IHD  
Group B (n=100) Diabetics without IHD

Both groups were studied independently for various risk factors including BMI, HbA1c, serum triglycerides, HDLs, serum LDL, hypertension, smoking and microalbuminuria. The mean values thus obtained were compared with each other in two groups to analyze the statistical significance of each parameter studied.

Significant results were obtained. Mean values of clinical parameters are shown in Table (1). Type 2-diabetic patients with IHD (group A) had longer duration of DM(11.2±3.1 VS8.4±3.1 ), were more frequently smokers(42% VS 23%) and had high BMI > 30kg/m<sup>2</sup> (38% VS 13%) P-value =0.0001, than type 2- diabetic patients without IHD (group B).

The presence of hypertension (77% in group A VS 35% in group B) was positively correlated with IHD in our study (p=0.0001) Table (1).

The levels of HbA1c > 7 (71% VS 34%), high serum triglycerides (66% VS 27%) and high serum LDL (58% VS 28%) were significantly higher in group A (DM+IHD) compared to those in group B (DM alone) i.e., p: 0.0001, 0.002 and 0.001 respectively. The level of low serum HDL (70% VS 32%) was significantly lower in group A than in group B (p: 0.001).

Microalbuminuria was higher in group A (60%) than in group B (23%), and the difference was statistically significant (p =0.005). (Table 2).

### Discussion

The most common cause of death in European adults with diabetes is coronary artery disease (CAD). Several studies have demonstrated they have a risk that is two to three times higher than that among people without diabetes (8). Multiple risk factors are associated with cardiovascular disease in subject with diabetes, including hypertension, hyperlipidemia, obesity and microalbuminuria (12).

Hypertension was the most frequent risk factor of IHD in type 2- diabetic patients in this study (17,18), followed by poor glycemic control (18), dyslipidemia (18,19) and microalbuminuria (20). The prevalence of hypertension in our patients with IHD is 77%. It is the most common prevalent

Factors	Total (200)	With IHD(100)	Without IHD (100)	P-VALUE
Age in year	51.3±2.3	50.3±3.2	49.1±2.1	0.2
Male sex %	100(50%)	58(58%)	42(42%)	0.05
Smoking %	65(32.5%)	42(42%)	23(23%)	0.001
Duration of DM in years	9.8±4.1	11.2±3.1	8.4±3.1	0.001
BMI kg/m <sup>2</sup>	51(25.5%)	38(38%)	13(13%)	0.0001
High BP mmHg	112(56%)	77(77%)	35(35%)	0.0001

Table 1: Clinical characteristics of type 2 diabetic patients with or without IHD

Factors	Total=200	With IHD=100	Without IHD=100	P-value
Serum TG mg/dl	93(46.5%)	66(66%)	27(27%)	0.002
Serum HDL mg/dl	102(51%)	70(70%)	32(32%)	0.001
Serum LDL mg/dl	86(43%)	58(58%)	28(28%)	0.001
HbA1c≥7	105(58.8%)	71(71%)	34(34%)	0.0001
MA	82(41%)	60(60%)	22(22%)	0.005

Table 2: Laboratory characteristics of type 2- diabetic patients with or without IHD

factor in our patients with IHD. Hypertensive diabetic patients have a greater risk of micro vascular and macro vascular complications than normotensive patients (21). People with both diabetes and hypertension have approximately twice the risk of cardiovascular diseases as non diabetic people with hypertension(22).

Poor glycemic control and metabolic derangements is another important issue to mention in this present registry. We found that 71% of type 2- diabetic patients with IHD had poor glycemic control (HbA1c > 7). A cohort study from the Asia Pacific Region clearly indicated a positive continuous association between usual blood glucose and cardiovascular disease risk (23). Autonomic function is influenced by glycemia and exerts a crucial role in the control of blood pressure and cardiac function. The disruption of this physical mechanism impacts deeply on cardiovascular mortality in diabetes (24).

The significance of increased plasma TG and LDL levels and decreased HDL level as a risk factor for IHD has been controversial. Some studies show direct association of high lipid levels with atherogenicity(25). But other studies show the association of atherogenicity of triglycerides via decreased HDL levels. In our study population Type-II DM patients with IHD had higher levels of total triglycerides (p: 0.002), high LDL and lower levels of HDL (p: 0.001) than patients without IHD. This is in accordance with other international studies (25-27).

The most recent positional statements of the American Diabetic Association (ADA) regarding the managements of cardiovascular risk factors in adults with diabetes recommends maintaining tight control of glycemia (HbA1c 7%) ,serum lipid (LDL 100mg/dl , HDL 45mg/dl , and TG 200mg/dl ) and blood pressure (< 129mmg systolic and < 84 mmg diastolic) in persons with type 2- diabetes as a means of reducing the potential burden of cardiovascular morbidity and mortality on this population (28,29).

Cigarette smoking has been proven as an independent modifiable risk factor for IHD (26). Cigarette smoking appears to be the most important risk factor for IHD in countries where the incidence of IHD is higher (27) even passive smokers may also be at risk. Our study showed smoking to be positively co-related with IHD, p: 0.001.

Microalbuminuria is usually the first sign of renal complications in a diabetic person. Increasing albuminuria is predictive of both the incidence of CAD and of mortality. (30) The level of microalbuminuria is therefore a good marker of subsequent heart disease, as well as renal disease.

The Strong Heart Study demonstrated a significant association between microalbuminuria and echocardiographic parameters of LV systolic and diastolic function in a cohort of 1576 Native Americans with diabetes (28). Furthermore, a correlation has been noted between urinary albumin excretion (UAE) and echocardiographic measures of LV mass index, LV hypertrophy, and concentric hypertrophy in untreated hypertensive patients (31). The larger Losartan Intervention For Endpoint reduction in hypertension (LIFE) study confirmed this finding (27).

Obesity and type 2 diabetes mellitus frequently occur together. They are closely linked by commonality of aetiology and pathogenesis (genetics, insulin resistance and lifestyle).

Both of these chronic diseases are major causes of morbidity and mortality from atherogenic coronary heart disease, resulting also in increased economic costs(32). Our study showed significant association between obesity and IHD.

Epidemiological studies have reported that patients with type 2 diabetes mellitus (DM) have increased mortality and morbidity from cardiovascular diseases, independent of other risk factors(32).

Almand T et al (2004)(17) showed that type 2- Diabetic patients had a 2-3 fold risk of having incident myocardial infarction. Moreover the above study confirmed that patients with type 2- DM have a 2-fold increased risk of death independent of other known risk factors for cardiovascular disease.

## Conclusion

Diabetes Mellitus is emerging in our country as a non-infectious epidemic disease. The prevalence of IHD in type 2- diabetes in this study was high, as well as its associated risk factors so we recommend that any patients with type 2- diabetes should have proper control of these risk factors especially poor glycemic control and high blood pressure.

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# Perceived Social Problems Influencing Management in the Primary Care in a Semi-Urban Tertiary Hospital in Nigeria

Olaniyi O Afolabil (1)  
 Olufemi Akinbode Ogundele (2)  
 Babatunde Ishola Awokola (3)

(1) Dr AFOLABI, Olaniyi .O.  
 MD (Donetsk, Russia)  
 Department Of Family Medicine,  
 Obafemi Awolowo University Teaching  
 Hospitals Complex,  
 Wesley Guild Hospital Unit,  
 Ilesa, Osun State, Nigeria.

(2) Dr OGUNDELE, Olufemi Akinbode ,  
 MB ChB (Ife), MWACP (Public Health),  
 Department Of Community Medicine,  
 Obafemi Awolowo University Teaching  
 Hospitals Complex,  
 Osun State, Nigeria.

(3) Dr AWOKOLA, Babatunde Ishola  
 MB; BS (Ibadan), MWACP (Family Medicine),  
 Department Of Family Medicine,  
 Obafemi Awolowo University Teaching  
 Hospitals Complex,  
 Wesley Guild Hospital Unit,  
 Ilesa, Osun State, Nigeria

## Correspondence:

Dr AWOKOLA, Babatunde Ishola  
 MB; BS (Ibadan), MWACP (Family Medicine),  
 Department Of Family Medicine,  
 Obafemi Awolowo University Teaching  
 Hospitals Complex,  
 Wesley Guild Hospital Unit,  
 Ilesa, Osun State, Nigeria  
 tel: +2348069117354

**Email:** tundeawokola@yahoo.com

## Abstract

**Background:** Research has shown that social problems do influence clinical decision making. Primary healthcare providers, such as doctors are also prone to social influences both from self and patients, which may affect clinical patient management.

**Aim:** To find out how often perceived social problems of self and patients influence doctors' decisions and management in a primary care setting.

**Methods:** The study was a survey of doctors involved in primary care in a semi-urban tertiary hospital. The doctors completed self-administered questionnaire comprising perceived social influences which often affect their decision making. Fifty doctors comprising consultants and residents involved mostly in primary care, were sampled.

**Results:** 94% of doctors were influenced by social problems of patients in the choice of management. 88% of respondents considered financial status of patients the most influencing factor, while only 24% regarded patient loneliness as a factor in clinical decision making. Other factors that notably influenced management decisions were patient's unemployment (74%), and mental and physical stress of doctors from poor work environment (54%). When perceived social problems influenced clinical decisions, the commonest types of management options offered were considerations on affordability of medication (90%), extra time for consultation (84%), issuance or prolongation of sick leave (22%).

**Conclusion:** In this environment, perceived social problems of both doctors and patients do significantly influence choice of management in 9 out of every 10 doctors in their consultations and clinical management.

## Introduction

Social problems have long been known to play a crucial role in patient management. In our environment however, there is paucity of research on this subject with no available data in searched literature. The reason is not far-fetched - social problems are either totally ignored, relegated to the background or often popularly replaced with effects, attributable to some forms of covert causes that are beyond the natural. This position obviously does not augur well for patient care.

## Subjects and Methods

The study was a survey of 50 doctors (consultants and residents) involved in primary care at Wesley Guild Hospital Annex of Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC) Ile-Ife in South Western Nigeria. Convenience sampling was employed as respondents were selected based on their availability on duty at the time of conduction of the study. The doctors completed a pre-tested, modified, self administered questionnaire based on their reflection of perceived self and patient social influences which often affect their clinical decision making.

**Statistical Analysis:** Statistical Package for the Social Sciences (version 15.0) was used to analyze the data collected. Data was presented using frequency tables, bar charts, pie chart, with chi square and t test used to determine degree of association. P value of <0.005 was considered as significant.

## Results

Out of the 50 participants, 40 were males (80%), and 10 were females (20%). Figure 2 (page 12) highlights this. The age distribution of respondents is shown in Figure 3 - page 13. Mean age = (33.5years), SEM = 0.920, SD = 6.504. 12% of the respondents were below the age of 25 years, those older than 45 years (4%), doctors in the age group 26-35years (56%), while those above 36 years were 28%. Doctors with more than 10 years of clinical experience comprised only 24% and they were less likely influenced by social problems in

their management (23%) compared with doctors who had lesser duration of clinical experience (77%). There was a significant association found with duration of clinical practice and mental and physical stress of doctors (p value 0.005, df=1). Out of 54% of the doctors who responded positively to the influence of mental and physical stress associated with work, 93% of them had less than 10 years duration of clinical practice. Only 21% of those who considered spending extra consultation time with patients whom they perceived had social problems standing in the way of good patient management, ended up issuing sick leave/a sick certificate. Table 1 gives a further detailed account of these. Doctors with postgraduate medical fellowship qualification were less likely to refer patients they perceived had social problems (31%) than those with lesser qualifications. They were also less likely to refer to other consultants (35%). There was a significant association between gender and loneliness of doctors which was more strikingly pronounced in the male doctors (p value 0.047, df=1). This is displayed in Figure 4. Family splitting also had a similar effect on the choice of management embarked upon by the respondents. In situations where social factors were perceived to be present, their influence was splintered over the following frequencies : economic status (88%), extra consultation time 84%, unemployment 74%, mental and physical stress 54%, marital conflict 42%, family splitting (42%), burdening sorrow (34%), change of behavior (34%), demanding task of care giving (26%), loneliness (24%), advice (28%,) new appointment (46%), issuance of sick leave (22%), considerations on affordability of medication (90%), affordability of laboratory investigations (64%), low educational status (70%), admission (46%) and referral (64%).

## Discussion

It has been established in recent times that the roles and responsibilities of clinicians and patients are shifting, and patients must assume greater responsibility for their own health through primary

prevention. (1) This is one of the major conclusions reached in the report of the United States Preventive Services Task Force (USPSTF). However, for clinicians to empower the latter to take charge of their own health, and at the same time better serve patient needs, a good understanding of social problems that could negatively color the clinical presentation of illnesses and diseases should always be at hand. In this study, such social problems have been brought to the lime light for all to see. The personal aspects of primary care also include the important area of self care. Most symptoms are self-evaluated and self-treated without the help of health professionals (2) and a vital function of primary care is to increase self-care competence so that patients can become active partners in health care. By providing information, answering questions, and helping patients find other resources for help, primary care clinicians can foster knowledgeable and confident self care.

On issues relating to psychosocial problems, doctor-patient decisional conflict is a factor that should be considered. It is influenced by inadequate knowledge, unclear values, inadequate support, and the perception that an ineffective decision has been made. Until recently, it has been studied at the individual level, which ignores the interpersonal system between patients and physicians.(3) With this study considering social problems under the domains of the patients' factors and the physicians' factors, the interpersonal dynamics are duly considered.

In this environment, patients are more likely to conceal any social problem that they are undergoing, mainly because of cultural unacceptability of disclosure to unfamiliar persons. In a UK study by Maginin et al (4), ethnicity did not independently predict detection of psychosocial problems, but it was observed that Black Africans were less likely to say that they would talk to their General Practitioner (GP) about psychological problems. It may

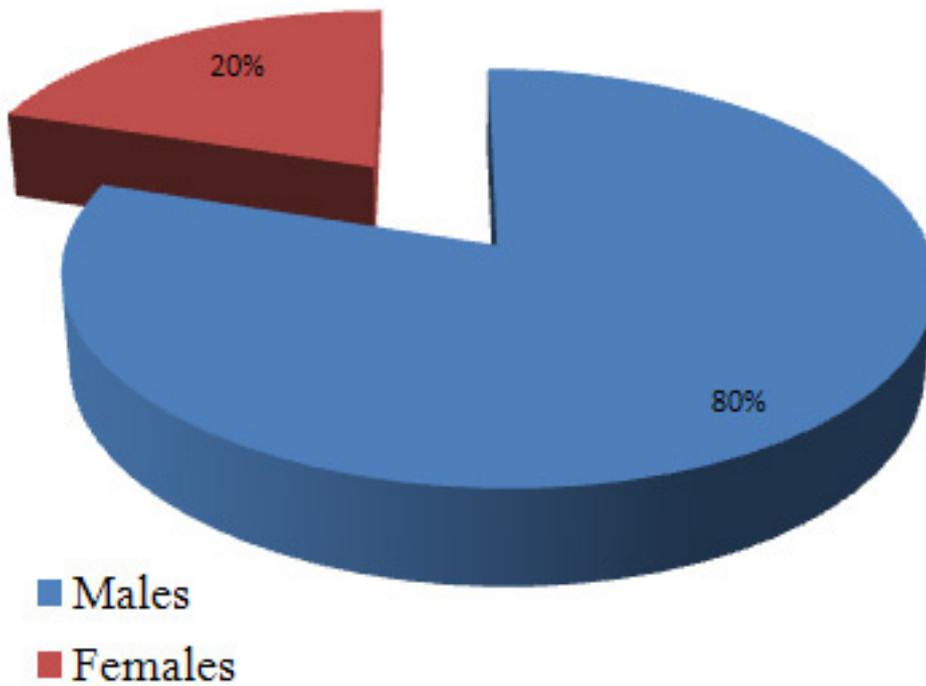
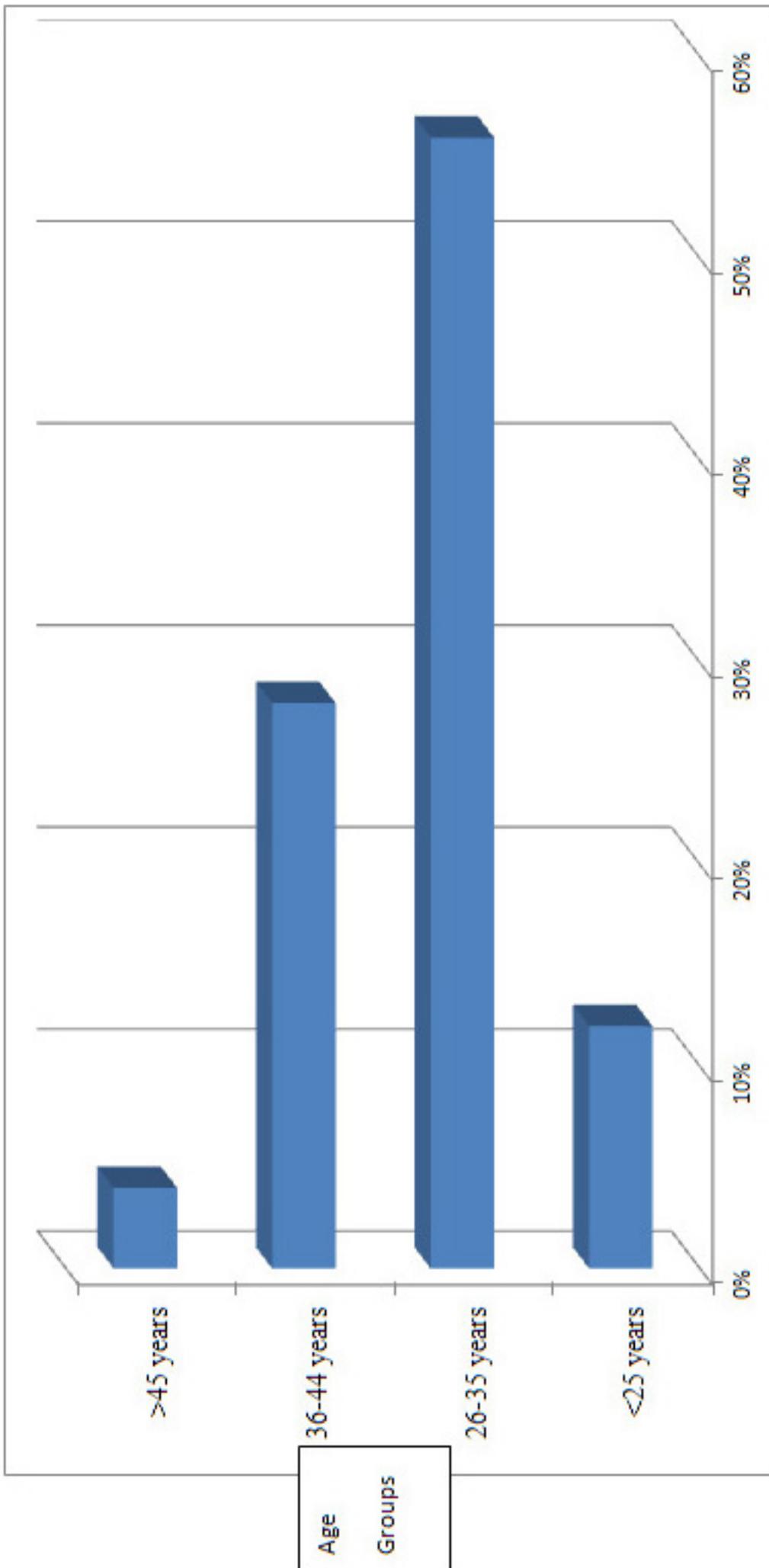


Figure 1: Gender distribution of respondents

Perceived Social Problem Influencing management	Yes	No
<b>Patient's Characteristics</b>		
Economic Status of the patient	40 (80%)	10 (20%)
Loneliness on the patient's part	12 (24%)	38 (76%)
Patient's Unemployment	37 (74%)	13 (26%)
Affordability of medications	45 (90%)	5 (10%)
Sick Leave	11 (22%)	39 (78%)
Marital Conflict	21 (42%)	28 (58%)
Affordability of laboratory investigations	32 (64%)	18 (46%)
Low educational Status	35 (70%)	15 (30%)
Hospital admission	23 (46%)	27 (54%)
Referral	32 (64%)	18 (36%)
Physician's advice	14 (28%)	36 (72%)
Burdening Sorrow	17 (34%)	33 (66%)
Change of Behaviour	17 (34%)	33 (66%)
<b>Physician's Characteristics</b>		
Physician's Mental & Physical Stress	27 (54%)	23 (46%)
Loneliness on Doctors' part	38 (76%)	12 (24%)
Extra Consultation Time	42 (84%)	8 (16%)
Demanding task of caregiving	13 (26%)	37 (74%)
New patient appointment	23 (46%)	27 (54%)

Table 1: Perceived Social Problems Influencing Management



Frequency of Age Groups

Figure 2: Respondents Age Distribution

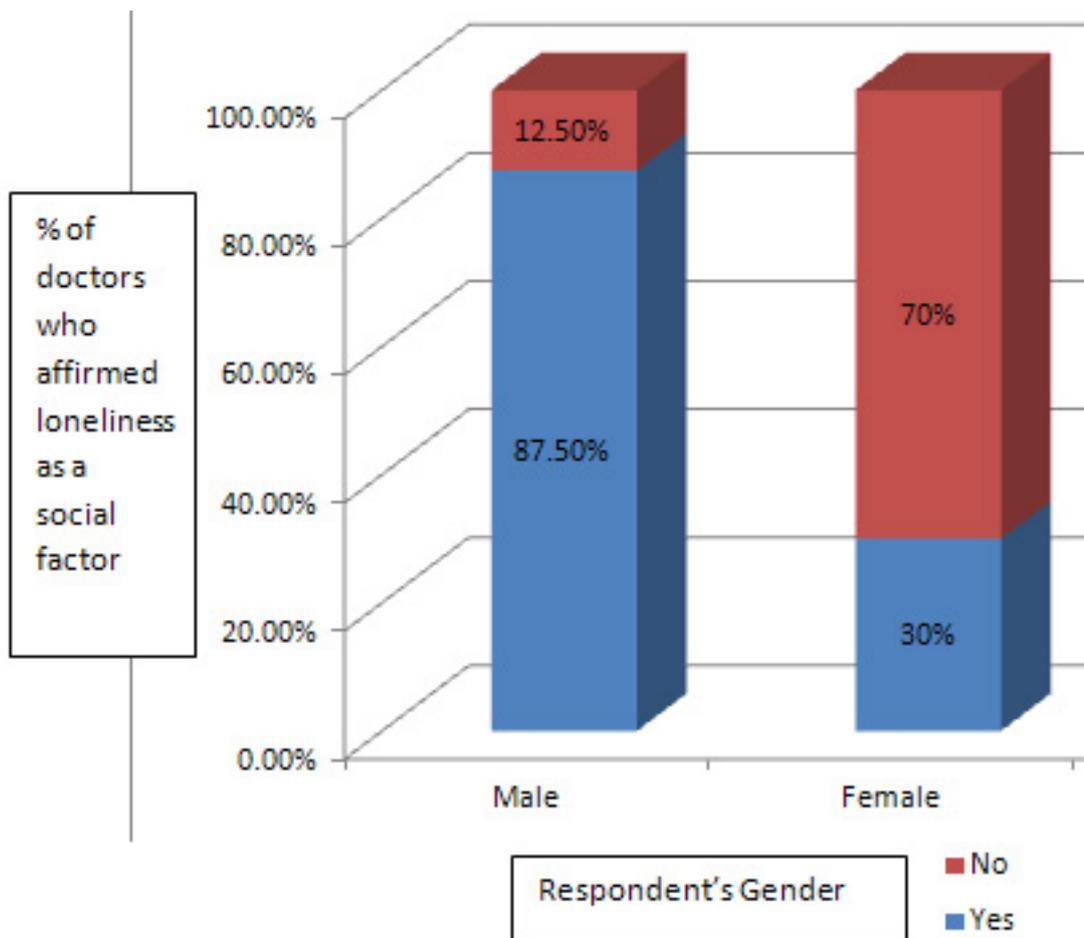


Figure 3: Physicians' loneliness as a perceived social problem influencing care by Gender

however be that generally, Black Africans in the UK with psychological problems are less likely to attend their GP as compared with their Caribbean and English counterparts, and as such less willing to speak to them about these problems when they do attend the GP's clinic.

Patient satisfaction with GP care in general is largely determined by their perceptions of the GP-patient relationship and GPs' interpersonal skills. Patients often report that they feel unable to discuss personal problems, (5) discouraged from asking questions, (6) and that their opinions are undervalued or disregarded. Many also report receiving inadequate information (4) and complain about structural limitations such as lack of time in the consultation. The two aspects of doctor-patient communication which were significantly associated with feeling helped were: 'Doctor tells me all I want to know about my illness' and 'Doctor gives me a chance to say what is really on my mind'. Both factors reflect care which is oriented

to patient concerns. In the light of the above, this study result provides support for importance a patient-centred approach to care (6).

Workplace conditions are a major determinant of physician well-being. Poor practice conditions can result in poor outcomes, which can erode quality of care and prove costly to the physician and health care organization. Our study revealed that physician's mental and physical stress constitute perceived problems that can influence patient care in over half of the respondents (54%).

Fortunately, these conditions are manageable. Organizational settings that are both "physician friendly" and "family friendly" seem to result in greater wellness for all (7).

In the baseline survey of Women's Health in Australia (WHA), there was a relatively high degree of satisfaction with referral, counseling and relaxation advice amongst those who received these treatments. In contrast, 20% of women who

received a prescription or were listened to by their physicians found these treatments unhelpful. Thematic analysis highlighted three main concerns for women, namely structural limitations of the GP-patient consultation, GPs' limited interpersonal skills and GPs' limited interest, knowledge and skills in mental health(8).

Patients' agendas are complex and multifarious. Only few patients voice out all their agenda in consultations. Agenda items most commonly voiced are symptoms and requests for diagnoses and prescriptions. The most common unvoiced agenda items are: worries about possible diagnosis and what the future holds, patients' ideas about what is wrong, side effects', not wanting a prescription and information relating to social context. Agenda items that were not raised in the consultation often led to specific problem outcomes (for example, major misunderstandings), unwanted prescriptions, non-use of prescriptions, and non-adherence

to treatment. In all of the 18 consultations with social problem outcomes, at least one of the problems was related to an unvoiced agenda item.

Decision making and participation are concerned with the collaboration between professional and patient. These two stakeholders in the consultation process are required to develop a list of options, from which the most suitable is chosen. (9) Engaging patients effectively in that process avoids the problems of disempowerment and 'personal identity threat' that underlie patients' dissatisfaction with health care.

As many as 90 million Americans have difficulty understanding and acting on health information. This health literacy epidemic is increasingly recognized as a problem that influences health care quality and cost. Yet many physicians do not recognize the problem or lack the skills and confidence to approach the subject with patients. (10) Further research is required to identify effective interventions that will strengthen the skills and coping strategies of both patients and providers and also prevent and limit poor reading and numeracy ability in the next generation.

### Conclusion

The study revealed that in this environment, perceived social problems of both doctors and patients do significantly influence choice of management in 9 out of every 10 doctors in their consultations and clinical management. Doctors with more than 10 years clinical experience were less likely to be influenced by mental and physical stress. Also, more male doctors perceived loneliness as a consultation -interfering social problem as against female doctors.

**Limitations:** Patients' opinion of how their own perceived social problems could influence doctor's decision making was not put into cognizance.

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# Perception and Attitude towards Breaking Bad News in the Saudi Population

Mohammed O. Alrukban (1)  
 Ahmad Bahnassy (2)  
 Badr O. Albadr (3)  
 Mussab Alshuil (4)  
 Abulrahman Aldebaib (5)  
 Tamim Algannam (6)  
 Faisal Alhafaf (7)  
 Abdulaziz Almohanna (8)  
 Tariq Alfifi (9)  
 Abdullah Alshehri (10)  
 Muhannad Alshahrani (11)

(1) Mohammed O. Alrukban, ABFM, SBFM; Associate Professor and Consultant of Family Medicine, Department of Family Medicine & Community Medicine, College of Medicine, King Saud University,  
 (2) Ahmad Bahnassy; Associate Professor and Consultant of Community Medicine, College of Medicine, King Saud ben Abdulaziz for Health Sciences University.  
 (3) Badr O. Albadr, ABFM, SBFM; Assistant Professor and Consultant of Family Medicine, College of Medicine, King Saud ben Abdulaziz for Health Sciences University.  
 (4 to 11) Mussab Alshuil, Abulrahman Aldebaib, Tamim Algannam, Faisal Alhafaf, Abdulaziz Almohanna, Tariq Alfifi, Abdullah Alshehri and Muhannad Alshahrani; Medical students, College of Medicine, King Saud University.

## Correspondence:

Mohammed O. Alrukban, ABFM, SBFM; Associate Professor and Consultant of Family Medicine, Department of Family Medicine & Community Medicine, College of Medicine, King Saud University, Post Box-91678, Riyadh 11643, Saudi Arabia.  
 Tel: +96612100211, Fax; +96614671967,  
**Email:** mrukban@ksu.edu.sa

## Abstract

Breaking bad news is considered one of a physician's most difficult duties. Discomfort and uncertainty associated with breaking bad news, along with a lack of proper training, may lead physicians to emotionally disengage from patients.

The aims of this study were to evaluate the patients' beliefs of bad news and their perception and attitude towards breaking bad news. A cross sectional community based survey was conducted in Riyadh city during the month of April, 2009. A representative sample was selected using a stratified random sampling technique. A validated self administrative questionnaire in Arabic language was designed and used for data collection. Chi Square test was used to find the association between two qualitative variables. P- Value was set to be < 0.05 throughout the study.

The study included 1086 participants. Half of the samples were male and 46% of them were between 30-39 years old. Almost 75% of them defined bad news as related to the diseases that are highly fatal. Only 50% of the participants had a satisfactory experience in the method of breaking bad news. Around 81% of participants insist on being informed about any news related to their health. Educational level seems to be one of the influencing factors ( $p < 0.001$ ). Most of the participants (71.1%) want detailed information about the disease. Most of the patients (i.e. 88.2%) appreciate more those who tell them the truth.

The study gave an overview of Saudi Citizens' perceptions towards breaking bad news. In general, participants had a good understanding of the situation and respect honesty. Medical professionals are urged to learn more about the importance and the techniques of breaking bad news to gain patient's satisfaction and build sound doctor-patient relationships.

**Key words:** Breaking Bad News, Terminal patients, Communication and Saudi Arabia

## Introduction

In *Decorum*, Hippocrates advised(1) "Reveal nothing to the patient of his future or present condition for this has caused many patients to take a turn for the worse". Unfortunately this tradition of silence persisted for centuries. In the past few decades, this has changed. A review of studies on patient preferences regarding disclosure of a terminal diagnosis found that 50-90% of patients desired full disclosure(4).

Communicating bad news is an essential skill for physicians. (However), the vast majority of Americans want to know if they have a life-threatening illness. Although legitimate cultural variations are important, breaking bad news in a direct and compassionate way can improve the patient's and family's ability to plan and cope, encourage realistic goals and autonomy, support the patient emotionally, strengthen the physician-patient relationship, and foster collaboration among the patient, family, physicians, and other professionals.

The breaking of bad news (BBN) is an emotive subject for both health professionals and patients and it is one of the most difficult responsibilities in the practice of medicine(1). Many find it challenging to convey bad information, especially when this involves a life-threatening illness. Others fear the news will be distressing and adversely affect the patient, family, or the therapeutic relationship. Physicians have reported that breaking bad news was moderately stressful for them, and the stress lasted beyond the recalled transaction and they admit to having difficulty with it(2,3).

Various studies had defined bad news as "any news that drastically and negatively alters the patient's view of their future."(1,4-8) Another definition of bad news is that "it results in a cognitive, behavioural, or emotional deficit in the person receiving the news that persists for some time after the news is received"(9). Thus, the determination of what news is bad constitutes a subjective judgment in the mind of the receiver(9).

Breaking bad news has been ignored in the past and still depends largely on culture and social state(10). Although virtually all physicians in clinical practice encounter situations entailing bad news, medical school offers little formal training in how to discuss bad news with patients and their families(1). There are many reasons why physicians have difficulty breaking bad news. A common concern is how the news will affect the patient, and this is often used to justify withholding bad news. Physicians also have their own issues about breaking bad news. It is an unpleasant task. Physicians do not wish to take hope away from the patient. They may be afraid of the patient's or family's reaction to the news, or uncertain how to deal with an intense emotional response(1). The overall view is that a positive or negative bad-news experience can affect a patient's subsequent adjustment(9).

Physicians vary in their confidence to break bad news. In a survey done in various teaching hospitals of Pakistan, only 60% of doctors thought that they had conveyed the bad news properly; 26% of them had conveyed the news to the families and not to the patients(4). In another study, the physicians believe that they were effective in delivering the news in a way that reduced a patient's distress(2). In fact, the issue of how to disclose the truth is more important than whether or not to do so. There are many recommendations on how a cancer diagnosis should be revealed to the patients. Everyone has stressed the importance of honesty, compassion, sensitivity, clarity, and allowing some measure of hope(11).

Adequate preparation with effective communication skills, empathy, and planned follow-up are considered essential steps to assure that the goals for these difficult interactions are met(5). Effective communication between the doctor and patient forms an essential crux of breaking bad news. It is central to the delivery of high quality medical care and has been shown to affect patient satisfaction, decrease the use of pain killers, shorten hospital

stay and improve recovery from surgery and a variety of other biological, psychological and social outcomes(4).

A patients' culture and beliefs play a major role in the guidance of health care providers to select the appropriate method of revealing bad news. These views have not been studied before in Saudi Arabia. Therefore this study has been designed to evaluate the patients' beliefs of bad news and their perception and attitude towards the manner in which this news has been delivered to them.

## Methodology

A cross sectional study was conducted during the month of April 2009 in Riyadh, the capital city of Saudi Arabia, which is the largest city in the country with a total population exceeding five million. As capital of Saudi Arabia, Riyadh has received millions of visitors of different nationalities and cultural backgrounds. The population of Riyadh consists of 60% Saudis with the rest being from other nationalities.

The sample size has been calculated to be 865 subjects at a 95% confidence interval and 5% sample error, assuming a 50% variance. To accommodate for dropout and non-participant rate the sample size was increased to 1000. Using stratified random sampling, only adults were selected to participate in this study due to its nature. The targeted population was stratified based on different age groups and availability in the community. Those between twenty to thirty were selected in universities and other public areas; whereas those above thirty were selected by surveying work and public areas like ministers, companies, hospitals, airport, malls and other locations. Required permission was taken from the concerned administrative departments and ministries to administer the questionnaires. Informed consent was taken from all the subjects participating in the study, when they were given the questionnaire. Moreover,

ethical approval was given by the institutional review board, at the Medical Research Centre, King Saud University.

A self administered questionnaire in Arabic language was prepared, based on the questionnaire used in reviewed previous studies, in a manner that signified the study research goals in a clear way. The questionnaire for this study consisted of fourteen items. Seven of them were concerned with the demographic characteristics (Age, sex, nationality, educational level, occupation, residency and marital status) and the remaining questions were about definition of bad news, the participant's evaluation of the way the health team conveyed bad news, the participant's opinion on receiving bad news, including their willingness to receive medical treatment with or without knowing the diagnosis and the amount of

information they need to know about the case after breaking bad news. The last three questions were concerned with the respondents' reaction as to if the treating physician withheld or provided the diagnosis, and the expected immediate reaction after receiving bad news.

The questionnaire had been validated via a pilot study on fifty individuals from the society and reviewed by five experts. The appropriate modification was made based on the pilot study.

Data was collected by the researchers and research assistants who were trained by illustrating to them the research objectives and appropriate data collection method. The response rate from the society was approximately 90%. Questionnaires that were not fully completed were eliminated.

The data was analysed via SPSS program version(16). Frequency distribution was applied for all variables. Chi square test was used to find associations among qualitative variables and an alpha level of 5% was taken for statistical significance.

Ethical considerations, such as informed consent and confidentiality of the subject, were ensured.

## Results

A total of 1086 individuals participated in this study. All the respondents completed full interviews which were used for primary analysis. The initial questionnaire was developed based on the prior experience of investigators, input from colleagues and peers, as well as patients. The initial framework of the questionnaire was then expanded by incorporation of new aspects encountered during an extensive literature search.

Variable	%	No	Variable	%	No
<b>Age</b>			<b>Education</b>		
20-29	25.5	277	Primary	2.2	24
30-39	45.9	498	Intermediate	7.5	81
40-49	16.8	182	Secondary	29.2	317
50-59	8.8	96	Diploma	15.1	164
60+	3	33	University	40.6	441
<b>Sex</b>			Post Graduate	5.4	59
Male	48.2	523	<b>Occupation</b>		
Female	51.8	563	Military	2.9	31
<b>Nationality</b>			Governmental Employee	24.3	264
Saudi	93.3	1013	Private Employee	16.4	178
Non-Saudi	6.7	73	Student	50.3	546
<b>Marital Status</b>			Retired	6.2	67
Single	63.2	686	<b>Residency</b>		
Married	36.8	400	City	97.7	1061
			Village	2.3	25

Table 1: Characteristics for the study participants

Among the participants 25.5% were below 30 years of age, 45.9% were between 30-40 years of age, 16.8% were between 40-50 years and only 11% were above the age of 50 years. The gender distribution in the selected sample was almost equal with males being 48.2% and 51.8% females. As the study was conducted in Saudi Arabia, the majority of the participants (93.3%) were Saudi and almost the entire sample (97.7%) was taken from the urban population. The minimum educational qualification of the sample was at least intermediate school, with 29.2% having Diploma, and the highest 40.6% were postgraduate and 4.6% had a doctorate degree. Among the participants only 36.8% were married and the remaining unmarried.

Around 50.3% of subjects who participated in this study were students; 24.3% were working in government agencies, and 16.4% of the subjects either had their own business or were working in private institutions.

The majority of the respondents (74.8%) had a fairly accurate idea of what "bad news" is and defined it as "having a disease which leads to death".

Table 2 presents the participant's responses towards the perception variables associated with breaking bad news. Around 42.2% of the respondents were satisfied with the way the health team conveyed the bad news, against 20.9% who were not satisfied. In response to the question regarding their preferences whether the physician who broke the bad news should treat them or not, 81.25% of the respondents' answers were affirmative while only 18.9% stated they would prefer to be treated without knowing it.

In response to the required information about their condition the vast majority (71%) expressed their desire, that all the details must be discussed with them in greatest details.

Denial (10.8%), sadness/depression (34.7%), and acceptance (35.3%)

were amongst the most intense emotions experienced by them when the bad news was broken to them.

In response to the question, whether their trust shall be affected, if the physician chooses not to inform them about their actual condition, 34.5% of the participants responded by stating that it will affect their relationship, while 36% said it will have no effect on their relationship. And a whopping majority, around 88.2% of the respondents stated they would appreciate and respect the physician who had conveyed the bad news to them.

The relationship between various variables and their interactions with attitude, perception, and experience towards breaking bad news, are presented in Table 3 (page 20).

We found a significant association in the relationship between age, education level as well as gender of the respondents and type of emotional response expressed on hearing bad news ( $p=0.001$ ). Also, the association between age and opinion (that age makes a difference in the reception of bad news) was found to be significant ( $p=0.000$ ). The association between gender and opinion was also significant ( $p=0.000$ ).

Evaluating the way health team members convey bad news was significantly related to education ( $p < 0.001$ ). Satisfaction rate was higher in the highly educated versus less educated, 61.4% vs. 52.5% respectively. About 85% of those who were highly educated preferred to be treated by the physician after he/she conveyed them the bad news significantly more than the less educated (75.6%); ( $p < 0.001$ ).

The highly educated, as expected, insisted on knowing detailed information about their case after the diagnosis more than those with less education ( $p = 0.001$ ). There was no difference found regarding "needing to know more information about the person's case" in relation to sex and age.

A significant difference ( $p = 0.04$ ) was found in the immediate reaction of "not believing" after breaking of bad news between younger and older participants and also between the elderly males and females ( $p = 0.037$ ), with females showing more disbelief.

The acceptance of the bad news was also significantly different between older (35.0%) and younger (17.0%) participants. A similar difference was also found between male and female participants (28.1% vs. 16.7%); ( $p < 0.01$ ).

Similarly, the younger participants (24.5%) showed significantly more sadness and depression compared to the older participants (15.1%). The female participants expressed significantly more sadness and depression than male participants ( $p < 0.01$ ).

## Discussion

The aim of this study was to evaluate the patients' beliefs and perception and attitude towards breaking bad news.

According to this study, about three quarters of the participants defined bad news as "having a disease that leads to death" which is comparable to the finding of the study by Sidra Ishaque et al. which stated that the majority of the participants had a fairly accurate idea about the connotations and implications symbolized by the term "bad news"(4). Although patient satisfaction ratings, with the way the health team had conveyed the bad news, were quite high, they were similar to other published reports and seem to be consistent with such ratings when survey methods are used (2, 4).

Evidence indicates that patients increasingly want additional information regarding their diagnosis, their chances of cure, the side effects of therapy and a realistic estimate of life expectancy(4). A review of studies on patient preferences regarding disclosure of a terminal diagnosis by Curtis et. al. found that 50-90% of the patients desired full disclosure(1),

Variable	No	%	Variable	No	%
<b>Definition of bad news:</b>			<b>Expectations of immediate reaction when knowing bad news:</b>		
Having any disease	185	17	Denial	74	11
Having non curable disease	432	40	Anger	34	5
Having chronic Disease (e.g. DM)	309	29	Discussion and Arguing	97	14
Having disease that leads to death	813	75	Acceptance	241	35
Don't have clear definition	87	8	Sadness and Depression	237	35
<b>Does the patients' trust of the physician who preferred Not to tell the bad news be affected?</b>			<b>The amount of information they need to know after breaking the bad news:</b>		
Yes	375	35	Need detailed information to be discussed with me	772	71
No	391	36	Only answer my questions	162	15
Not sure	320	30	Brief information about my case	152	14
<b>Evaluation of the way health team conveyed the bad news:</b>			<b>Patients' attitude towards the person who conveys the bad news:</b>		
Good	108	9.9	Trust will be affected	27	2.5
Satisfactory	465	43	Dislike and refuse meeting him/her	70	6.4
Unsatisfactory	227	21	Appreciate and respect him/her	985	88
Don't Know	286	26	Other	31	2.9
<b>Patients' preference if his/her physician has bad news:</b>					
Treating you after telling the news	883	81			
Treating you without telling the news	204	20			

Table 2: Attitude and perception of the study respondents toward Breaking Bad News

which was similar to our participants' preference. On the other hand, in another study, just more than 50% of the patients reported receiving the amount of information they wanted at diagnosis and treatment; though 37% and 34% received less information than they wanted(12). Patient reports about poor delivery are often characterized by bluntness, a lack of hope, and initiation of this serious conversation at an inappropriate time or place (5).

Patients report a variety of emotional reactions to hearing bad news. In a study of patients who were diagnosed as having cancer, the most frequent responses were shock (54%), fright (46%), acceptance (40%), sadness (24%), and "not worried" (15%)(9). In our study respondents' immediate reaction when knowing bad news was between acceptance and

sadness with depression (35.3% and 34.7% respectively), which concurs with the study by Greeg K. Vandekieft which showed that the patient responses to bad news can be influenced by the patient's psychosocial context(1). Another study by Mandy et. al. found that there was no statistically significant association between patients' current psychological morbidity and their perceptions of the bad-news event, in either direction; that is, patients with a positive memory were not protected from depression, and patients with highly negative memories were not more likely to be depressed (15).

Emotional preparation by the provider is an important step prior to delivering bad news. Self-reflection helps to identify personal emotions of sadness, anger, fear, or guilt and will help the provider not to disengage from the delivery of bad news(6). It

is normal to have strong feelings, especially in difficult situations. Encouraging and validating these emotions personally will lead to a more therapeutic presence during a patient's time of need(5).

The attitudes of our respondents when receiving bad news were likely to be influenced by education, age and sex. There are many factors which can influence the attitude of patients when receiving bad news. In a systematic review by Maiko et al. it was found that the younger patients, female patients and highly educated patients consistently desired to receive as much detailed information as possible and to receive emotional support. Younger and highly educated patients also wanted to participate in decisions regarding their treatment(13). One study suggested that having an average income was associated with wanting

Variable	Age				Gender				Education					
	<30		>30		Male		Female		<University		University +		p	
	No	%	No	%	No	%	No	%	No	%	No	%		
	P		P		p		p		p		p			
<b>Definition of Bad news</b> <i>Having any disease</i> <i>Having non curable disease</i> <i>Having chronic disease</i> <i>Having disease that leads to death</i> <i>Don't have clear definition</i>	123	15.9	62	19.9	109	20.8	76	13.5	63	14.9	122	18.4	0.001	0.14
	305	39.4	127	40.8	211	40.3	211	39.3	142	33.6	290	43.7	0.71	<b>0.001</b>
	221	28.5	88	28.3	137	26.2	172	30.6	108	25.6	201	30.3	0.11	0.96
	604	77.8	209	67.2	370	70.7	442	78.5	308	73.0	504	75.9	<b>0.003</b>	0.28
	61	7.9	26	8.4	46	8.8	41	7.3	39	9.2	48	7.2	0.36	0.23
<b>Evaluation of the way the health team conveyed the bad news</b> <i>Good</i> <i>Satisfactory</i> <i>Unsatisfactory</i>	71	13.3	37	13.9	54	10.3	54	9.6	64	21.5	44	8.7	0.31	<b>0.001</b>
	321	60.1	144	54.1	244	46.7	221	39.3	156	52.5	309	61.4		
	142	26.6	85	32.0	105	20.1	122	21.7	77	25.9	150	29.8		
<b>Patients' preference if his/her physician has bad news</b> <i>Treating you after telling the news</i> <i>Treating you without telling the news</i>	624	80.5	258	83.0	419	47.5	463	52.5	320	75.8	562	84.6	0.37	<b>0.001</b>
	151	19.5	53	17.0	104	52.5	100	48.0	102	24.2	102	15.4		
<b>The amount of information they need to know after breaking bad news</b> <i>Need detailed information to be discussed with me</i> <i>Only answer my questions</i> <i>Brief information about my case</i>	538	69.5	234	75.2	367	70.2	405	71.9	273	35.4	499	64.6	0.6	<b>0.001</b>
	122	15.7	40	12.9	77	14.7	85	15.1	78	18.5	84	12.7		
	115	14.8	37	11.9	79	15.1	73	13.0	71	16.8	82	12.2		
<b>Expectations of immediate reaction when knowing bad news:</b> <i>Not believing</i> <i>Anger</i> <i>Discussion and arguing</i> <i>Accept the Bad News</i> <i>Sadness and Depression</i>	62	83.8	12	16.2	27	5.2	47	8.3	33	7.8	41	6.2	<b>0.037</b>	0.29
	25	3.2	9	2.9	19	3.6	15	2.7	14	3.3	20	3.0	0.36	0.78
	75	9.7	22	7.1	51	9.8	46	8.2	39	9.2	58	8.7	0.36	0.77
	132	17.0	109	35.0	147	28.1	94	16.7	90	21.3	151	22.7	<b>0.001</b>	0.58
	190	24.5	47	15.1	88	16.8	149	26.5	99	23.5	138	20.8	<b>0.001</b>	0.30

Table 3: The relationship between various variables and their interactions with attitude, perception, and experience towards breaking bad news

more information than having a low income(13).

Cross-cultural differences were indicated by some patient's preferences. Only 30% or fewer of patients in Asian studies preferred to discuss life expectancy, whereas 60% of patients in western studies preferred to do so(13). In a study by Young et al. they found that age, religiousness, relationship to patient, time since diagnosis, type of primary cancer, disease stage, and performance status were likely to influence attitudes, while sex, level of education, income, awareness of the cancer, preference for place of care and death, and diagnosis were not(11).

In conclusion, this study shows that male, elderly and high educated people are more receptive to accepting bad news than others. Mostly they showed interest in knowing more information about their case and respected the honesty of the person who revealed this bad news to them.

Our belief was that the nature of these specific transactions would set the stage, positively or negatively, for subsequent interactions between the patient and the physician in the Saudi population. Subsequent research efforts should explore other variables that might influence the quality of patient doctor relationships after bad news and assess both relational and informational factors. This may lead to formulating more appropriate guidelines and training methods, for health care professionals. Additional research should include large-scale, multicentre prospective designs and use of several data sources, which may reveal important predictors in our pursuit of a better standard of care and higher level of patient satisfaction based on Islamic guidance in the Saudi population.

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# Genital warts in women: Knowledge, Attitude and Behaviour (KAB). Literature review and recommendations

Ebtisam Elghblawi

## Correspondence:

Dr Ebtisam Elghblawi MBBCh, MScRes, ADD, DRH

Email: ebtisamya@yahoo.com

## Introduction

Genital human warts (condyloma acuminata) are caused by human papillomavirus (HPV), which is primarily sexually transmitted. There are more than 120 HPV subtypes which have been identified (Castellsagué, 2008), with 40 which can infect the genital area. HPV 6 and 11 are the commonest strains causing GWs. There are 15 oncogenic types which can infect the cervix, vaginal mucosa and vulval and anal skin and the two main culprits are HPV16 and 18 which are associated with more than 70% of all cervical cancer globally. According to Anorlu, 2008, and Doerfler et al, 2009, cervical cancer contains HPV DNA in 100% of cases. Many studies state that about 15-35% of sexually active women have subclinical infections with HPV virus (asymptomatic carriers), and most of those women usually become negative within 2 years; however those who do not are at greater risk of develop cervical cancer (Doerfler et al, 2009).

The incidence of this infection has been on the rise recently (Anorlu, 2008). However, information on HPV prevalence globally is not consistent because there is no uniform scheme of detection. There are almost no statistics on HPV prevalence in developing countries due to the lack of data collection.

There are some studies in the literature looking at HPV prevalence in general, and it is not always clear how HPV are tested in their studies. For instance, it has been estimated that about 6 million new cases of HPV infection are acquired annually only in the United States, and the prevalence data implied that around 24 million American adults; 1 in 5 might be infected with HPV (Anorlu, 2008). While in South Africa, it has been estimated that 21 % of women harbour the HPV, and about

## Abstract

**Background:** Genital warts is a common global public problem with considerable morbidity. GWs are one of the commonest sexually transmitted diseases (STDs) that entail considerable morbidity in terms of social, psychological and economic consequences.

**Objective:** to examine the literature relating to the knowledge and attitudes of patients and others, and the behaviours (KAB) connected with GWs.

The search strategy was conducted through the search key word "genital wart", "condyloma acuminata", and "venereal warts", then combing knowledge and GWs, attitudes and GWs, behaviours and GWs, in developing and developed countries, through the e-books, and e-journals including EBSCO, Scopus, Cochrane, life science database, journals, and peer review, and the English-language literature, which were applied.

**Conclusion:** This review demonstrates a gap in knowledge among many women worldwide about genital HPV. This varies according to ethnicity and socio-economic characteristics, even if women seemed to be educated.

Also it is uncertain if any educational intervention can change sexual behaviour relating to HPV acquisition, but at least awareness is key to preventing infection and education may urge people to use protective measures like condoms more consistently.

In terms of other possible interventions, male circumcision proved scientifically to be protective for women against genital HPV infection.



**Figure 1:**  
Genital warts

62.8% of invasive cervical cancer are accredited to HPV 16 and 18 (Summary report update, 2010). In Nigeria, according to Nnodu et al, 2010, the prevalence rate of HPV is 26.3% among the general population, with cervical cancer prevalence of 24.8%.

While other studies looked at GWs specifically, and the incidence of GWs in the USA which according to Hoy et al, 2009, was 1.2/1000 among women, and 1.1/1000 among men, with the highest incidence in females aged 20-24 (4.6/1000), and males aged 25-29 (2.7/1000). According to Brotherton et al, 2009, in Australia the peak incidence of GWs was among females aged 20-24 (1.4% reported GWs in preceding years). According to Moore et al, 2001, it is estimated that about 111,000 new reported cases of GWs were seen in genitourinary medicine clinic (GUM) in 1998 in the UK. According to

Edwards, 2008, GWs in UK is rising, and in 2006, it accounted for 22% of all STDs cases (83,745 of 376,508 cases).

Examine the level of understanding and knowledge about HPV infection A comprehensive systemic review of 39 published studies between 1992 and 2006, carried out by Klug et al, 2007, covering 19,986 participants, among the public, students, patients, and health professionals, in a wide variety of developed and developing countries (like South Africa, Mexico, Brazil and some other non specified South east America), found that about 13-93% of participants had heard of HPV infection, and 5-83% knew the association between GWs and HPV infection, 8-68% of participants knew the association between HPV and cervical cancer if the questions were closed, and if the questions were open only 0.6-11% knew the associations.

Health professionals' knowledge of the association ranged between 82-100% if closed and 59-87% if there were open questions. Among the public some seemed confused between other STDs and HPV, but generally speaking women and health professionals demonstrated substantially more knowledge than men in this review. These broad ranges demonstrate that knowledge varies in different site settings.

#### **Attitudes**

GWs can considerably influence the psychological status of the affected individual's self image and quality of life (QoL). It can lead to stigmatisation, physical disfigurement and psychological impacts such as feelings of shame, fear of contagiousness, depression, isolation, guilt, worry, anger and sexual impact, with low feeling of self esteem and dejection in both genders (Hillemanns et al, 2008,

sexual impact, with low feeling of self esteem and dejection in both genders (Hillemanns et al, 2008, Escalas et al, 2009, Dediol et al, 2009, Mortensen and Larsen, 2010, Daley et al, 2010). However, according to Garland, (2010), the psychosocial impacts of HPV on men are lacking, as not much study has been done on men and less is known about GWs impacts in men according to Partridge & Koutsky, 2006, while in women this had been screened and looked at. Thus it is vital to understand as well as acknowledge infected men's concerns, and thus more studies are needed.

Behavioural change, beliefs and practices, circumcision and HPV It is well documented in the literature that HPV is sexually transmitted. The risk of transmission increases with high risk human sexual behaviours such as multiple partners and use of condoms inconsistently. However condoms do not provide complete protection.

Circumcision has been done for decades as a religious ritual among Muslim and Jewish people, and been acknowledged to confer a protection against many STDs. Male circumcision proved scientifically to be protective for women against genital HPV infection (Castellsague et al, 2002). This finding was supported by Auvert et al, 2009, who reviewed a randomised clinical trial (RCTs), conducted in South Africa.

## Discussion

This review aimed to look at the available literature about knowledge, attitudes and behaviours of women infected with GWs in different countries, in order to understand the impact of the disease. Certainly, healthcare priorities are different in developing and developed countries.

From the literature review it has been found that there is a wide range of reported levels of knowledge about HPV internationally. This project demonstrated significant gaps in knowledge among many women worldwide about genital and HPV infection which varies according to ethnicity, socio-economic and other

demographic characteristics (Mays et al, 2000, Cuschieri et al, 2006).

Australian women in the literature seemed to be well informed about genital infection and HPV and this can possibly be attributed to the broad educational campaign about HPV vaccination (Pitts et al, 2010). Australia was the first country in April 2007 to introduce the free quadrivalent Gardasil HPV vaccine in its campaign which covers the commonest wart-causing sub-types (6,11) as well as the commonest oncogenic subtypes (16,18) for all women aged 12-26 years and younger (Donovan et al, 2010). Recently, Australia reported a rapid decline in new cases of GWs by 25% among women and 5% in heterosexual men in 2008 (Fairley et al, 2009).

The articles that I examined concluded that HPV diagnosis carried emotional reactions, and socio-psychological impacts like fear, worry, detachment and guilt, because of the cosmetic and physical disfigurement to the affected lady's genital area. Thus it is essential to address psychological needs (Hillemanns et al, 2008, Escalas et al, 2009, Dediol et al, 2009, Mortensen and Larsen, 2010, Daley et al, 2010).

It is hard to talk about sexuality openly in any community as its considered a private thing. This may make it harder to develop prevention messages which can be disseminated to the general public.

Educational intervention which may be utilised is new technology like the internet where everyone can reach out and find the information they need in private, and people tend by nature like to read about sexuality and sexual issues. Also considering the use of social networks, mobile texts, and anonymous telephone hotlines as ways of increased awareness may be useful. (DeJong et al, 2007).

## Implications for policy and implementations

Adopt the ABC rule, "Abstinence (from extramarital sex), Being faithful

(to spouses), Condoms (for sexually active with infected partner)", as a general rule for cultural norms.

Empower women's confidence about their rights, with a confidential approach, for her potential in making things better for society.

It seems that an almost universal finding in the literature explored for this project is the lack of knowledge about HPV among women of different ethnic and demographic backgrounds. This suggests that there is a strong case for increasing educational awareness about the infection and the possible treatment interventions, including men (GWs carrier) who seemed to be less aware compared with women, about genital and HPV infection.

Health care and service providers in the community must be educated and should be sensitive towards patients' needs and should avoid adopting a paternalistic and coercive approach in giving services and counselling in culturally sensitive ways, in order to encourage the patient to seek advice when it is needed.

Addressing psychological factors such as embarrassment and stigma, and the importance of confidentiality is a vital issue in such patients. Further communication between HPV and, or STDs patients, and clinicians needs to be improved to better understand and ensure medical care and treatment at the start.

To date, most studies on attitudes toward HPV vaccination have been conducted mostly in the western countries, thus it is a challenge to conduct in the developing countries and compare results with western cultures about women's a different ethnicity thoughts. Attitudes will be influenced by many factors such as culture, religion and diverse people's perceptions, which can be an obstacle for running vaccination programs.

The best rule is prevention rather than cure whereby that would involve improving public health measures, such as health promotion and

education, partner identification, condom use, promotion of safe sex, screening, and effective public education to slow down STDs and HPV spread.

Additionally, if only people could behave, we could say goodbye for good to every STD.

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# Role of Mass Media in Health Promotion: Opinion from Different Intellectuals in Aligarh Muslim University

Gopal Agrawal (1)  
 Abrar Ahmad (2)  
 Mohd. Zubair Khan (3)

(1) Research Scholar, International Institute for Population Sciences, Mumbai.  
 (2) Assistant Registrar, Maulana Azad National Urdu University, Hyderabad.  
 (3) Professor & Dean, Faculty of Science, Aligarh Muslim University, Aligarh

**Correspondence:**

Gopal Agrawal, Research Scholar  
 C/O Prof. P. Arokiasamy  
 International Institute for Population Sciences  
 Deonar, Mumbai-400 088  
 India  
 Mobile: +91 9969049570  
**Email:** gopalphd.iips@gmail.com;  
 gopalstats2006@gmail.com

**Introduction**

“Health Promotion is the art and science of helping people to discover the synergies between their core passions and optimal health, and become motivated to strive for optimal health”  
 O'Donnell, American Journal of Health Promotion, 2009  
 Health promotion is a scientific approach to empower people to recognize and control various factors which determine their health and well being. This is a way of responding to the health care system and leads to assessment of health system performance. For health promotion to take place, societies must be adequately equipped with different channels of health promotion which have been identified as influential in health promotion policies. In the real sense of health promotion, people must have sufficient health information and the necessary attitude and skills to use this information for the benefit of their own health (Bornman, 2000).

Optimal health is a dynamic balance of physical, emotional, social, spiritual and intellectual health. Lifestyle change can be facilitated through a combination of learning experiences that enhance awareness, increase motivation, and build skills and most importantly, through creating supportive environments that provide opportunities for positive health practices..”(O'Donnell, American Journal of Health Promotion, 2009, 23,5,i)

The complexity of, and the barriers in health communication, necessitate the careful consideration of appropriate media to enhance and improve the success of communication. Various communication media are available but to date little research has been done to assist the communications manager/specialist in the selection and utilization of mass media for

## Abstract

**Objective:** To assess the level of awareness of different diseases and to explore the role of mass media in spreading health awareness in Aligarh Muslim University campus.

**Methods:** A total of 1040 subjects of different intellectual levels, who were representative of the AMU community, participated in this study. These subjects responded to a structured questionnaire on awareness of different diseases and sources of information. Having heard of different diseases in question, was defined as awareness.

**Findings:** About 80 percent of respondents got information about health from newspapers and magazines. 71 percent

reported that television/radio are among the best sources to get information on health related issues.

**Conclusion:** The study reveals that those exposed to mass media had reported significant knowledge about various morbidities and were likely to seek better health care services. The results underscore the importance of mass media exposure in prevention and control of diseases.

**Keywords:** media, awareness, diseases, health promotion, AMU, India.

Source of Health Information	Teaching	Non-Teaching	Research Scholar	Post Graduate	Total
Newspaper/Magazine	81.9	66.8	83.3	83.4	80.2
Television/Radio	73.1	66.8	71.2	72.6	71.3
Brochure from Drug store	24.2	22.3	35.6	22.9	25.9
Talk to Doctor	74.2	65.8	70.8	74.6	72.1
Talk to Family	56.0	46.2	60.5	65.1	59.1
Talk to Friends	54.4	43.5	56.7	58.7	54.8
Books	63.2	41.3	63.1	59.6	57.8
Internet	31.9	24.5	36.5	41.3	35.6
Local info session	12.6	22.3	36.5	26.5	25.6
Others	0.5	6.5	6.9	5.9	5.3
<b>No. of persons</b>	<b>182</b>	<b>184</b>	<b>233</b>	<b>441</b>	<b>1040</b>

Table 1: Percent rating of different sources of health information in AMU, Aligarh

health promotion. This study has asked different intellectuals to provide their view on the role of media in order to promote a health campaign.

**Methods and Materials**

The present study is a primary survey based study in the campus of Aligarh Muslim University (AMU). Based on an expected turnout of 85%, we selected 1040 subjects representative of the population of Aligarh Muslim University. A two-stage stratified random sampling technique was used to select subjects under study. In the first stage, the total sample size was distributed proportionate to the total number of subjects in different faculties. The number thus obtained was distributed proportionate to their size in four different intellectual groups namely, postgraduate, research scholar, non-teaching and teaching. From each determined group of subjects, the desired number of subjects was chosen systematically and interviewed with a structured questionnaire. The final sample size consisted of 233 research scholars, 441 postgraduate, 184 non-teaching and 182 teaching staff.

To assess the role of mass media, subjects were asked two questions.

Firstly, they were asked “Do you think the listed are good sources to get information on health”. For a positive response, one more question was asked “Have you ever got any useful information which added to your knowledge on health aspects”. Those subjects who responded positively to both the questions were defined as exposed to that particular source of health information e.g., exposure to mass media. The diseases for which awareness was assessed were diabetes, hypertension, tuberculosis, asthma and HIV/AIDS. Having heard of any of these diseases in question was defined as ‘awareness’. Multivariate logistic regression models were fitted to examine demographic associations of awareness of diseases with age, gender, education level and exposure to mass media. Analyses were performed by using STATA 10.0 software.

**Results**

A total of 1040 subjects were successfully interviewed and examined in Aligarh Muslim University campus representing a participation rate of 85.5 percent. Of these subjects, 786 (75.6%) were male and 254 (24.4%) were female.

Source of health information Table 1 presents the information

about the sources of health information among subjects in AMU campus. All the mass media channels including newspaper/ magazine and TV/Radio had a disproportionate share to the sources of health information among different intellectuals in AMU community. Significant differentials were observed in the reporting of source of health information among different intellectuals in the AMU campus. With the increasing level of education, the prediction and reporting status improved sharply.

**Awareness of health conditions**

Table 2 presents results on the status of knowledge about various health conditions among subjects in the AMU campus. In comparison, respondents are more likely to be very familiar with each of the conditions asked about- Asthma (52.1 %), HIV/AIDS (58.2%), and Arthritis (34.9%), Diabetes (59.0 %), Breast cancer (34.0 %) and Parkinson’s disease (11.7 %), Epilepsy (19.2%) Muscular Dystrophy (11.0%) Leprosy (26.5%), Sinusitis (24.2%), Hypertension (45.2%), Sciatica (13.4 %), RTIs/STDs (20.6%) and T.B (54.2%). There is not a good indication that (11.0 %) of respondents were not familiar with Muscular Dystrophy while (11.7%) were not familiar with Parkinson’s

Health Conditions/diseases	% of Respondents			
	Not at all Familiar	Not too Familiar	Somewhat Familiar	Very Familiar
Asthma	13.9	13.8	20.1	52.1
HIV/AIDS	12.0	9.5	20.3	58.2
Arthritis	21.2	21.8	22.1	34.9
Diabetes	10.4	9.2	21.3	59.0
Breast Cancer	19.1	19.3	27.5	34.0
Parkinson's	38.6	30.7	19.0	11.7
Epilepsy	29.6	30.3	20.9	19.2
Muscular Dystrophy	42.5	30.7	15.9	11.0
Leprosy	22.1	27.1	24.2	26.5
Sinusitis	34.0	23.7	18.1	24.2
Hypertension	17.1	17.8	19.9	45.2
Sciatica	43.1	28.1	15.5	13.4
RTIs/STDs	40.3	23	16.2	20.6
T.B	13.2	14.3	18.3	54.2

Table 2: Percent of respondents familiar with critical health conditions and diseases in AMU, Aligarh

disease. Table 3 further reveals the gender differentials in the reporting of health conditions.

Surprisingly, females in AMU campus reported higher levels of knowledge about their health conditions compared to males.

**Results from multivariate regression model**

To assess knowledge level regarding health status among subjects in the AMU campus, a scientific approach has been employed. Table 4 presents results from logistic regression analysis showing the variation in knowledge level about health conditions by the respondents'

background characteristics. Here the dependent variable is of binary responses coded as 1 if a student had complete comprehensive knowledge about health status i.e. answered positively for all 12 diseases otherwise coded as zero.

Students of the science stream and other streams are respectively 12

Health Conditions/diseases	% of Respondents	
	Male	Female
Asthma	552 (70.2)	199 (78.3)
HIV/AIDS	616 (78.4)	200 (78.7)
Arthritis	437 (55.6)	156 (61.4)
Diabetes	618 (78.6)	218 (85.8)
Breast Cancer	464 (59.0)	176 (69.3)
Parkinson's	259 (33.0)	61 (24.0)
Epilepsy	325 (41.3)	92 (36.2)
Muscular Dystrophy	223 (28.4)	56 (22.0)
Leprosy	399 (50.8)	129 (50.8)
Sinusitis	343 (43.6)	97 (38.2)
Hypertension	492 (62.6)	185 (72.8)
Sciatica	248 (31.6)	52 (20.5)
RTIs/STDs	308 (39.2)	74 (29.1)
T.B	565 (71.9)	189 (74.4)

**Table 3: Gender-differential in knowledge about health conditions/diseases in AMU, Aligarh**

percent and 35 percent less likely to acquire knowledge on health conditions compared with medical stream students. Research scholars and teachers have a higher likelihood of having comprehensive knowledge about health and morbidities than undergraduate and graduate students. Significant

differentials were seen in having comprehensive knowledge about health and disease by sex. Females were 1.12 times more likely to have higher knowledge on diseases and health status. Unmarried students had lower chances of reporting knowledge about diseases.

### Conclusion

In its very first effort, the present study documented critical evidence on the role of mass media in health promotion. In addition, the study has made an effort to study level of knowledge about disease and health status among different intellectuals and by the exposure of mass media in the AMU campus. Subjects who had exposure of mass media had a good amount of knowledge on health and morbidities. Though the primary aim of paper was to study the role of media in health promotion, remarkable variations are seen in reporting comprehensive knowledge on disease and health states. Students other than those of a medical background and students enrolled in graduate courses have a low level of comprehensive knowledge. Students belonging to the Hindu community have shown greater likelihood of having comprehensive knowledge on diseases. Though the study is based on a small sample size, results have greater scope for policy implications. India has mounted a broad intervention program, including the government, and international, non-governmental, and community-based organizations. With the existing limited infrastructure, universal exposure to mass media could be a most plausible solution and medium for health promotion in the country. Mass media has the potential to make a significant contribution in order to achieve the goal of "Health for All" in the country.

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Independent variables	Odd ratio (Exp. B)
<b>Education Stream (Medical Background®)</b>	
Science Background	0.88*
Others	0.65**
<b>Level of Education (Undergraduate®)</b>	
Postgraduate	1.23
Research Scholar/teachers	1.56**
<b>Sex (Male®)</b>	
Female	1.12
<b>Religion (Muslim®)</b>	
Hindu & others	1.32*
<b>Marital Status (Married®)</b>	
Unmarried	0.77
<b>Place of Residence (With family®)</b>	
Rented room	0.37
Hostel	0.63*
<b>Log likelihood</b>	347.12***
<b>Adjusted R2</b>	0.57

Note: ®: reference category.  
 \*\*\*p<0.01, \*\*p<0.05, \*p<0.10

Table 4: Logistic regression analysis: Odd ratio showing variation level of knowledge about disease and health status in AMU, 2008

Name of the faculties	Teaching		Non-teaching		Research scholar		Post-graduate	
	Population size	Sample size	Population size	Sample size	Population size	Sample size	Population size	Sample size
Management	19	3	12	2	14	2	168	27
Commerce	26	4	26	4	38	6	177	28
Law	26	4	12	2	32	5	50	8
Theology	15	2	14	2	33	5	36	6
Science	174	27	140	22	305	48	603	95
Life Science	65	11	110	17	147	23	176	27
Medicine	230	36	250	39	69	11	166	26
Unani-Medicine	39	6	57	9	0	0	49	8
Social Science	173	27	123	19	536	84	592	94
Arts	105	17	47	7	204	32	406	64
Agriculture	16	3	28	4	46	7	71	11
Engineering	265	42	365	57	66	10	299	47
<b>Total</b>	<b>1153</b>	<b>182</b>	<b>1184</b>	<b>184</b>	<b>1490</b>	<b>233</b>	<b>2793</b>	<b>441</b>

Table 5: Final distribution of sample population by job & education category and faculties

# Menstrual disorders in female medical students in Tamar University

Mohammed Y Akabat (1)  
Abdelrahman H Al Harazi (2)

(1) Dr Mohammed Y Akabat PhD.  
Assistant Professor, Head of Obstetrics & Gynecology Dept.  
Faculty of Medicine, Tamar University, Yemen  
(2) Dr Abdelrahman H Al Harazi ABOG,MD  
Assistant professor, Obstetrics & Gynecology  
Faculty of Medicine, Tamar University, Yemen

## Correspondence:

Dr Mohammed Y Akabat PhD.  
Assistant Professor, Head of Obstetrics & Gynecology Dept.  
Faculty of Medicine, Tamar University, Yemen

## Introduction

An association between menstrual dysfunction and stressful situations has long been recognized. It is said that the menstrual aberrations (oligomenorrhea, amenorrhea, dysmenorrhea and other types of physical discomfort during menses) have a direct relation to the perceived level of stress such as sudden changes in environment (e.g. going away to school), death in the family or divorce. (1) Numerous studies have been demonstrated that stressful situations play an etiological role in developing menstrual dysfunction. Many studies have been reported, that medical students respond to stress significantly more intensely than other professions as they find aspects of the medical courses as being very stressful. For this reason, they respond to the stress situations by various manifestations of menstrual aberration (2).

In general, premenstrual syndrome is common among women but the highest incidence occurs in women in their late 20s to early 30s (3).

The stress perceived by medical students often expresses itself through various psychological and somatic problems. The prevalence of dysmenorrhea among adolescents range between 8.3 to 61.4% (4-6), however, other studies found such prevalence up to 93% in this age group(7).

Dysmenorrhea has negative effects on academic performance and social activities (7). This cross-sectional study aimed to measure the various menstrual dysfunctional manifestations among female medical students in Tamar University, Faculty of Medicine, Al Wahda University Hospital.

## Abstract

**Objective:** To measure the various menstrual dysfunction manifestations among female medical students in Tamar University, Yemen.

**Material and methods:** This is a cross-sectional study of 116 out of 120 female medical students, who were selected randomly in Al Wahda Educational Hospital, Tamar University, between October 1st 2009 - April 31st 2010. Premenstrual syndrome (PMS) was assessed.

Each respondent was given 20 - 40 minutes to complete the questionnaire. Body weight and/or height, were measured and the body mass index (BMI) was calculated for any participant with unknown body weight and/or height. The results were categorized according to WHO criteria.

**Results:** The prevalence of dysmenorrhea was 72.4%. Of those, 14.2% had severe pain. The prevalence of self-reported PMS was 24.13%. The absenteeism from college was

reported in 42 female medical students (36.2%) and the mean number of absent days was  $2.1 \pm 0.9$  days.

The most frequent symptoms were fatigue (62.9%), backache (27.6%), headache (24.1%), mood changes (25.9%), depression (23.2%) and irritability (19%). Menorrhagia was present in 35.3% of cases. Only 53.6% of those having a negative attitude towards the menses had PMS.

**Conclusions:** Female medical students during their study have shown to have several menstrual cycle problems. Dysmenorrhea, PMS, and Menorrhagia are commonly reported in this study. Sickness absenteeism from the college is the most significant sequel which results in disruption of the student's training and academic performance.

**Key words:** Menstrual disorders, PMS, Dysmenorrhea, absenteeism, medical students.

## Methods and Materials

This is a cross-sectional study carried out over 7 months (from October 1st 2009 to April 31st 2010) in Al Wahda Educational Hospital, Thamar University, Thamar province, Yemen. A total of 120 female medical students were enrolled in the study (40 female medical students from each 4th, 5th, and 6th medical years). They were selected randomly as the first 40 female names of each medical year registration list. We excluded from this study any student who:

1. has menstrual dysfunction due to organic cause.
2. is under hormonal medications during the last 6 months.
3. is pregnant or lactating.
4. has an unstable environment outside the university.

The questionnaire was prepared to involve the socio-demographic characteristics and questions related to menstruation. These include age, height, weight, age at menarche, cycle regularity (regular cycle is defined as experienced menstrual bleeding in equal intervals between 21 and 35 days) cycle intervals (the normal interval is considered between 21 days to 35 days), duration of menses (normal duration is considered between 2-7 days), and dysmenorrhea (defined as lower abdominal, groin and lumber region pain that starts on the day before the menstrual period and/or the first day of the menstrual period)(8). The pain of dysmenorrhea was assessed on its severity and impact on college absenteeism and categorized as mild, moderate, or severe.

Premenstrual syndrome (PMS) was assessed. PMS is defined as cyclic appearance of a large number of symptoms during the last 7-10 days of the menstrual cycle, regularly occurring in each ovulatory cycle, severe enough to disturb the life-style of the woman, not related to any organic cause, and with a symptom-free period during the rest of the cycle (9). The questionnaire also included questions related to PMS symptoms, such as headache, breast tenderness, bloating, irritability, mood

lability, anxiety, depression, food craving, sleep changes, altered daily activities and fatigue. Also questions about drug taking, smoking, family histories of dysmenorrhea, past medical and surgical histories were included.

Each respondent was asked for verbal consent after explaining each question along with the purpose of the study. They were assured that confidentiality of their response was totally ensured. Each respondent was given 20 - 40 minutes to complete the questionnaire.

Following the completion of the questionnaire any participant with unknown body weight and/or height, was measured immediately. Body weight (BW) was measured using domestic scales and body height (BH) was measured using a meter rule, and body mass index (BMI) was calculated using the formula

$$= \frac{BW}{BH^2} \left( \frac{kg}{m^2} \right)$$

The results were categorized according to WHO criteria: BMI < 18.5 kg/m<sup>2</sup> was considered underweight; 18.5 - 24.9 kg/m<sup>2</sup> was considered normal; 25 - 29.9 kg/m<sup>2</sup> was considered overweight, and > 30kg/m<sup>2</sup> was considered obese (10).

**Statistical analysis :** The data obtained from the questionnaires was entered into statistical analysis program using SPSS (Chicago, USA). Frequency distributions have been run for each variable on the questionnaire. All values were expressed in percentage or mean and standard deviation as appropriate. The Chi-square test is used as a measure of different association. P value of < 0.5 is considered statistically significant.

## Results

A total of 116 female medical students completed the questionnaire yielding the response rate of 96.7% (116/120) of participants, distributed among 4th, 5th and 6th medical years. Their age ranged from 22-

27 years with a mean age of 22.45 ± 5.13 years. 4.6% of the subjects were underweight, and 10.3% were overweight. The mean age of menarche was 12.65 ± 1.16 (Table 1 - next page).

In 10.3% of subjects, the cycle intervals were less than 21 days while 14.65% had more than 35 days. The cycle length was less than 2 days in 11.2% and more than 7 days in 35.3% of subjects. The prevalence of dysmenorrhea was 72.4%. Of those, 14.2% had severe pain. The prevalence of self-reported PMS was 24.13%. Absenteeism from college was reported in 42 female medical students (36.2%) and the mean number of absent days was 2.1 ± 0.9 days. All women who self-reported severe dysmenorrheic pain had a family history of dysmenorrhea. Absenteeism was related to the severity of dysmenorrhea. Table 2 (page 35) summarizes the menstrual status of the study population.

Table 3 (page 35) shows the frequency of PMS symptoms. Among the general symptoms, the most frequent symptoms were fatigue (62.9%), backache (27.6%), and headache (24.1%). Among the CNS symptoms, the most frequent symptoms were mood changes (25.9%), depression (23.2%) and irritability (19%). Menorrhagia was present in 35.3% of cases. Only 53.6% of those having a negative attitude towards menses had PMS.

## Discussion

The commonest menstrual cycle abnormality found in our study was dysmenorrhea in 72.4% of participants. Our results are consistent with other studies (4,7). However, in this study more than half of students (n = 46) had self-reported that the intensity of dysmenorrheic pain was moderate which is considered higher than described by Singh A and colleagues (11) who reported that only 22.4% had moderate pain. The discrepancy was probably due to the difference in the subjective appreciation of the pain severity among female medical students. Furthermore, the age of

Variable	Mean ± SD or N (%) (ranges)
Mean age, years	22.45 ± 5.13 (22 – 27)
Mean age of menarche, years	12.56 ± 1.16 (10 – 15)
BMI (kg/m <sup>2</sup> )	
< 18.5	17 (4.6)
18.5 – 24.9	87 (75)
25 – 29.9	12 (10.3)
≥ 30	0
Medical year	
4 <sup>th</sup>	39 (33.6)
5 <sup>th</sup>	38 (32.7)
6 <sup>th</sup>	39 (33.6)
Family income status	
Good	13 (11.2)
Middle	85 (73.3)
Bad	18 (15.5)
Smoking	3 (2.3)
Attitude toward menses	
Negative	72 (62)
Indifferent	33 (28.4)
Positive	11 (9.5)
Family history of dysmenorrhea	
Positive	19 (16.4)
Negative	97 (83.6)

Table 1:  
Population  
characteristics

our population ranged between 22 - 27 years; that is considered higher than 17 - 25 years in the mentioned study, taking into account that the prevalence of dysmenorrhea falls with increasing age (8). The point of interest is that all students with severe dysmenorrhic pain had a family history of dysmenorrhea. Some researchers have ascribed such an association in part to behavior learning from mothers (12). An association between menstrual problems including dysmenorrhea and smoking has been suggested (11). Also the same is true for individuals from an affluent society (9). Nevertheless, the percentage of

students who smoked in this survey was 2.3% which is considered too low to derive any conclusion. The other related factors likely to provoke dysmenorrhea such as coffee, chocolate consumption or physical exercise were not assessed because they were never practiced regularly among our sample. However, we did not find correlation between overweight and dysmenorrhea. In this respect, many studies found no evidence of such an association (13).

The prevalence of self-reported PMS (24.13%) in the present study is comparable to other studies (14). However, it is reported that up to 75%

of women experience some recurrent PMS symptoms; 20 - 40% are mentally or physically incapacitated to some degree; and 5% experience severe distress (15). The mood changes, depression, mastalgia, headache and fatigue were the most frequent symptoms noted in this survey, which were similar to other studies (14). In this analysis we could not confirm the diagnosis of PMS because of the need for daily prospective charting symptoms in the luteal phase for at least 2-3 cycles. The etiology of PMS remains unknown, but fundamentally it is due to hormone fluctuation during the menstrual cycle which in turn results

Variable	Mean ± SD or N (%)
Cycle interval, day	
< 21	12 (10.3)
21 – 35	87 (75)
> 35	17 (14.65)
Length of flow, day	
< 2	13 (11.2)
2 – 7	62 (53.4)
> 7	41 (35.3)
Dysmenorrhea	84 (72.4)
Degree of pain	
Mild	26 (31)
Moderate	46 (54.8)
Severe	12 (14.2)
Taking medications	96 (82.8)
PMS	28 (24.3)
Sickness absenteeism	42 (36.2)
Mean no. days of absenteeism	2.1 ± 0.9

Table 2: Menstrual cycle characteristics

Variable	N (%)
<b>General</b>	
Mastalgia	27 (23.23)
Food craving	23 (19.8)
Weight gain	21 (18.1)
Fatigue	73 (62.9)
Headache	28 (24.1)
Backache	32 (27.6)
<b>CNS</b>	
Irritability	22 (19)
Depression	27 (23.2)
Anxiety	10 (8.6)
Mood changes	30 (25.9)
<b>GIT</b>	
Bloating	17 (14.7)
Diarrhea	7 (6)

Table 3: Symptoms of PMS

in a complex interaction between ovarian steroid hormones and central nervous system neurotransmitters such as GABA and serotonin (15). However, the relationship between PMS and psychological factors, psychiatric disorders and particular personality type has been investigated and the results showed high prevalence of PMS in these subgroups of women (16). We could not identify what factors provoke PMS symptoms in our study population. It is likely that the constant strain encountered during the training course may trigger several emotional changes which might become excessive, and thereby causing increasing vulnerability to disturbances such as depression or mood changes. Alternatively, the burden of medical study could likely affect some of the students to become more sensitive even to a minor stress. Therefore, they respond to the menstrual cycle stimuli in an accentuated way. However, our speculation needs to be validated through further studies. It is reported that the prevalence of PMS is higher in nurses with younger age, nulligravida, lower income, more coffee consumption, dysmenorrhea, and negative attitude toward menstruation (14). In our study, negative attitude was present in 15/28 (53.6%) of cases having PMS.

It suggests that the negative attitude is not necessarily a reflection of severe menstrual symptoms experienced but rather to the menstruation itself which may interfere with the women's daily life style.

The third common finding reported in this survey was menorrhagia which was found in 35.3%. It is similar to the results of another study (17).

The problem of college training absenteeism was present in 36.2% of our study population. Our finding is in line with another study which reported that the rate of absenteeism in young women ranges between 34 - 50% (13). Apparently, this rate was directly related to the severity of dysmenorrheic pain and PMS complaints. Clearly, the students' training education, and performance may be significantly affected. Though menstrual patterns are influenced by a number of host and environmental factors (13), lack of education about menstrual physiology and processes widely prevails in the developing countries. The misconception about menses as an unpleasant health problem will likely accentuate the menstrual symptoms and periodic outbursts. Therefore, the early adequate and sound education and preparation of young girls for menstruation could decrease their sensitivity and fear, and enhance their adaptive mechanism, which thus helps alleviate the menstrual discomforts and prevents missing work.

The limitations of this study are: firstly, it was conducted in a single-center of one university, so it may not represent all Yemeni female medical students. Moreover, the age of our targeted sample was low, ranging between 22-27 years old, thus the comparability with all women in the country is considered weak. Secondly, this study was a cross-sectional survey, therefore, precluding both the inferences of the causes and the proved diagnosis of the associated variables. The last limitation was the self-reporting of the symptoms and the severity of pain which may have resulted in under - or - over-reporting of the conditions.

## Conclusion

During their study, female medical students have been shown to have several menstrual cycle problems. Dysmenorrhea, PMS, and menorrhagia are commonly reported in this study. Sickness absenteeism from the college is the most significant sequel which results in disruption of the student's training and academic performance.

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# Practical Challenges of Setting Up an Electronic Medical Record System in a Nigerian Tertiary Hospital: The Wesley Guild Hospital Experience

**Babatunde Ishola Awokola (1)**  
**Emmanuel Akintunde Abioye-Kuteyi (2)**  
**Okubokekeme Otoru Otoru (3)**  
**Olanrewaju Oloyede Oyegbade (4)**  
**Endurance Oghenerukevwe Awokola (5)**  
**Oluwajinmisayo Adigun Awokola (6)**  
**Ikechi Tamunotonye Ezeoma (7)**

(1) Dr AWOKOLA, Babatunde Ishola MB; BS (Ibadan), MWACP (Family Medicine), MAAFP Senior Registrar, Department Of Family Medicine, Obafemi Awolowo University Teaching Hospitals Complex, Wesley Guild Hospital Unit, Ilesa, Osun State, Nigeria

(2) Dr ABIOYE-KUTEYI, Emmanuel Akintunde, MB; BS (Ibadan), FWACP (FM), FMCfM, FRACGP, FACRRM, MPH, Consultant Family Physician, Department Of Family Medicine And Associate Professor, Department Of Community Medicine, Obafemi Awolowo University Teaching Hospital Complex, Wesley Guild Hospital Unit, Ilesha, Osun State, Nigeria

(3) Dr OTORU, Okubokekeme Otoru, MB; BS (Ibadan), MWACP (Family Medicine) Senior Registrar and Chief Resident, Department Of Family Medicine, Obafemi Awolowo University Teaching Hospitals Complex, Wesley Guild Hospital Unit, Ilesa, Osun State, Nigeria

(4) Dr OYEGBADE, Olanrewaju Oloyede, MB ChB (Ife), FWACP Consultant Family Physician, Department Of Family Medicine, Obafemi Awolowo University Teaching Hospitals Complex, Wesley Guild Hospital Unit, Ilesa, Osun State, Nigeria

(5) Mrs AWOKOLA, Endurance Oghenerukevwe, BSc. (Computer Science), MSc. (Computer Science), Administrator, Andrew Pearson Research, Resource and Skill Training Centre, Wesley Guild Hospital Unit, Obafemi Awolowo University Teaching Hospitals Complex, Ilesa, Osun State, Nigeria

(6) Mr. AWOKOLA, Oluwajinmisayo Adigun, B Tech. (Computer Science & Engineering), M.Tech. (Computer Science & Engineering) Lecturer Assistant, Department of Computer Science and Engineering, Ladoke Akintola University of Technology, Ogbomosho, Osun State, Nigeria

(7) Dr EZEOMA, Ikechi Tamunotonye, MB BS (Nsukka), FMCGP, Head and Consultant Family Physician, Department Of Family Medicine, Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Osun State, Nigeria

## Correspondence:

Dr AWOKOLA, Babatunde Ishola  
 MB; BS (Ibadan), MWACP (Family Medicine), MAAFP  
 Senior Registrar,  
 Department Of Family Medicine,  
 Obafemi Awolowo University Teaching Hospitals Complex,  
 Wesley Guild Hospital Unit,  
 Ilesa, Osun State, Nigeria  
 +2348069117354

**Email:** tundeawokola@yahoo.com

## Abstract

There are innovative informatics solutions made for efficient healthcare delivery and electronic medical record system (EMR) is one of such. The immense opportunities it holds for efficient patient care, hospital economics, clinical audit and medical research affirms its superiority over paper-based records.

However, implementing functioning EMRs in environments like ours is fraught with many practical and peculiar challenges. Using the experience garnered from the Wesley Guild Hospital EMR project, this paper highlights these challenges and how some of them were overcome. Our aim is to sensitize other workers interested in doing similar projects in this environment about the likely challenges they might face.

**Key words:** Electronic medical records, Practical, Challenges

### Introduction

Health records exist in basically two formats: Paper records or electronic records. The former can be hospital based or home based (patient-held) while the latter are hospital based. An electronic medical record (EMR) is a medical record in digital format which facilitates access of patient data by clinical staff at any given location(1). This unique quality of EMRs is that they are accompanied by facilities for clinical notes, automated checks for drug and allergy interactions, prescriptions, scheduling, sending to and viewing by laboratories, to mention a few uses. EMRs today evolved from simpler less sophisticated systems which date back to the 1960s. A good example of such is the problem oriented medical record system developed at the University of Vermont in the United States(1, 2).

Electronic records in healthcare are quite useful in some areas: Keeping patient records, facilitating the doctor-patient consultation process (Documentation, Health/drug information/databases, Prompts, Prescribing, Referrals and Investigation requests), helping with patient management (Clinical trends - growth monitoring, Weight, BMI, blood pressure, Drug interaction, Recalls and follow-up), practice management, health records management (statistics) and health research(3).

It is widely accepted that EMRs are superior to paper based records. This is mainly attributed to the non-availability of "multiple access" to paper records i.e. only one person or one group of people can access one paper case note per unit time. Also, natural elements easily affect paper, for example, water, fire, wind and sunlight.(1,5)

Transition from paper based records to EMR, addition of older records to existing EMRs, preservation of electronic records and interoperability are common issues of interest when dealing with EMRs. Bearing in mind the recalcitrant attitude of people to change, willingness to embrace this newer patient record method poses a challenge. Other challenges to be borne in mind are privacy, technological limitations, customization and social/organizational barriers.

Even though the overall global acceptance of EMRs is generally good, utilization of the latter is extremely low in developing countries and even unimpressive in some developed parts of the world. In a 2005 United States National Centre for Health Statistics survey, 41% of office based physicians had no plans of adopting an EMR system within the next 3 years(1). The latter is not surprising given the enormous challenges that have to be surmounted in order to get an EMR system working, especially in a developing nation. These challenges and the solutions to some of them, informed this write up.

### HISTORY OF EMRs

History of EMRs dates back to the 1960s when Lawrence L. Weed, an American physician, first described the concept of electronic medical records (which he called computerized medical record). His focus was on creating a system to automate and reorganize patient medical records in order to enhance their utilization and thereby lead to improved patient care(2). His work formed the basis of a project whose objectives was to provide timely and sequential patient data to the physician, and enable the rapid collection of data for epidemiological studies, medical audits and business audits. This was the PROMIS project in the University of Vermont and it started in 1967. Problem Oriented Medical Record (POMR) emerged from this.

In the 1960s the Mayo clinic also began developing electronic medical record systems. In 1970, POMR was first used in a medical ward of the medical centre hospital of Vermont.(1,3)

During the 1970s and 1980s, several EMR systems were developed and further refined by various academic and research institutions e.g. Harvard's COSTAR system, Duke's "The Medical Record" and Indiana's Regenstrief record are a few of these examples(1,2).

### DOCUMENTED PRACTICAL EMR ISSUES

#### Transition from paper based records to EMRs

This is a very important process as both human and computer wares are involved; human ware with regards to acceptance of and proficiency in the use of EMRs and computer ware with regards to appropriate software and hardware (4).

#### Adding older medical records to EMRs

This ensures a comprehensive health record for any health establishment; needless to say, it is a very expensive and rigorous exercise (2, 4).

### Preserving electronic records

This becomes paramount as a backup measure in case of a break down in the system. Planned periodic migration of information is involved here(6).

### Interoperability

This is the ability of various information technology systems and software applications to communicate and to exchange data accurately, effectively and consistently and to use the information obtained. Without interoperable EMRs, practicing physicians, pharmacists and hospitals cannot share and access patient information which is necessary for portable health care(4,5) .

### COMMONLY AVAILABLE EMRs

Below are examples of available EMR systems/software currently in use globally

**(a) SOAPware®** - This is used in more than 60 specialties over 27 different countries. It is a leading EMR in use among family physicians and internists in the United States according to a multicentre study by Medical Economics magazine.

**(b) OmniMD®** - A registered product of ISM incorporated, an American medical solution providing company. Facilities available on it are billing system, medical calculators, prescription writer, and patient reminders, to mention a few.

**(c) OpenMRS®** - This is a disease specific medical record system specially designed for HIV/AIDS records in developing countries. It was first put to use at Indiana University teaching hospital, Kenya.

### PRACTICAL CHALLENGES OF SETTING UP AN EMR SYSTEM IN WESLEY GUILD HOSPITAL

#### Background

Wesley Guild hospital is one of the six hospitals now remaining in the Obafemi Awolowo University Teaching Hospitals Complex. The Ife State hospital is the largest of these. Located in Ilesa, a town in South Western Nigeria, Wesley Guild Hospital started as a Methodist

missionary hospital in March 1912 with one doctor and two non-medical assistants. The hospital now has specialist doctors in all orthodox subspecialties of Medicine on its service. These specialties are medicine, surgery, paediatrics, obstetrics and gynaecology, haematology, microbiology, chemical pathology, morbid anatomy, infectious disease, radiology, ophthalmology, anaesthesia, emergency medicine and family medicine.

The Family Medicine department is principally responsible for the care of all the outpatients coming into the hospital for the first time. They see such patients, continue the care for people with uncomplicated diseases, carry out minor surgical procedures and refer those with complicated disease conditions requiring hospital admission to the respective subspecialist. The Family Medicine clinic runs Monday to Friday between 8:00am and 4:00pm and two doctors are left on duty from 4:00pm to 8:00am on call basis. In this background of much patient turn over, the Family Medicine department was selected for showcasing the numerous advantages of the EMR system over paper records. The Challenges encountered and the solutions provided are as written below.

#### Procuring the Software

Software used in healthcare establishments is very expensive. A basic EMR costs about \$32,000 (an equivalent of four million, eight hundred thousand naira) excluding technical support and ongoing maintenance. In an American survey, it was said that it takes 9 months of hard work for the EMR installation costs to be recovered by an office practice. The hospital management, though benevolent in a number of other ways, did not see this as a priority. This is not peculiar to Obafemi Awolowo University Teaching Hospitals Complex as a number of other teaching hospitals have experienced the same thing at different times.

As a result, we had to search for an alternative means. Facilitated by a

Family Medicine faculty member, Communicare® Systems Pty Ltd in Leeming Western Australia gave conditional permission for free professional use in Nigeria. Hence, Wesley Guild Hospital in Ilesa Nigeria became the first Nigerian hospital to use Communicare®. Communicare is a computer resident medical records database. It was specifically designed for primary health care providers that service a defined community and for entities that provide preventative health care, such as Community Health Centres.

Communicare's emphasis is on preventive and managed health care. It provides a comprehensive recall system. It can be used as a recall only system, recording only medical information required to produce recalls. Communicare provides reports for individual patients and community based reporting, such as coverage of the target population for preventive health care procedures.

#### Special features include

- Medical records by patient
- Automated recalls based on age, sex, date of preceding events and patient conditions
- Explicit support for the following classes of information; admissions, conditions, acute medication chronic medications, history items, immunizations, procedures and referrals
- Recording of qualifiers and test results
- Statistical analysis
- Information grouped into medically significant categories (topics)
- Service recording or clinic attendance summary recording
- Prescribing, including generic prescribing
- Progress notes
- Patients register with multiple patient names and history of patient addresses for a patient.

#### Technical Limitations (Skilled Information technology Manpower Availability)

This posed another serious challenge, bearing in mind the practice location of our premises. Getting someone to network all our clinic computers was a formidable

task. There were many options but most were beyond the reach of funds available in our departmental purse. After months of searching, an electronic technician eventually agreed to do a cabled networking of our computers.

There are twelve computers in all; one in the records room, one at the nurses' station and ten on the doctors' table.

Following this initial installation, maintenance checks and repairs were always months behind schedule thus hampering the use of the EMR system for these periods of time. A few of the department doctors (I inclusive) are interested in networking but time to acquire the full competencies is not very available. As a result we have to make do with the technician we work with, while doing the little we know how to do. By and large, we usually get by.

#### Poor electricity supply

For many months, we could not use the EMR consistently because of constant power outage. On some occasions, the power packs in some central processing units of the table-top computers got damaged and had to be replaced. Due to the peculiarity of our facility, the alternative power source serves highly electricity dependent areas of the hospital like the operating theatre and the radiology department as a matter of preference.

This challenge was circumvented by acquiring two 2KVA inverters and four 50Amps deep-cycle batteries. The power wiring was done in such a way that one inverter and two deep-cycle batteries power 6 computers. The inverters have an intrinsic battery charger that charges the deep-cycle batteries which stores the charge when alternating current (AC) source power is available. When electricity is unavailable, the inverter switches into invert mode and converts the stored charges to AC which powers all the computers, making it possible for us to use the EMR.

#### Organizational Barriers (EMR Utilization by the health workers)

Wesley Guild Hospital is the fifth oldest hospital in Nigeria, with successive generations of doctors, nurses and other health workers well grounded in the traditional art of health record keeping with pen and paper. When the EMR first came, the head nurse of the Family Practice clinic was of the opinion that the system will most likely not work. Considering the fact that five out of the six nurses are not computer literate, her pronouncement might not be far from the truth. Even though the entire doctors have operational computer-based competencies, changing from paper based records to EMR has been a very difficult process. This can be attributed to the fact that they were all trained with paper based training aids.

Appointment of EMR support staff who helped convert the former paper records to electronic records while helping out with imputing of new patient records was our way of rising up to this challenge. As time went by, all cadres of health staff developed more interest in the EMR. Though the utilization improved, this is much less than expected.

Accessing remote assistance  
Part of the terms and conditions of installing many types of software is to connect the internet for activation, validation, update or troubleshooting. In order for this to be done successfully, uninterrupted internet connection with sufficient bandwidth and download speed is needed. In fact, for Communicare® to be installed on every computer CPU, one has to connect to the internet after inserting the installation disc into the CD Drive. This has to be repeated for every CPU. An internet connection with a bandwidth sufficient enough to sustain this was a very big challenge. This might not be unrelated to our location (Ilesha, Nigeria) as most broadband internet operators consider Ilesha a non-lucrative market for setting up. This challenge was circumvented by the efforts of one of the department's Consultant who carried the CPUs to his home in another town (a

more cosmopolitan town) where he successfully accessed remote assistance for installing the software.

#### Conclusion

Electronic medical records have come to stay in today's medical practice. Needless to say, they offers numerous advantages and care enhancing facilities that the tradition paper-based records do not offer.

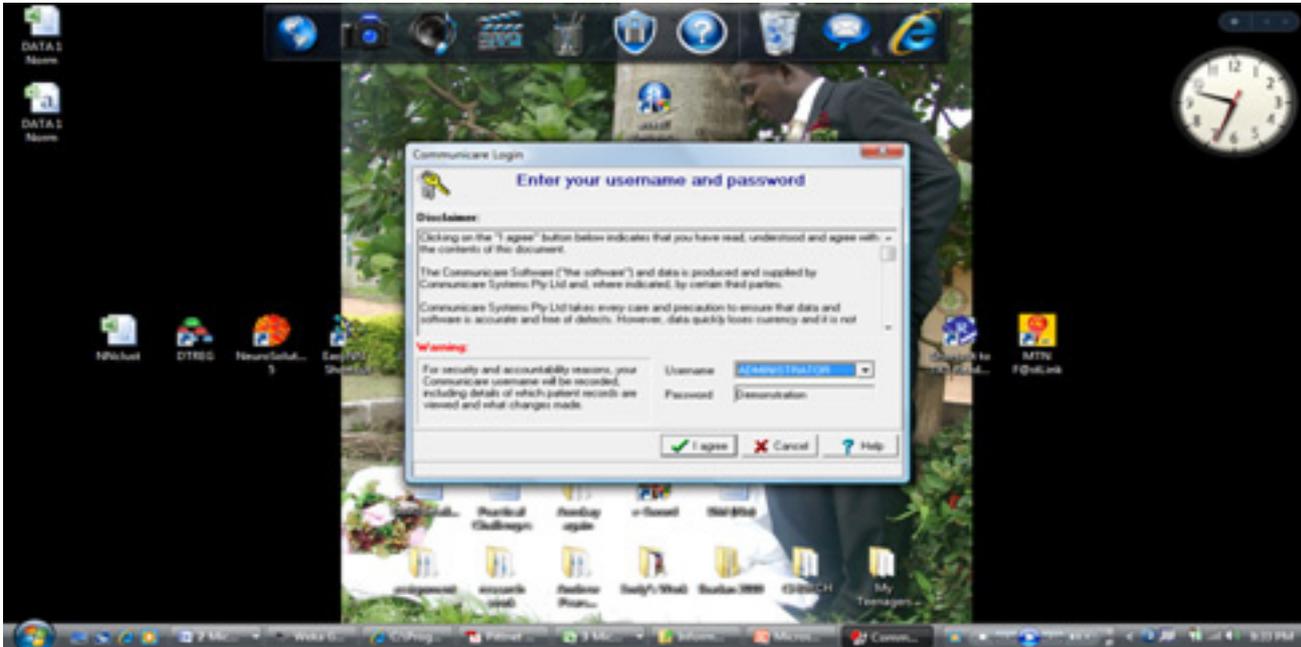
However, the successful execution and continued sustainability of EMR projects in Nigeria is plagued by many challenges which every project team needs to be aware of. If such projects are to succeed in environments like ours, we need to preempt these challenges and proffer practical and effective solutions to them.

#### ACKNOWLEDGEMENTS

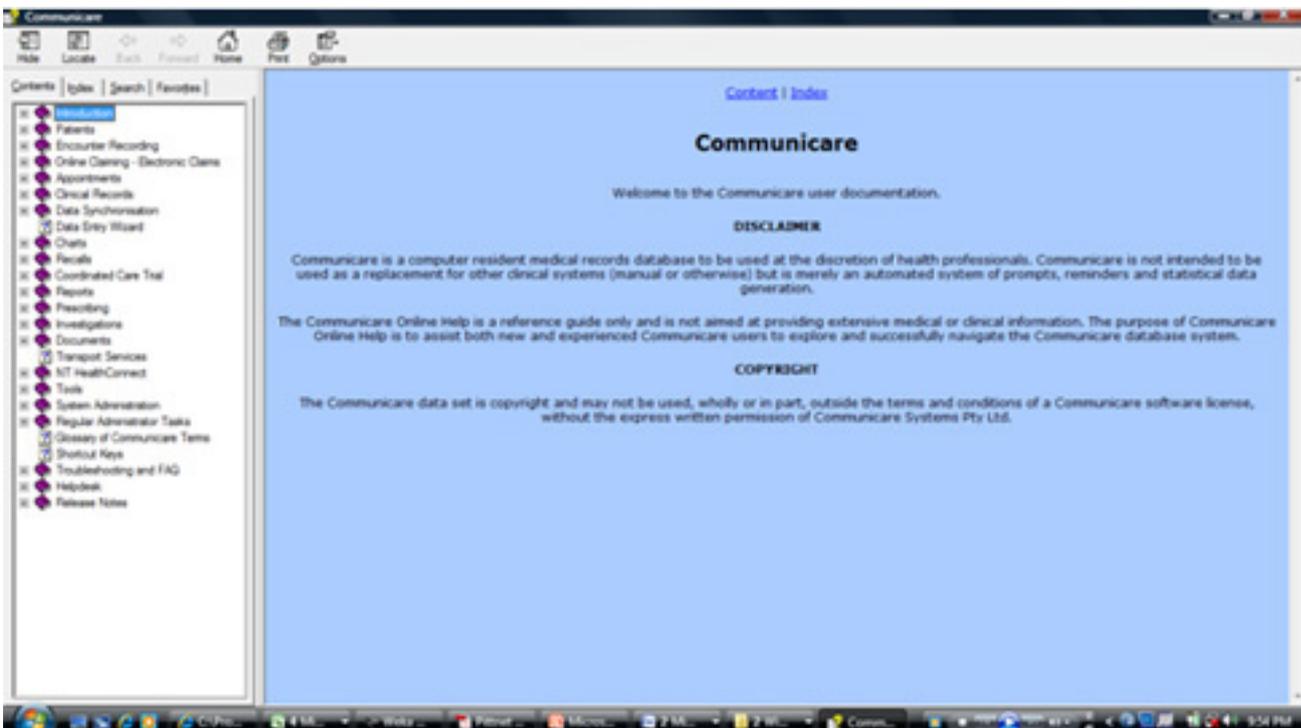
The authors hereby acknowledge the support of Mr. Bryan Dustan and the entire staff of Communicare® Systems Pty Ltd in Leeming, Western Australia for giving conditional permission for free professional use of communicate® in Nigeria and for the numerous free remote assistance for network errors from time to time.

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APPENDIX 1- Communicare Log In Page



APPENDIX 2 - Communicare® Disclaimer Page



APPENDIX 3 - A 2 Kva Inverter with Intrinsic Battery Charger



APPENDIX 4 - Two Emerson® 50 Ampere Deep-Cycle Batteries

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## CME Case #1

(CME is best done online at [www.mejfm.com](http://www.mejfm.com) where it is available in interactive format)



Manzoor is a 53 year old man who has been coming to the outpatient department of your district general hospital, on and off for several years. He describes himself as suffering from 'lack of air' and takes salbutamol tablets 4mg tds. He complains of shortness of breath and wheeze on exertion, worse going uphill but also on the flat for the past 1 year. He has had a chronic cough for about 4 years, usually bringing up white sputum, occasionally yellow. He has no history of fever.

(Answers and feedback to each question start on page 43 but answers may contain further history so check each answer as you go.)

### Question 1

What is your differential diagnosis?

.....

### Question 2

How would you confirm that Manzoor truly has COPD rather than asthma or cardiac failure?

.....

### Case progression

On examination Manzoor is not cyanosed or breathless at rest. He has no clubbing. Auscultation of his chest reveals a few scattered wheezes and no crepitations.

### Question 3

You decide that Manzoor has COPD. How would you grade the severity of his COPD?

.....

### Question 4

What medication would you prescribe for Manzoor, who has severe COPD, GOLD 3?

.....

### Case progression

Manzoor says that he doesn't want to use an inhaler as it is expensive and it means he will need life long treatment.

### Question 5

How will you respond to these concerns?

.....

### Question 6

What would be particularly important to ask Manzoor, in terms of preventing progression of his COPD?

.....

**Author's answer 1**

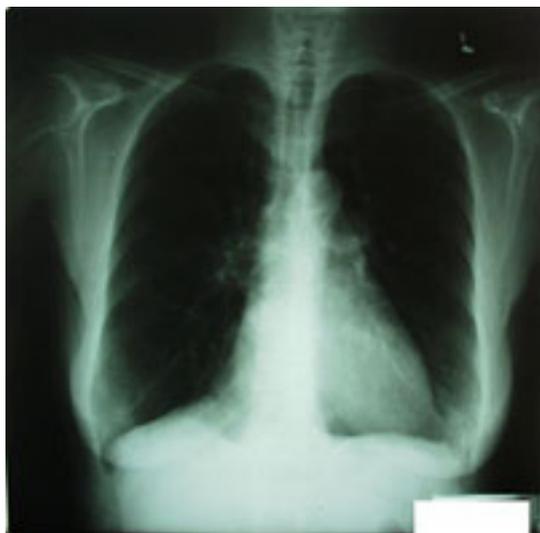
COPD  
 Chronic asthma  
 Cardiac failure  
 TB (though less likely with this history)  
 Restrictive lung disease

**Author's Answer 2**

The best way of distinguishing between COPD, asthma and restrictive lung disease is spirometry if this is available. The history and examination are also important.

Usually in asthma there is a history of episodes of good health with no respiratory symptoms, while in COPD the symptoms are more persistent. Responsiveness to bronchodilators is also helpful. A peak flow meter is a simple, inexpensive tool with which to assess lung function. Peak flow should be measured, then salbutamol inhaler is given via a spacer and after 20 minutes the peak flow is again measured. In COPD, airflow obstruction is only partially responsive to bronchodilators and improvement in peak flow is less than 20%. In asthma, there is usually a greater than 20% improvement. See video of how to use a Peak Flow Meter in the Video Resources section on this CD.

In distinguishing between COPD and cardiac failure, a clear history of orthopnoea, together with a raised JVP is more suggestive of cardiac failure. In COPD, the chest may also be hyper-inflated "barrel-shaped". A Chest X-ray may also show typical changes of COPD with hyperinflation, flattened diaphragms and few vascular markings.



Compare this X-ray, with that of a patient with cardiac failure, (top next column)

**Author's Answer 3**

Manzoor has shortness of breath on exertion, worse going uphill but also on the flat for the past 1 year. He has had a chronic cough for about 4 years, usually bringing up white sputum, occasionally yellow. This history, together with the clinical examination, suggest that he has severe COPD, "GOLD 3".

Internationally COPD is graded using the GOLD classification. This can be done using spirometry to assess FEV<sub>1</sub>, but also according to clinical symptoms and signs:

**GOLD 1/2 : Mild/moderate COPD**

Cough with white sputum, little or no exertional breathlessness, no abnormal signs.  
 FEV<sub>1</sub> 50 – 80% predicted value

**GOLD 3: Severe COPD**

Cough +/- sputum. Breathlessness/wheeze on exertion, some abnormal signs.  
 FEV<sub>1</sub> 30 – 50% predicted value

**GOLD 4: Very severe COPD**

Prominent wheeze and cough, clinical over-inflation, cyanosis. (some pts have oedema and polycythaemia), cachexia, arrhythmias, poor exercise tolerance.

The main purpose of classifying severity of COPD is to help decide which is the most appropriate treatment.

**Author's Answer 4**

The mainstay of treatment in COPD is inhaled bronchodilator therapy. Oral salbutamol is a very poor alternative, due to the higher incidence of side effects and the lower effectiveness.

For severe COPD the following inhaled therapies have been shown in extensive trials to be effective in improving symptoms, quality of life, FEV<sub>1</sub> and reducing exacerbation rates:

1. Inhaled Beta 2 agonists (e.g. Salbutamol 2puffs 4 times per day)
2. Inhaled Long acting beta 2 agonists e.g. Salmeterol (available in Nepal)
3. Inhaled anticholinergics (e.g. ipratropium bromide 2 puffs 4 times per day)
4. Inhaled long acting anticholinergics e.g. tiotropium

Therapy in COPD is usually added in a sequential manner, gradually stepping up the number of medications used (unlike in asthma where there is a step up and then step down approach).

Inhaled corticosteroids play a less key role in COPD than they do in asthma. Inhaled corticosteroids are usually added in to therapy for patients with very severe COPD (GOLD 4).

There is no role for long term oral steroids in the management of COPD. Oral steroids increase overall morbidity and mortality and should only be used in short courses in the treatment of acute exacerbations of COPD.

The role of theophyllines (e.g. aminophylline and deriphylline) is under some debate due to problems with side effects. However, in the context of Nepal, oral theophyllines have a useful role to play in severe and very severe COPD.

In very severe COPD, domiciliary oxygen plays an important role in prolonging survival. It also helps with symptoms caused by nocturnal hypoxia. However, in order to be effective it should be used for at least 18 hours per day.

#### Author's Answer 5

The patient's concerns should always be taken seriously, so listen first to what Manzoor has to say. Find out what his previous experiences with inhalers have been like (either his own use or a family member).

In fact, a long acting beta agonist such as inhaled salmeterol, costs around 120RS and if used twice daily it will last 2-3 months. A months supply of oral salbutamol costs around 30 RS, or 90RS for 3 months. In addition, while using salmeterol Manzoor should notice an improvement in his ability to walk and work.

All patients with COPD need to understand that they have a chronic disease that will not go away with a "short course" of treatment. They will need life long treatment, but this treatment will help them feel better and be stronger – it is not addictive.

Inhaled therapy is only of use if the patient's inhaler technique is adequate. You must demonstrate to the patient how to use his inhaler, or make sure that someone in your pharmacy does. Where patients are unable to coordinate their breathing to use an inhaler properly then they should be prescribed a spacer device. In the District setting a spacer can be improvised by using a plastic mineral water bottle and cutting a hole in the base in which to insert the inhaler mouthpiece.

#### Author's Answer 6

Smoking cessation.

If patients stop smoking early in their disease there is improvement in pulmonary function. No matter how

severe their disease, stopping smoking will reduce cough and slow the rate of decline in pulmonary function to that of non-smokers. It is always worthwhile stopping smoking.

Much COPD is caused not by smoking, but by chronic inhalation of wood smoke from household fires. Patients should be counseled to avoid smoke wherever possible and to try and ventilate their homes better. Smokeless stoves are now available and in some places Gobar gas is a viable alternative.

Patients with severe and very severe COPD should periodically have their haematocrit checked, looking for polycythaemia. Polycythaemia causes hyperviscosity leading to symptoms of somnolence, lethargy, headache and poor concentration. Patients with a haematocrit of >55 should have venesection to address these symptoms and improve quality of life.

#### Case summary:

COPD is a major cause of morbidity and mortality.

Smoking cessation (or avoidance of wood cooking fires) is a key area to address to slow the rate of disease progression.

Inhaled bronchodilators are the cornerstone of therapy, which should be increased in a sequential manner after assessing the level of severity of disease.

Patients need to be taught how to use their inhaler properly.

The severity of COPD should be assessed using the GOLD classification system, in order to direct therapy.

Care should be taken to distinguish between COPD and asthma, as the treatment is very different.

COPD is a chronic disease and requires long term review and follow-up.

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