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From the Editor

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In this issue of the journal papers discuss various topics from the region and from Africa. A prospective case control study from the Gulf Medical University in Ajman looked at Plasma Homocysteine and other biochemical parameters in Gestational Diabetes Mellitus. A total of 62 pregnant women with uncomplicated pregnancies, between 24 and 28 weeks of gestation were included in the study. Fasting plasma Glucose level and Body mass index of the GDM group was significantly higher compared to the control group. The authors concluded that Homocysteine, Cholesterol, Triacylglycerol, Uric acid and Creatinine levels were significantly elevated in GDM compared to normal pregnant women.

Distress including anxiety and depression is an important psychological adjustment measure in stressful working settings such as the oil production industry. A cross-sectional study from Kuwait looked at the Association of Demographic and Work-Related Factors with Psychological Distress among Oil Workers. The sample consisted of a sample of 2123 workers selected by stratified random sampling scheme from 10 oil companies in Kuwait. The workers were invited to complete a self-administered questionnaire. The authors concluded that Sociodemographic and work-related variables are associated with psychological distress. Controlling workers' demographic correlates, and adjusting working conditions might reduce the levels of anxiety and depression among oil workers.

A paper from King Hussein Medical Center presented the gender, age distribution and histopathological profile of colorectal cancers seen at, Amman, Jordan. The study group consisted of 141 colorectal cancer specimens that were examined in the department. The study showed a relatively younger mean age, and high incidence of acute presentations. This should enforce the efforts for screening programs and introduction of a comprehensive colorectal cancer education program for the population via an efficient use of the press and audiovisual media.

A review paper from Saudi Arabia looked at situation Analysis of School Health Services in Saudi Arabia and proposal for an application of a Four Quadrant School Health Model. This review paper is an effort to look into detail at the existence of school health services in Saudi Arabia and reviewed the available school health models. It also proposes a four quadrant school health model which describes the school health plans and strategies to be implemented easily with limited resources. The evidence suggests that improved health services through joint efforts of multiple agencies shape healthy living, decrease chronic diseases, increase longevity and eventually enhance teaching and learning performance.

A paper from Jordan looked at Developmental Hip Dislocation among infants at King Hussein Medical Center. The aim of the author is to compare the clinical, radiological and sonographic role in the diagnosis of developmental hip dislocation (DDH). The authors conclude that Pelvis X-ray done at the age > 3 months is superior and more sensitive than the clinical examination done at the clinic. Pelvis U/S offers the best diagnostic tool for DDH in a high risk group even at this late age group (3-6 months).

A descriptive cross-sectional study in a Nigerian community was conducted among Medical Practitioners aimed at assessing the awareness and practice of evidence-based medicine. Most respondents were aware of evidence-based medicine and also practiced it. There is need for Medical Practitioners to avail themselves of the opportunity for evidence- based medicine in spite of their tight schedule.

A descriptive study from the nursing school in Irbid looked at Barriers to Breast Cancer Screening among Women. A sample of 1586 Jordanian women aged > 35 years and with absence of prior or current history of breast cancer who attended the family medicine clinic were selected. The results of this study shows that the best approach to reduce mortality associated with breast cancer is screening and early detection, because its etiology remains uncertain. There is a need for a health educational program regarding screening for such groups of patients so as to increase the awareness of women about the importance of screening and repeating this study using qualitative method to explore more barriers, as well as finding alternative solutions is of paramount importance.

Association of Demographic and Work-Related Factors with Psychological Distress among Oil Workers in Kuwait

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Abbreviations

HSCL	Hopkins symptom checklist
SD	Standard deviation
K.D.	Kuwaiti dinar 3.3 US $
r	Pearson correlation coefficient

Introduction

Psychological adjustment of oil workers
Anxiety and depression are important psychological adjustment measures in stressful working settings such as the oil production industry. The absence of symptoms of anxiety and/or depression among workers may be considered as a sign of positive psychological adjustment. The self-report mode of psychological measurement possesses unique

Abstract

Distress, including anxiety and depression, is an important psychological adjustment measure in a stressful work setting such as the oil production industry. Among the factors that can influence psychological distress are demographic and work-related conditions. The objective of the present study was to explore anxiety and depression among oil workers, and examine the relationships with sociodemographic characteristics and work-related factors.

A cross-sectional study was conducted on a sample of 2123 workers selected by a stratified random sampling scheme from 10 oil companies in Kuwait. The workers were invited to complete a self-administered questionnaire including sociodemographic characteristics, work-related factors, and psychological aspects. Anxiety and depression were assessed by the Hopkins symptom checklist-25 scale. A hierarchical multiple regression procedure was used to assess the association of psychological distress with demographic and work-related factors.

The multiple linear regression analysis ascertained the significant relationship of psychological distress with gender, age, nationality, marital status, education, satisfaction with job, and shift work after controlling the variance accounted by all demographic and work related variables.

Demographic variables explained 22.5% of the variation in total distress. Dis-satisfaction with job explained an additional 10.7% of the variation in total distress, while shift work explained an additional 15.5% of the variation in total distress. All included variables explained 48.7% of the variation in total distress.

Sociodemographic and work-related variables are associated with psychological distress. Controlling workers' demographic correlates, and adjusting working conditions might reduce the levels of anxiety and depression among oil workers.

Keywords: sociodemographic characteristics, work-related factors, anxiety, depression, oil workers, Kuwait

characteristics. In the area of psychopathology, the self-report mode can provide information that is unavailable through other assessment procedures. Self-report scales reflect information via the person directly. In addition the self-report mode involves economy of professional time. The self-report inventory may be used as a screening device to aid in determining those who require professional time.

The Hopkins Symptom Checklist (HSCL) is a well known and widely used screening instrument whose history dates from the 1950s. An early form of the HSCL (Parloff et al., 1954) was titled the discomfort scale. It was developed primarily as a measure for research in psychotherapy (Derogatis et al., 1974). Prof. Karl Rickets, one of the original developers of the HSCL, demonstrated with his colleagues the usefulness of a 25-item version of the HSCL in various populations in general medical practice. It has been consistently shown in several populations that the total HSCL-25 score is correlated with emotional distress of unspecified diagnosis, and the depression score is correlated with depression as defined by the Diagnostic and Statistical Manual of the American Psychiatric Association, IV Version (American Psychiatric Association, 1994). Mental health status was assessed by Hopkins Symptoms Checklist (HSCL-25) in an occupational setting (Gamperience et al., 2008).

Association of psychological adjustment with sociodemographic characteristics
Among the factors identified to be associated with psychological distress were sociodemographic characteristics and work-related conditions (Plaisier et al., 2007; Pikhart et al., 2004). Depression is a significant public health concern worldwide and has been ranked as one of the illnesses having the greatest burden for individuals, families, and society (World Health Organization, 2002). Depression is comorbid with anxiety (Sartorius et

al., 1996). The sociodemographic factors of age, gender, marital status, education, and income have consistently been identified as important factors in explaining the variability in the prevalence of depression (Akhtar-Danesh and Landeen, 2007). Age is one of the demographic characteristics that is significantly related to psychological distress. Depression has also been found to vary considerably based on gender (Wade et al., 2002). Women have nearly double to triple depression compared to men (Kornstein et al., 2000). Marital status has been found to interact with gender in accounting for variance in depression.

Some studies found a significant relationship between socioeconomic status (SES), mostly characterized by education and income-and mental disorder (Lorant et al., 2003; Murphy et al., 1991). The likelihood of depression in the lowest SES group is twice as much as that found in the highest SES group. People in the lowest class are far more likely to suffer from psychiatric distress than those in the highest class (Lorant et al., 2003). A study reported that low educational levels were significantly associated with both anxiety and depression, and these decrease with increasing age (Bjelland et al., 2008). Higher educational level seems to have a protective effect against anxiety and depression, which accumulates throughout life. Education level may influence other socioeconomic indicators, such as occupation and income. The risk of having depression or anxiety disorder was reported to be higher in the low-income group than in the high-income group (Virtanen et al., 2008). However, another study concluded that the patterns of these relationships were not always consistent (Kohn et al., 1998). Hence, it is important to periodically reassess the relationship between depression and sociodemographic factors because of the changing demographic structure of populations.

Association of psychological adjustment with work-related factors
Adverse work-related factors may lead to the development of anxiety and depression symptoms (Sanne et al., 2005). Continuous shift schedules are required in the petroleum industry because of its dependency on uninterrupted production. Most oil workers follow a work-shift schedule rotating between day and night for long hours duration. As a result, most shift workers suffer from sleep disturbance (Akersteadt, 2007; Bourdouxhe et al., 1999; Parkers, 2003), chronic fatigue, and injuries (McNabb et al., 1994; Cooper and Sutherland, 1987). Moreover, working a non-standard pattern of days and working hours is associated with conflict between work and family/social life (Ljosa and Lau, 2009; Staines and Pleck, 1984). Oil workers are also faced with hazards such as heavy machines' noise, and use of hazardous chemicals.

Oil production is the main national income generating industry in Kuwait. Kuwait is a small country with proven crude oil reserves of about 96 billion barrels, i.e. about 10% of world reserves. Petroleum accounts for nearly half of GDP, 90% of export revenues, and 95% of government income. Therefore, the present study was performed to explore anxiety and depression among oil workers, and examine their relationships with sociodemographic and work-related factors.

Methods
Participants
The present cross-sectional study was conducted during the period June to December 2009. There are 10 oil companies in Kuwait including 15765 workers. The study adopted a stratified random sampling scheme, and included samples from each company with size proportional to the number of workers in each. Lists of workers were obtained from the supervisors in each company and were used as sampling frames. All selected workers had at least one year experience. A total of 2430 workers were selected, 2123

completed the questionnaire (response rate 87.4%).

The questionnaire

Data was collected using a self-administered questionnaire including items about demographic, socioeconomic characteristics (age, gender, nationality, marital status, income and education), cigarette smoking, work-related aspects (number of working years, working hours per week, satisfaction with job, working in a shift duty system, use of hazard chemicals, and working on machines), and psychological aspects.

In order to pre-test the questionnaire, replicate responses were collected on a sample of 50 workers 4 weeks after the initial response, and high agreement (range of the measure of agreement, kappa = 0.73 - 0.92) was found between the two responses in various items of the questionnaire. The approval of the hospital management board was obtained to proceed with the study.

Psychological aspects

Anxiety and depression were measured by the Hopkins Symptom Checklist-25 (HSCL-25) scale (Derogatis et al., 1974). The usefulness of the abbreviated HSCL-25 scale was demonstrated in identifying subjects with previously unrecognized clinically significant emotional distress (Rickels et al., 1972). The HSCL-25 scale has 10 items for anxiety, 15 items for depression, and the 25 items reflect total psychological distress. Items are graded on a 4-point Likert scale of 1 (not at all), 2 (a little), 3 (quite a bit), 4 (extremely) in keeping with its use as a measure of symptom intensity during the past week. Thus, a higher score on the HSCL-25 scale indicates a higher level of anxiety or depression or both. The scale has an acceptable internal consistency and validity (Rickels et al., 1972). The range of anxiety scale is 10 to 40, depression scale 15 to 60, and total distress 25 to 100.

The English version of the HSCL-25 scale was translated into Arabic by a professional with expertise in medical and Arabic language translation. Each item in both the English and Arabic translations was reviewed by a team of professionals in the areas of psychology, and research methodology to assess semantic, idiomatic, and conceptual equivalence. Following the review, the Arabic version of the HSCL-25 was back-translated independently by an Arabic-speaking psychologist.

The translated Arabic HSCL-25 version was assessed on a group of 50 participants over a 4-week period. It was found to have an acceptable degree of test-retest reliability (r = 0.78 - 0.92) and internal consistency (Cronbach's alpha = 0.76 - 0.91).

Procedure

The questionnaire and a cover letter were administered to each participant during regular working hours by trained research assistants (physicians and nurses). The letter informed participants about the purpose of the study, and requested their written informed consent to participate. Clear instructions on how to complete the questionnaire were also given. Completed questionnaires were placed into a sealed envelope marked as "Confidential" and returned to specific research assistants for subsequent data analyses.

Data Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) version 17.0 with two-sided p-value of < 0.05 as the cut-off level for statistical significance. The student's t-test was used to compare mean score of anxiety, depression, and total distress between the two groups, while one-way analysis of variance (ANOVA) was used to compare between more than two groups. The Pearson correlation coefficient, r, was used to assess the extent of association between psychological adjustment indices and other quantitative variables. Stepwise (hierarchical) multiple linear regression was carried out using total distress score, as the dependent variable. In step 1, the demographic variables gender, age, nationality,

marital status, monthly income, and education were included. In step 2, the variable "satisfied with job" was entered; and in step 3, the variable "work in a shift duty system" was included in order to determine the amount of explained variation in total distress added by job dis-satisfaction or work in a shift duty system beyond the variation already explained for by the demographic variables.

Results

As Table 1 (next page) presents, the mean age (standard deviation, SD) of participants was 39.5 (9.6) years with male : female ratio 2.7:1. Most respondents were married university graduates, with monthly income K.D. 1500 or above (K.D. ~ 3.3 US $), and about a quarter of them reported being current smokers. The median number of working years was 15 years, and the median number of working hours per week was 40 hours. The majority of participants (80.3%) reported being satisfied with their job, and 18.9% of them work in a shift duty system. About half of respondents (47.1%) reported using hazardous chemicals, and 48.0% of them work on heavy machines. The mean scores of anxiety, depression, and total distress were 1.70, 1.81, and 1.76 respectively (Table 1).

As Table 2 (see page 7) shows, there was significant difference in mean score of anxiety, depression, and total distress according to the sociodemographic characteristics: gender, age, nationality, marital status, income, education, and smoking status. Female participants had a significantly higher mean score of anxiety, depression, and total distress (p<0.001 for the 3 indices). Older participants had lower distress (p<0.001). Kuwaiti nationals had higher distress levels than non-Kuwaitis.

Divorced/widowed participants had higher depression and total distress than single or married (p<0.001). There was no consistent trend in the relation between income and psychological distress, although the relation was significant. Participants with higher education level had lower distress (p<0.001). Current smokers

	n%
Sociodemographic characteristics	
Gender	
Male	1555 (73.3)
Female	568 (26.7
Age (years)	
Mean (SD)	39.5 (9.6)
Nationality	
Kuwaiti	1476 (69.5)
Non-Kuwaiti	647 (30.5)
Marital Status	
Single	270 (12.7)
Married	1761 (83.1)
Divorced	78 (3.7)
Widowed	10 (0.5)
Income (K.D. per month)	
<500	23 (1.1)
500 to <1000	298 (14.2)
1000 to <1500	568 (27.2)
>1500	1203 (57.5)
Education	
High school or less	313 (14.8)
Intermediate Diploma	502 (23.8)
University	978 (46.4)
Above University	316 (15.0)
Smoking status	
Current smokers	505 (23.8)
Psychological aspects	**Mean score (SD)**
Anxiety	1.70 (0.56)
Depression	1.81 (0.59)
Total emotional distress	1.76 (0.54)
Work-related aspects	
Number of working years	15 (1-48)
Median (range)	
Number of working hours per week	
Median (range	40 (40-80)
Satisfied with job	
Yes	1704 (80.3)
Work in a shift duty system	
Yes	401 (18.9)
Use hazardous chemicals at work	
Yes	1000 (47.1)
Work on machines at workplace	
Yes	1019 (48.0)

Numbers may not add up to the total due to missing data
SD = standard deviation
K.D. = Kuwaiti Dinar ~ 3.3 US$
Table 1: Demographic, psychological and work-related aspects of oil workers

had a higher level of distress (p<0.001).

Table 2 also shows as the number of working years increased, the levels of distress decreased. Participants who reported being satisfied with their jobs had a lower level of distress (p<0.001). However, the levels of psychology distress indices were higher among those participants who reported working in a shift duty system or working on machines. On the other hand, there was no significant difference in mean scores of anxiety, depression, or total distress according to use of hazardous chemicals at workplace.

There was a significant correlation between anxiety and depression scores (r=0.75, p<0.001), anxiety and total distress (r=0.89, p<0.001), depression and total distress (r=0.961, p<0.001). The three indices were negatively correlated with age, and number of working years. No significant correlation was found with the number of working hours per week (Table 3 - page 8).

As Table 4 (page 8) shows, after controlling the variance accounted for by sociodemographic characteristics (gender, age, nationality, marital status, income, and education), the hierarchical multiple linear regression analysis ascertained the significant relationship of psychological distress with gender, age, nationality, marital status, education, satisfaction with job and work in a shift duty system. The demographic variables explained 22.5% of the variation in total distress. When satisfaction with job was entered, the coefficient of determination, r2 increased to 0.332,

Opposite page:
p-values were based on independent t-test in case of two groups, and on one-way analysis of variance in case of more than two groups.
SD = standard deviation, K.D. = Kuwaiti Dinar ~ 3.3 US$
Table 2: Mean (SD) of anxiety, depression and total distress scores of oil workers according to sociodemographic characteristics and work-related aspects

Sociodemographic characteristics	Anxiety Mean (SD)	Depression Mean (SD)	Total distress Mean (SD)
Gender			
Males	1.64 (0.53)	1.73 (0.55)	1.69 (0.51)
Female	1.84 (0.58)	2.02 (0.63)	1.95 (0.57)
p-value	<0.001	<0.001	<0.001
Age (years)			
21 - 30	1.80 (0.54)	2.05 (0.60)	1.95 (0.53)
31 - 40	1.78 (0.58)	1.89 (0.60)	1.85 (0.55)
41 - 50	1.66 (0.56)	1.71 (0.54)	1.69 (0.52)
51 - 60	1.47 (0.42)	1.54 (0.43)	1.51 (0.40)
p-value	<0.001	<0.001	<0.001
Nationality			
Non-Kuwaiti	1.55 (0.49)	1.57 (0.49)	1.56 (0.46)
Kuwaiti	1.76 (0.57)	1.92 (0.60)	1.86 (0.55)
p-value	<0.001	<0.001	<0.001
Marital status			
Married	1.68 (0.55)	1.77 (0.57)	1.73 (0.53)
Single	1.75 (0.55)	1.99 (0.61)	1.89 (0.55)
Divorced/Widowed	1.78 (0.56)	2.00 (0.58)	1.91 (0.57)
p-value	0.082	<0.001	<0.001
Income (K.D. per month)			
<500	1.51 (0.52)	1.71 (0.67)	1.63 (0.57)
500 to <1000	1.79 (0.56)	1.96 (0.61)	1.89 (0.55)
1000 to 1500	1.73 (0.53)	1.86 (0.59)	1.80 (0.53)
>1500	1.66 (0.56)	1.75 (0.56)	1.71 (0.53)
p-value	0.001	<0.001	<0.001
Education			
High school or less	1.74 (0.55)	1.87 (0.56)	1.82 (0.52)
Diploma	1.79 (0.57)	1.97 (0.62)	1.90 (0.56)
University	1.67 (0.53)	1.77 (0.56)	1.73 (0.51)
Above University	1.57 (0.56)	1.61 (0.54)	1.59 (0.51)
p-value	<0.001	<0.001	<0.001
Current smoker			
No	1.67 (0.54)	1.78 (0.58)	1.73 (0.52)
Yes	1.76 (0.59)	1.91 (0.61)	1.85 (0.56)
p-value	0.001	<0.001	<0.001
Work-related aspects			
Working hours/Week			
40 - 44	1.68 (0.56)	1.79 (0.58)	1.74 (0.54)
45 - 49	1.76 (0.55)	1.89 (0.60)	1.84 (0.54)
>50	1.67 (0.54)	1.76 (0.55)	1.72 (0.51)
p-value	0.023	0.004	0.005
Satisfied with job			
Yes	1.62 (0.51)	2.2 (0.66)	1.68 (0.48)
No	1.99 (0.64)	1.72 (0.53)	2.11 (0.60)
p-value	<0.001	<0.001	<0.001
Work in a shift duty system			
No	1.67 (0.55)	1.78 (0.58)	1.73 (0.53)
Yes	1.78 (0.55)	1.94 (0.58)	1.87 (0.52)
p-value	<0.001	<0.001	<0.001
Use hazardous chemicals at work			
No	1.68 (0.56)	1.81 (0.58)	1.76 (0.55)
Yes	1.71 (0.55)	1.81 (0.59)	1.76 (0.54)
p-value	0.257	0.791	0.794
Work on machines at work place			
No	1.64 (0.53)	1.76 (0.57)	1.71 (0.52)
Yes	1.72 (0.56)	1.82 (0.58)	1.78 (0.54)
p-value	0.001	0.023	0.004

	Anxiety		Depression		Total distress	
	r	p-value	r	p-value	r	p-value
Age (years)	-0.20	<0.001	-0.30	<0.001	-0.27	<0.001
Number of working years	-0.11	<0.001	-0.16	<0.001	-0.15	<0.001
Number of working hours/week	0.02	0.364	0.02	0.461	0.02	0.392

r = Pearson correlation coefficient

Table 3: Correlation of the psychological adjustment measures with quantitative variables

Variable	Standardized Coefficient, β	p-value	Coefficient of determination, r^2
Step 1			
Gender	0.136	<0.001	0.225
Age	-0.157	<0.001	
Nationality	-0.154	<0.001	
Marital status	0.071	0.002	
Monthly income	-0.024	0.404	
Education	-0.096	<0.001	
Step 2			
Gender	0.157	<0.001	0.332
Age	-0.154	<0.001	
Nationality	-0.142	<0.001	
Marital status	0.067	0.003	
Monthly income	-0.026	0.371	
Education	-0.080	0.001	
Satisfaction with job	-0.254	<0.001	
Step 3			
Gender	0.164	<0.001	0.487
Age	-0.140	0.001	
Nationality	-0.119	<0.001	
Marital status	0.045	0.050	
Monthly income	-0.031	0.308	
Education	-0.048	0.003	
Satisfaction with job	-0.204	<0.001	
Work in a shift duty system	0.285	<0.001	

Table 4: Stepwise (hierarchical) multiple linear regression analysis using total distress score as the dependent variable

i.e. dissatisfaction with job explained an additional 10.7% of the variation in total distress. When work in a shift duty system was further entered, r^2 increased to 0.487, i.e. work in a shift duty system explained an additional 15.5% of the variation in total distress. All included variables explained 48.7% of the variation in total distress.

Discussion

The aim of the present study was to explore psychological distress among oil workers, and examine its relationship with demographic and work-related factors. Multiple linear regression analysis ascertained the significant relationship of psychological distress with demographic variables (gender, age, nationality, marital status, and education) as well as work-related factors (dis-satisfaction with jobs, and work in a shift duty system).

The Hopkins Symptom Checklist-25 (HSCL-25) was used for the assessment of mental distress. This instrument is considered a good indicator for mental health distress (Sandanger et al., 1998; Sandanger et al., 1999; Murphy, 1990). The sensitivity of HSCL-25 for identifying any depressive disorder was found to be 94% and the specificity was 94% compared to the diagnostic criteria for depressive disorders. HSCL-25 may be used for screening studies of depression (Frojdh et al., 2004).

Our data showed that female participants had significantly higher mean scores of anxiety, depression, and total distress. This result is in keeping with other studies (Akhtar-Danesh and Landeen, 2007; Wade et al., 2002; Kornstein et al., 2000) which concluded that women suffer more from psychological distress, and that they have double to triple the level of distress among men. However, the present study showed a negative relationship between age and distress, which may be explained by the fact that older workers with their long experience in the oil

industry become better adapted to their work demands. Kuwaiti nationals showed a higher level of distress than non-Kuwaiti expatriates, which may be explained by the fact that Kuwaiti nationals have higher expectations than non-Kuwaitis, and they may have additional obligations towards their extended families which might increase their level of distress. The lower level of distress among non-Kuwaitis may be attributed to their grateful attitude towards their relatively better economic status compared to their native countries, which may differ in terms of income, working environment and services.

Our data also showed that the level of psychological distress was higher among divorced/widowed oil workers than single or married. Marital status has been found to interact with gender in accounting for variance in psychological distress (Kornstein et al., 2000). In addition, this study showed no consistent trend in the relation between income and distress, and the significance of this relationship was not ascertained by the multiple linear regression analysis after controlling the variance accounted by demographic variables. This finding is inconsistent with another study (Virtanen et al., 2008) which reported that the risk of depressive or anxiety disorders was more than two times higher among workers in the lowest income group compared to those in the highest income group. Another interpretation for the absence of a clear trend in the relation between income and distress in our study was that most participants (57.5%) were in the highest income group (> 1500 K.D.).

The present study showed a negative relationship between education level and psychological distress. This result is in concert with another study (Akhtar-Danesh and Landeen, 2007) which reported that participants whose education was secondary school or less had the highest level of distress than those with post-secondary education. Another study (Bjelland et al., 2008) suggested that a higher education level seems to have a protective effect against anxiety and depression, which

accumulates throughout life. This finding is also in accordance with the meta-analysis of Lorant et al. (2003). In keeping with our results, Kohn et al. (1998) concluded that the pattern of the relationship between socioeconomic status, mostly characterized by income and education, and mental disorders, were not always consistent. Hence, it is important to periodically reassess this relationship because of the changing demographic structure of populations.

Our data also showed a negative association between the number of working years and the level of psychological distress similar to age. In fact, there is confounding between duration of working years and age, hence the significance of this relation was not ascertained by the multiple linear regression analysis after adjusting for confounding between age and working years. In addition, the level of psychological distress was higher among participants who reported working in a shift duty system. This result is in keeping with other studies which reported that shift workers suffer from anxiety and depression symptoms (Sanne et al., 2005). As a result, most shift workers suffer from sleep disturbances (Akersteadt, 2007; Bourdouxhe et al., 1999; Parkers, 2003), chronic fatigue, injuries (McNabb et al., 1994; Cooper et al., 1987), and conflict between work and family/social life (Ljosa and Lau, 2009; Staines and Pleck, 1984; Shen and Dicker, 2008).

A limitation of the present study is that the cross-sectional design precludes our ability to draw conclusions about causal relationships between psychological distress and sociodemographic/work-related factors. To investigate issues of causality, a prospective design may be used. Another limitation is that data was self-reported which may have introduced some information bias about mental health and work-related factors. However, self-report is often used to gather information about working conditions.

The present study ascertained the significant relationship of

psychological distress with a number of sociodemographic and work-related factors among oil workers which may help in adjusting working conditions. A longitudinal prospective study is recommended in which various strategies and methods are targeted to high risk occupational groups of oil workers with high levels of psychological distress.

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Barriers to Breast Cancer Screening Among Women

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Abstract

Objective: This study was conducted to determine barriers for breast cancer screening among women in the north of Jordan.

Methods: A descriptive study was conducted at Prince Rashed Hospital in Irbid/North of Jordan, from January 2005 to January 2006. A sample of 1586 Jordanian women aged 35 years, who attended the family medicine clinic, and with the absence of prior or current history of breast cancer were selected. The study parameters characteristics which included : age, education, income, marital status ,previous breast cancer screening, family history of breast cancer, age of first menstrual period and on oral contraceptive or not. Accessibility individual barriers concepts were; (1 code for 'Yes' and 0 code for 'No" answer), and summation of barriers in order to get a mean barriers score "from 0-15" (MBS). Socio-demographic characteristics were cross-matched for MBS.

Results: Breast cancer screening barriers shows no difference with respect to age, marital status and menarche. The barriers to breast cancer screening were significantly higher among the less educate women, low income families, women who described a family history of breast cancer and among women with an intake of oral contraceptive pills.

Conclusion: The results of this study shows that the best approach to reduce mortality associated with breast cancer is screening and early detection, because its etiology remains uncertain. There is a need for a health educational program regarding screening for such groups of patients so as to increase the awareness of women about the importance of screening and repeating this study using a qualitative method to explore more barriers, as well as finding alternative solutions is of paramount importance.

Keywords: Barriers, breast, cancer

Introduction

Breast cancer is a mortal enemy; it is the most common malignancy and first fatal disease among women especially beyond the age of 45 years (1-4). The incidence of breast cancer in eastern society continues to increase (5-6). In Jordan data indicated that breast cancer occupied the first rank among all types of cancer in females, and constituted about 28% of all female cancer. Preliminary statistics indicate that 53 per cent of all breast cancer patients in Jordan were diagnosed with the disease before the age of 50, a higher percentage than in some Western countries. According to the American Cancer Society, the risk of being diagnosed with breast cancer in the U.S. is significantly higher after the age of 50 (7-8). Detecting breast cancer early will be of great value if patients can be off treatment. Since most breast cancers spreads and become incurable before they are find without screening, so screening can find it before it spread, offering a chance of cure. Despite the benefits of screening in early detection of breast cancer, still women don't do it. Most studies and workshops focus on breast self examination including: knowledge, practice and benefits. Little is written about barriers and why women don't do screening, thus the question which needs answering is what are the barriers for breast cancer screening among Jordanian women (8-12).

Objective

This study was conducted to find out barriers for breast cancer screening among women in the north of Jordan.

Methods

This study was conducted at Prince Rashid Hospital (PRH) .It is a general hospital of 210 beds of different specializations; located at the center of Irbid city, serving a lot of people from different areas around the city. The study period selected was from January 2005 to January 2006. A descriptive design was used for the purpose of this study. The

population consisted from all Jordanian women who live in that region aged 35 years and above. A sample of 1586 women was recruited conveniently from women who attended the family medicine clinic. Participants met the inclusion criteria of:

- Jordanian women aged 35 and above.
- Absence of prior or current history of breast cancer.

The variables analyzed were: age, education, income, marital status, previous breast cancer screening, family history of breast cancer, age of first menstrual period and on oral contraceptive or not. A modified perceived barriers scale (PBS) was used for this study. It consists of two sections:
(A) The socio-demographic characteristic of the participants,
(B) Barriers scale which contain 15 barriers, The women were asked to chick any of these that would make it hard for them to get their breast check up done . A total barriers score was obtained by totaling the responses. The range of total barriers score is 0-15, with higher scores indicating greater perceived barriers (Table 2). After the purpose of the study was explained to the participants, they were invited to participate in the study. They have the right to ask for clarification and withdraw from the study at any point.

Statistical analysis
Data were transferred to Statistical Package of Social Science (SPSS) software system version 10, and were coded accordingly. The study used Descriptive statistics method to find out frequencies and percentages of socio-demographic characteristics and women's barriers concept. Accessibility individual barriers were 1 code for yes and 0 code for no, with summation of barriers in order to get a mean barriers score from 0-15 (MBS). Socio-demographic characteristics were cross-matching with the mentioned MBS in order to find means, standard deviations, 95% confidence interval and probability of error (P value) according to each category mentioned in Table 1. Box

plot figure was done by transferring matching results to Microsoft Excel.

Result
A total of 1586 women were interviewed during the study period, see Table (opposite page). Mean Barriers Score (MBS) of reasons why Jordanian women do not seek breast cancer screening showed no significant differences between age categories P-value (0.310); 722(45.5%) and MBS (4.63) for age category 35-45 years, 523(33%) and MBS (5.87) for age category 46-56 year, and 341(21.5%) and MBS (6.87) for age category >55 years. MBS significantly higher among women with less level, P-value (0.006); of these 1050 (66.2%) and MBS (11.31) for less school levels compared with 536 (34%) and MBS (7.37) was high school. MBS was significantly higher among low income families P-value (0.005); of these 654 (41.3%) and MBS (11.35) for those less than 200 JD per month, 521 (32.8%) and MBS(10.21) for 210- 400 JD and 411(26%) and MBS(8.34) for those family income above 400 JD per month. No significant difference regarding the marital status P-value (0.283); Of these 1467 (92.5%) and MBS(10.6) among married women compared with 119 (7.5 %) and MBS(10.21) among single. .Significant difference regarding any previous breast cancer screening P-value(0.011); of these 35 (2.2%) and MBS(14.21) among those who answered Yes while1552 (97.8%) and MBS(9.20) among those who answered No. It was significantly higher among women who described family history of breast cancer P-value (0.002); of these 35 (2.2%) and MBS(14.21) among positive history, compared with 1551 (97.8%) and MBS(9.20) among negative family history of breast cancer. Regarding the age of first menstrual period independent MBS, P-value (0.087); of these 1236(77.9%) and MBS (9.61) when menarche was less than 11 years while 350 (22.1%) and MBS (10.22) when above 11 year. MBS was significantly higher among women with intake of oral contraceptive pill P-value (0.003); of these 988 (62.3%) and MBS(10.68) among women answered Yes while

598 (37.7%) and MBS(9.51) among women who answered No, (see Table 1) and Figure 1. Table 2 (page 14)showed the barriers concept of women for breast cancer screening as the following sequence:

Did not know I need one (75.9%),
Would be embarrassed (75.3%),
Put it off (57.1%),
Did not know where to go (56.1%),
Shame and fear of examination (52.3%),
Did not know kind of doctors (48.4%),
Afraid to go (27.6%),
Fear of mastectomy (26.9%),
Doctors hours not convenient (26.8%),
Have to wait too long (25.0%),
Costs too much (22.3%),
No Insurance coverage (19.7%),
Treated rudely or unkindly (19.5%).

Discussion
Despite strong epidemiological evidence that screening for breast cancer with mammography and clinical breast examination results in mortality reductions, and the considerable effort to communicate this message to women and health-care providers, most US women are not screened according to recommended guidelines (13). Recent investigations have focused on trends in use, and factors associated with physicians' and women's knowledge, attitudes, and practices associated with mammography. Even as use of mammography has increased, the literature suggests that a number of significant impediments to participation in routine screening will need to be addressed to achieve high rates of screening among US women according to recommended guidelines. Training is needed for nurses, doctors, and other health professionals. They in turn will teach women about screening guidelines, benefits and limitations of screening, and risk factors for breast cancer and helping women to reduce or eliminate barriers to screening (14-16) and how to examine their breasts for lumps and take advantage of mammography screening when available. In this study, there are no statistical differences between menopause and menarche age

Variable	N (%)	Mean Score±SD	95% CI	P-Value
Age 35-45 45-55 > 55	722 (45.5) 523 (33.0) 341 (21.5)	4.63±6.85 5.87±8.28 6.87±9.89	4.13-5.13 5.16-6.58 5.82-7.92	0.310
Education Less than high school High school & greater	1050 (66.2) 536 (33.8)	11.31±13.89 7.37±10.39	10.47-12.15 5.25-6.49	0.006
Income < 200 JD 210 - 400 > 400 JD	654 (41.3) 521 (32.8) 411 (25.9)	11.35±14.35 10.21±14.32 8.34±12.10	10.16-12.54 8.98-11.44 7.18-9.50	0.005
Marital status Married Single	1467 (92.5) 119 (7.5)	10.65±14.85 10.21±14.36	9.90-11.41 7.63-12.79	0.283
Previous breast cancer screening Yes No	34 (2.2) 1552 (97.8)	13.64±17.49 9.12±12.86	7.76-19.52 8.48-9.76	0.011
Family history of breast cancer Yes No	35 (2.2) 1551 (97.8)	14.21±17.36 9.20±12.26	8.46-19.96 8.59-9.81	0.002
Age of first menstrual period < 11 yrs > 11 yrs	1236 (77.9) 350 (22.1)	9.61±13.10 10.22±14.13	8.87-10.34 10.22 (8.74-1.70)	0.087
On oral contraceptive Yes No	988 (62.3) 598 (37.7)	10.68±13.31 9.51±12.10	9.85-11.51 8.54-10.48	0.003

Table 1: Description of Sample according Socio-demographic characteristics and Barriers Score of reasons why Jordanian women do not seek breast cancer screening

- -

menopause and menarche age among the breast cancer females (17-22).

Conclusion

Because breast cancer etiology remains uncertain, the best approach to reducing mortality associated with breast cancer is screening and early detection. Women ignore this. This ignorance was related to a number of barriers, the 4 strongest barriers are: lack of knowledge about the need of screening, shame and fear of examination, would be embarrassed, and don't know where to go. Also women underestimate the value of screening. Also there are few female physicians and an absence of educational campaigns, are some of the institutional barriers that contribute to Jordanian women neglecting breast health. For women who do get primary care, a physicians' referral has been proven by various studies to increase women's screening frequency and so we recommend the initiating of educational programs regarding screening by addressing knowledge deficits and perceived physician needs for enhancement of clinical breast examination skills and to repeat this study using a qualitative method to explore more barriers and to increase the awareness of women about the importance of screening.

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	Barriers Concept	Yes	%
1	Did not know I need one	1204	75.9
2	Would be embarrassed	1194	75.3
3	Put it off	906	57.1
4	Did not know where to go	890	56.1
5	Shame & fear of examination	830	52.3
6	Did not know kind of doctors	768	48.4
7	Afraid to go	438	27.6
8	Fear of mastectomy	426	26.9
9	Doctors hours not convenient	425	26.8
10	Have to wait too long	396	25.0
11	Costs too much	354	22.3
12	No Insurance coverage	312	19.7
13	Treated rudely or unkindly	310	19.5
14	No way to get there	258	16.3
15	Refuse to go	222	14.0

Table 2: Description of Barriers and reasons why Jordanian women do not seek breast cancer screening

women be routinely taught breast self-examination to screen for breast cancer? CMAJ. 2001 Jun 26;164(13):1837-46.

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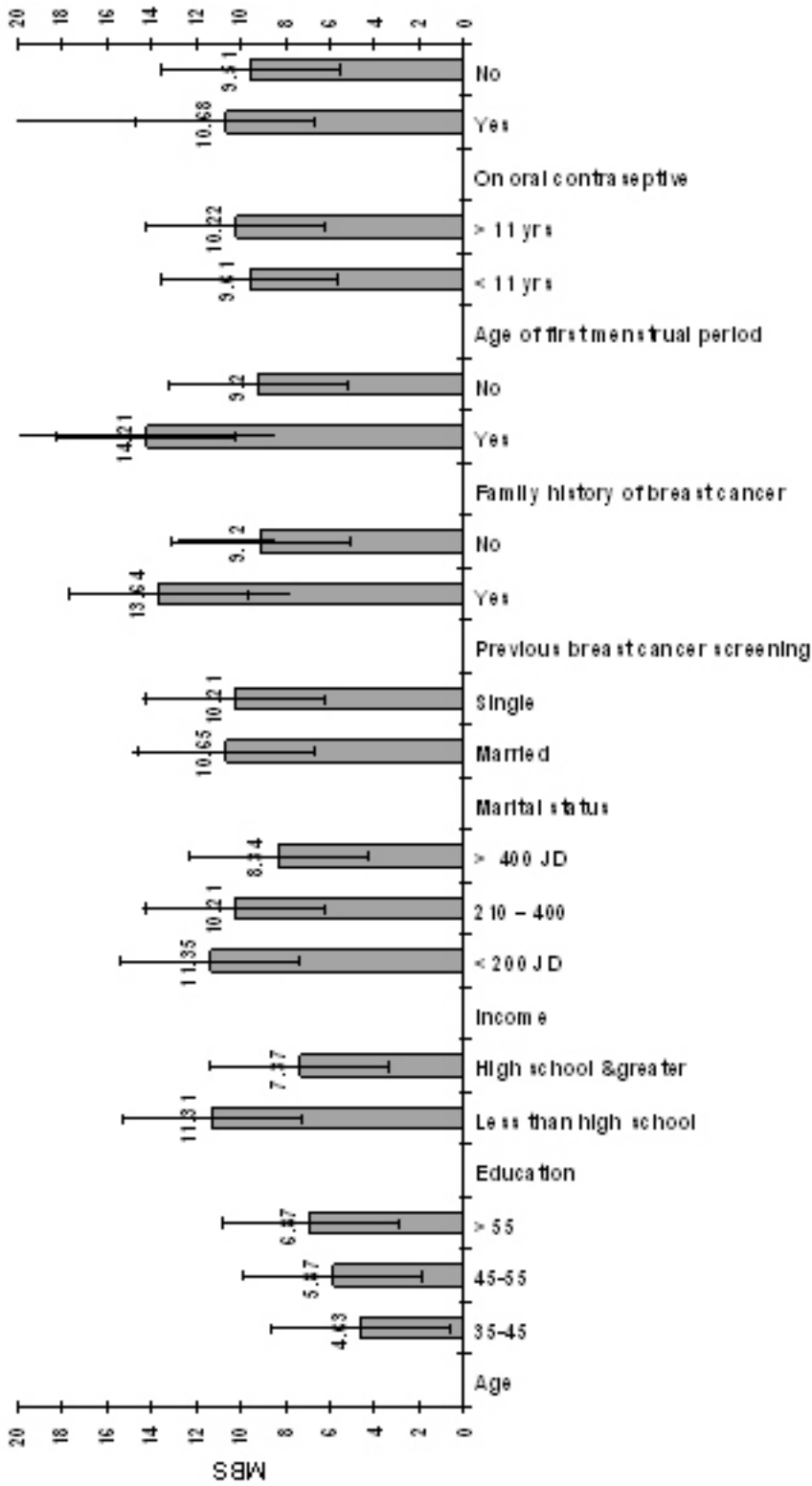22. Tartter PI, Pace D, Frost M, et al. Delay in diagnosis of breast cancer. Ann Surg. 1999 Jan;229(1):91-6.

Figure 1: Socio-demographic characteristics by MBS and 95% CI

Developmental Hip Dislocation Among Infants at King Hussein Medical Center

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Abstract

Objective: To compare the clinical radiological, and sonographic, role in the diagnosis of developmental hip dislocation among infants aged 3-6 months screened in the pediatric clinic at King Hussein Medical Hospital.

Method: All infants aged from 3-6 months who were seen to screen for DDH in the Paediatric clinic at King Hussein Medical Center during the period between October 2008 to January 2009 were subjected to clinical examination and Pelvis X-ray and those infants with high risk for DDH who missed early screening were also subjected to clinical, Pelvis X-ray and Pelvis ultrasonography(U/S) .

Results: Out of 200 infants seen in this study, 100 (50%) were females. DDH was detected in 48 infants. 28(14%) were females while 20 (10%) were males. 40 infants were classified as a high risk group for DDH. DDH was detected in 14/40 by pelvis u/s in the high risk group. 25/48 infants were detected by clinical examination to have DDH, 46/48 infants were detected by radiological x-ray. Left sided DDH was seen in 21/48 infants.

Conclusion: Pelvis X-ray done at the age > 3 months is superior and more sensitive than the clinical examination done at the clinic.

Pelvis U/S offers the best diagnostic tool for DDH in a high risk group even in this late age group (3-6 months).

DDH was more common in females .

Key words: Developmental Dysplasia of the Hip, diagnosis, clinical presentation, ultrasonography.

Introduction

Developmental Dysplasia of the Hip (DDH) is the preferred term to describe this condition in which the femoral head has an abnormal relationship to the acetabulum (1). At birth the acetabulum has small bony and large cartilaginous contents and the percentage of the femoral head covered by the acetabulum is smaller than it is at any other time of development . Therefore the first 6 weeks of an infants life are critical to the healthy hip joint formation (2,3).

DDH occurs in about 1% of all births. Therefore, it is considered a fairly common disorder ;DDH is more frequently encountered in Caucasians than in negroes(4).

Avascular necrosis of the hip is an important complication of DDH. Its prevalence in a referred infant under 6 months of age has been reported to be 2.5/1000 births, while that for those over 6 months of age to be 10.9/1000 births (5).

The rapid diagnosis of DDH is thus important so in many developed countries screening for this condition is routinely carried out (6), so the use of U/S in the early diagnosis of DDH is well established (7,8).

U/S is the preferred modality for evaluating the hip in infants who are 6 months or younger.US enables direct imaging of the cartilaginous portions of the hip that cannot be seen on plain radiographs(9).

The aim of our study is to evaluate the role clinical examination, radiological studies and U/S in the diagnosis of DDH in 3-6 month old infants screened in the pediatric clinic at King Hussein Hospital.

Methods

All infants aged 3-6 months were seen to screen for DDH in the pediatric clinic, which is situated in the West of Amman. The visitors of

this important compound are from many ethnic groups and almost all from a Jordanian background, during the period between October 2008 and Jan 2009 were subjected to a clinical examination of the hips by the specialist working in this compound by Ortolani and Barlow test.

Results of this clinical examination were registered in a special register kept locked in the pediatric clinic by the nurse in charge.

Consent was taken in a verbal from the attending parents, or one of them, according to the Helsinki Declaration. An X-ray was requested for both hips and was reported by a radiologist at the Hussein Medical Center. Ultrasound of both hips was also requested for infants with high risk for DDH (those who missed early diagnosis of DDH by U/S). High risk groups included in this study were females with positive family history of DDH, breech presentation either vaginal or by caesarean section, multiple pregnancy and first baby.

Results
200 infants were seen to screening for DDH during the period between October 2008 and January 2009.

100 (50%) were females and 100 (50%) were males. DDH was

detected in 48 (24%) infants. 28 (14%) were females, while 20 (10%) were males, as demonstrated in Table 1. Right sided DDH was seen in 19/48 infants, while left sided and bilateral DDH was seen in 21, 5 infants, respectively. Acetabular dysplasia was found in only one infant.

40 infants were classified as high risk group and 14/40 diagnosed by pelvis U/S. However, radiological diagnosis was seen in 13/40 infants; as seen in Table 2.

The results can be seen in the two Tables below.

Discussion and Literature Review
Different policies now exist regarding the diagnosis of DDH; in Germany and Australia there is universal use of U/S while in Canada clinical screening alone is used (10,11,12).

Sonography has enabled physicians to view the anatomy of the hip joint and to make assessment for developmental hip dislocation even in the first day of life. This has led to early detection of cases and reduction in the treatment rate(13-15).

Ultrasonography is a reliable and cost effective (16). Therefore, it

is economically justified in the screening for DDH in neonates(17) and can even detect dysplasia with stable hips that are missed by clinical examination (18).

The ultrasonography methods should be taught by an expert to prevent false results and over treatment (19,20) and to some extent has complicated matters by identifying sonographic abnormalities in otherwise clinically normal infants (21).

These false positive results may lead to unnecessary treatment of infants (22). In contrast, untreated cases of DDH are at risk of developing severe osteoarthrosis by the second decade. The diagnosis of DDH by radiogram is only reliable at the age of 3 months and later but it should be made during the neonatal period by sonography(23),and best results are reached by AP view (24). X-ray screening has been used historically but is of limited value in the first two months due to the cartilaginous nature of the bone (25).Still radiography is superior to ultrasonography in recognizing deterioration and follow up in therapy (26).

Some have suggested that radiography of the hip at four months is a valuable tool for diagnosis of

Total no. screened	200	100%
Pt. with DDH	48	24%
Female with DDH	28	14%
Male with DDH	20	10%

Table 1

	No. patients Dxed radiologically	No. patients Dx by U/S	High risk group Dx radiologically
Rt sided DDH	19	3	3
Lt sided DDH	21	6	6
Bil DDH	5	4	3
Acetabular dysplasia	1	1	0

Table 2

DDH in high risk infants (27), and results depend to a great extent on the technologist (28), others, in contrast have concluded that sonography can replace radiological investigation (29,30), therefore there is a reduction in the number of radiographs required during screening and follow up(31), so a further reduction in the cost of screening and treatment of DDH is made.

Ultrasonography is a useful supplement to clinical examination in early diagnosis of DDH (32);especially if done in two parts at birth(3rd or 10th)day for babies with risk factors and at 4 th to 5th weeks for others(33).

The use of ultrasonography as a means to screen infants for DDH has overcome many of the other screening procedures due to the inexpensive ,practical ,harmless nature of ultrasonography and as it is an accurate way of detecting latent and overt cases. The screening for hip dislocations among infants has advantages in early detection. Early detection and early treatment has a better outcome than late detection and late treatment (34). The simplicity and ease of use of ultrasound scanning , its cheapness ,rapidity, harmlessness and validity, not to mention its sensitivity and specificity, make it a reliable, safe instrumental examination that is indispensable in planning the treatment of this pathology(35).

Conclusion

U/S remains the standard role for detecting DDH even in the late age group. X-ray is superior to clinical examination in diagnosis of DDH.

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Plasma Homocysteine and other biochemical parameters in Gestational Diabetes Mellitus

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Abstract

Objectives: This prospective case control study was conducted to compare levels of Homocysteine and other biochemical parameters in women diagnosed with Gestational Diabetes Mellitus (GDM) with that in normal pregnant women.

Design and settings: GDM was confirmed by the oral glucose tolerance test. Normal pregnant women served as the control group.

Subjects: A total of 62 pregnant women with uncomplicated pregnancies, between 24 and 28 weeks of gestation, were included in the study.

Interventions: Each woman was tested for plasma Glucose (GLU), plasma total Homocysteine (Hcy), serum Cholesterol (Chol), Triacylglycerol (TG), Uric acid (UA) and Creatinine (CRE) concentrations.

Results: Fasting plasma Glucose level and Body Mass Index of the GDM group was significantly higher compared to the control group. Total serum Cholesterol level was found to be significantly higher (P<0.001) in GDM compared to controls. Serum Triacylglycerol, Uric acid and Creatinine were also significantly elevated (P<0.001) in the GDM group compared to controls even though all values lay within the normal reference ranges. Hcy level in GDM was significantly higher compared to controls (P<0.001). Homocysteine, Cholesterol, Triacylglycerol, Uric acid and Creatinine levels were significantly elevated in GDM compared to normal pregnant women. Hcy correlated strongly with the fasting glucose levels (r = 0.9).

Keywords: Gestational Diabetes, Homocysteine, Cholesterol, Triacylglycerol, Uric acid.

Introduction

Gestational diabetes mellitus (GDM) is a common medical complication of pregnancy and is defined as "any degree of glucose intolerance with onset or first recognition during pregnancy" (2003). Incidence of GDM has been reported to vary significantly with ethnicity and ranges from 1 to 14% of all pregnancies depending on the population studied (2008). Incidence in all women was around 7%. Asian women have a higher incidence of about 11-12%. In UAE, the incidence has been suggested to be between 11 and 22% depending on the criteria used for diagnosis (2007).

Women diagnosed with GDM in the first half of pregnancy are at high risk for incidence of maternal hypertensive disorders and the need for cesarean delivery. The hyperglycemia and adverse pregnancy outcomes (HAPO) study has shown a linear relationship between maternal blood glucose concentration and risk of the baby weight being above the 90th percentile (2008). Fetuses exposed to a high glucose environment other than being large-for-age, have a number of medical complications including hypoglycemia and risk for infant respiratory distress syndrome (2009). A recent meta-analysis has found that treatment of GDM significantly reduces risk of pre-eclampsia and large-for-age births and related complications (2009). Women with GDM are also at increased risk for GDM in subsequent pregnancies (2007). Women with GDM are at increased risk for the development of type 2 diabetes after pregnancy (2010). Offspring of women with GDM too have an increased risk of obesity, glucose intolerance, and diabetes (2007).

Pregnancy is associated with a series of biochemical changes. While insulin resistance is the hallmark of GDM, little is known about the other

metabolic changes that may be taking place (2007). Hyperglycemia has been found associated with increased oxidative stress and decreased antioxidant status (2007). Obesity is strongly linked to development of GDM and obese women have a 3-fold higher risk of developing GDM compared to non-obese women (2010). GDM varies with ethnicity and it has been suggested that some genetic predispostions are associated with a greater risk of developing GDM (2006).

Homocysteine (Hcy) is a naturally occurring amino acid. Elevated Homocysteine (Hcy) levels in blood have been reported associated with several diseases including cardiovascular disease, diabetes and osteoporosis (2006). Though it is recognized as a useful biomarker for predicting risk for cardiovascular disease (2009), recent meta-analysis has reported that reducing homocysteine levels does not seem to decrease the incidence of cardiovascular events (2009). Hyperhomocysteinemia is thought to promote insulin resistance and associated complications by increasing oxidative stress, systemic inflammation, and endothelial dysfunction ultimately contributing to the pathogenesis of type 2 diabetes (2005). Lowering homocysteine levels by daily supplementation with folic acid and vitamins B6 and B12 did not reduce the risk of developing type 2 diabetes among women at high risk for CVD (2009). Elevated Hcy levels have been associated with pregnancy complications and adverse pregnancy outcomes (2000).

In view of the high incidence of GDM in the UAE, we have studied Homocysteine and other biochemical parameters in the blood of normal women and women with GDM coming for ante-natal checkup at GMC Hospital, Ajman.

Materials and Methods
A total of 62 pregnant women with uncomplicated pregnancies, between 24 and 28 weeks of gestation, visiting the Gynaecology and Obstetrics department of the Gulf Medical College Hospital, between January and September 2010, were included in the prospective case control study. Women with pre-existing Diabetes Mellitus were excluded from the study. All women were on Folic acid supplement of 400µg/day. Anthropometric measurements like height (in cm) and weight (in kg) was measured using a standardized instrument. Body Mass Index (wt. in kg ÷ [ht. in m] 2) was calculated from this data.

Blood samples: Venous blood samples were collected from the women in plain tubes (for measurements in serum), tubes containing EDTA (for plasma homocysteine) and in tubes containing Fluoride and Oxalate (for plasma Glucose) in the laboratory at Gulf Medical College Hospital.

Screening and diagnosis of Gestational Diabetes: The two-step approach to diagnosis of GDM was adopted (2007, 2009). Pregnant women were screened by an initial screening test. A 50-g oral glucose load was given to the women after 12 hours of fasting and the plasma glucose concentration measured 1 hour(h) after ingestion of glucose (Glucose Challenge Test [GCT]). Thirty six women with 1h plasma glucose levels of < 140 mg/dL were taken as normal and represented our control group. A diagnostic OGTT was performed on women exceeding the glucose threshold value of 140 mg/dL on the GCT. An oral glucose load of 100g was given to these women and plasma glucose levels at fasting, 1h, 2h and 3h time intervals measured. Cutoff criteria used were 95, 180, 155 and 140 mg/dL of plasma glucose at fasting, 1h, 2h and 3h respectively. A woman was diagnosed with GDM if her glucose levels at two or more of the time points exceeded these cutoffs. 26 women were diagnosed as having Gestational Diabetes Mellitus and represented our GDM group.

Determination of plasma Glucose (GLU), plasma total Homocysteine (Hcy), serum Cholesterol (Chol), Triacylglycerol (TG), Uric acid (UA) and Creatinine (CRE).

Concentrations: Plasma glucose was measured by the glucose oxidase method using a discrete chemistry analyzer (Alpha Wasserman) immediately after collection. Plasma Total Homocysteine level was assayed using a Fluorescence Polarization Immunoassay (FPIA) using the AxSYM system (Abbott Labs). Serum Cholesterol, Triglyceride, Uric acid and Creatinine were measured by standard enzymatic kinetic procedures on the discrete chemistry analyzer (Alpha Wasserman).

Data analysis: Statistical analysis was performed using PASW18 software. Values are presented as mean ± SD. Independent t-test was used to compare between the groups. Pearson's correlation test was used to study the relationship between the variables.

Results
62 women aged between 21 and 38 years were included in the study. Based on the Oral Glucose Tolerance test, 36 women were found to be normal and were the control group. 26 women who were diagnosed with Gestational Diabetes were the GDM group.

As shown in Table 1 (opposite page), age of the women in the two groups was found to differ. The control group had a mean age of 25.69 ± 3.30 while the GDM group was 30.38 ± 3.46 years old. Body Mass Index (kg/m2) of the GDM group was also found to be significantly higher (31.8 ± 2.7) than the control group (23.6 ± 2.0), P <0.001. As expected, fasting plasma Glucose level of the GDM group was 141.5 ± 12.65 mg/dL which was significantly higher than the control group which had a value of 86.5 ± 7.18 mg/dL, P <0.001.

Total serum Cholesterol level of the GDM group was higher than the desired level of <200mg/dL. The GDM group showed a mean cholesterol level of 230.77 ± 27.21 mg/dL which was found to be significantly higher (P < 0.001) compared to the control (181.53 ± 17.09). Serum Triacylglycerol too was higher in the GDM

Parameter (Units)	Desirable/ Reference range	Control (N= 36) (Mean ± SD)	GDM (N=26) (Mean ± SD)	Significance (P)
Age (years)		25.69 ± 3.30	30.38 ± 3.46	< 0.001
BMI (Kg/m2)	≤ 25	23.6 ± 2.0	31.8 ± 2.7	< 0.001
Fasting Plasma Glucose (mg/dL)	70-100	86.5 ± 7.18	141.5 ± 12.65	< 0.001
Total serum Cholesterol (mg/dL)	<200	181.53 ± 17.09	230.77 ± 27.21	< 0.001
Serum Triacylglycerol (mg/dL)	<150	90.25 ± 11.73	107.15 ± 12.34	< 0.001
Serum Uric acid (mg/dL)	< 6.0	3.52 ± 0.75	5.45 ± 0.61	< 0.001
Serum Creatinine (mg/dL)	<1.2	0.56 ± 0.25	0.862 ± 0.27	< 0.001
Plasma Homocysteine (µmol/L)	3.36-20.44	8.322 ± 1.94	19.073 ±3.61	< 0.001

Table 1: Comparison of variables in GDM and control group

Biochemical variables	Correlation coefficient	Significance
Glucose	0.900	<0.001
Cholesterol	0.722	<0.001
Triacylglycerol	0.534	<0.001
Uric Acid	0.752	<0.001
Creatinine	0.541	<0.001

Table 2: Correlation between Homocysteine and other Biochemical variables in blood

(107.15 ± 12.34) compared to the control group (90.25 ± 11.73) though the values were within the normal reference range. Serum Uric acid (5.45 ± 0.61) and Creatinine (0.862 ± 0.27) were significantly elevated (P < 0.001) in the GDM group compared to control (3.52 ± 0.75 and 0.56 ± 0.25 mg/dL respectively) even though the values lay within the normal reference ranges in both the GDM and control groups.

Plasma Homocysteine level in GDM was much higher (19.073 ±3.61 umol/L) compared to controls (8.322 ± 1.94), P <0.001 and were near the high end of the reference range. Plasma Homocysteine levels correlated strongly with the fasting glucose (Pearsons correlation coefficient r = 0.9). Homocysteine also correlated with Cholesterol (r = 0.722), Triacylglycerol (r = 0.534), Uric acid (r = 0.752) and Creatinine (r = 0.541) levels as shown in Table 2. All correlations were found to be significant using a 2-tailed test.

Since GDM is known to recur in women with a history of GDM in previous pregnancies, we compared the biochemical variables in women with a previous history of GDM with those without a previous history of GDM. 11 out of the 26 women (42%) in the GDM group had a history of GDM in a previous pregnancy. However, as shown in Figure 1 and Figure 2, (next page) there was no significant difference in any of the parameters in the two groups.

Women with a family history of type 2 Diabetes are thought to be at higher risk for GDM. We found 17 out of the 26 women (65%) in the GDM group had a first degree relative with Type 2 Diabetes. However, as shown in Figure 3 and Figure 4, there was no difference in the biochemical variables between women with or without a family history of Diabetes mellitus.
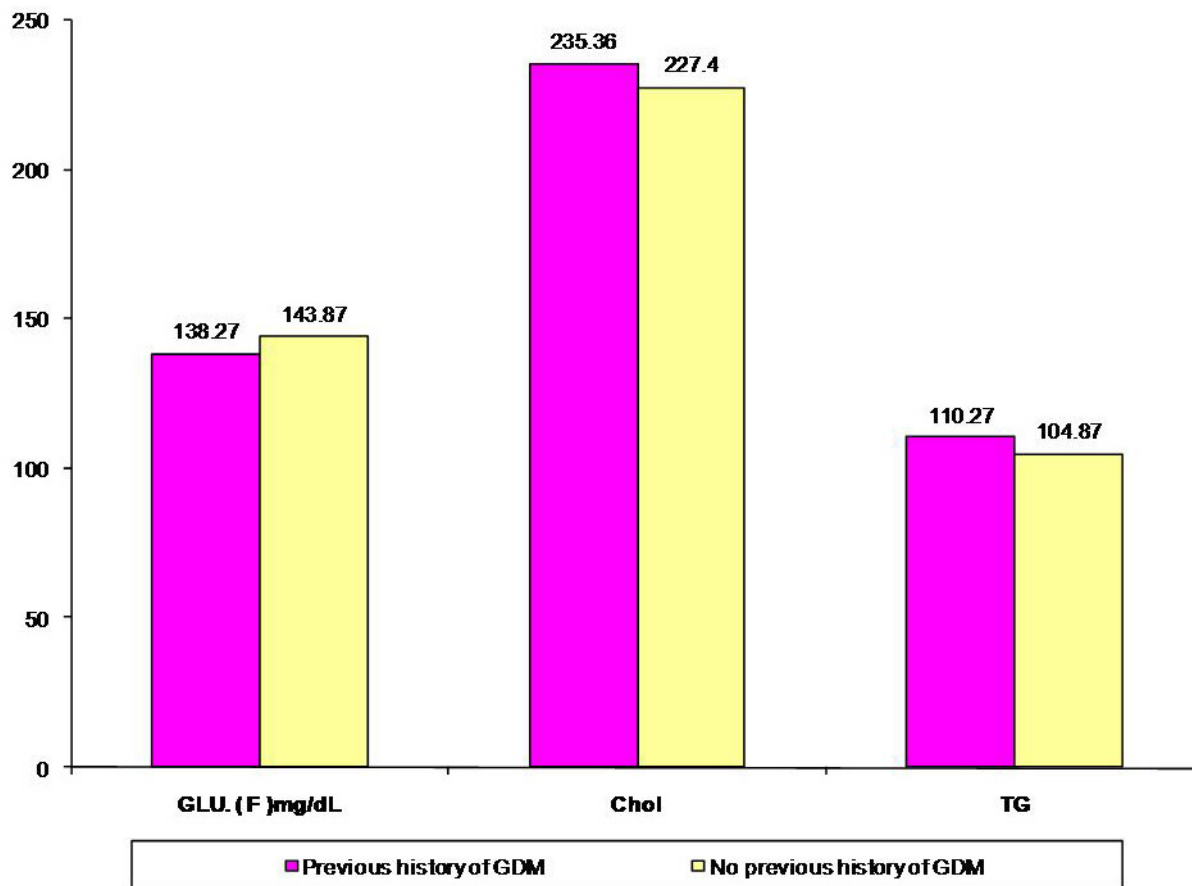
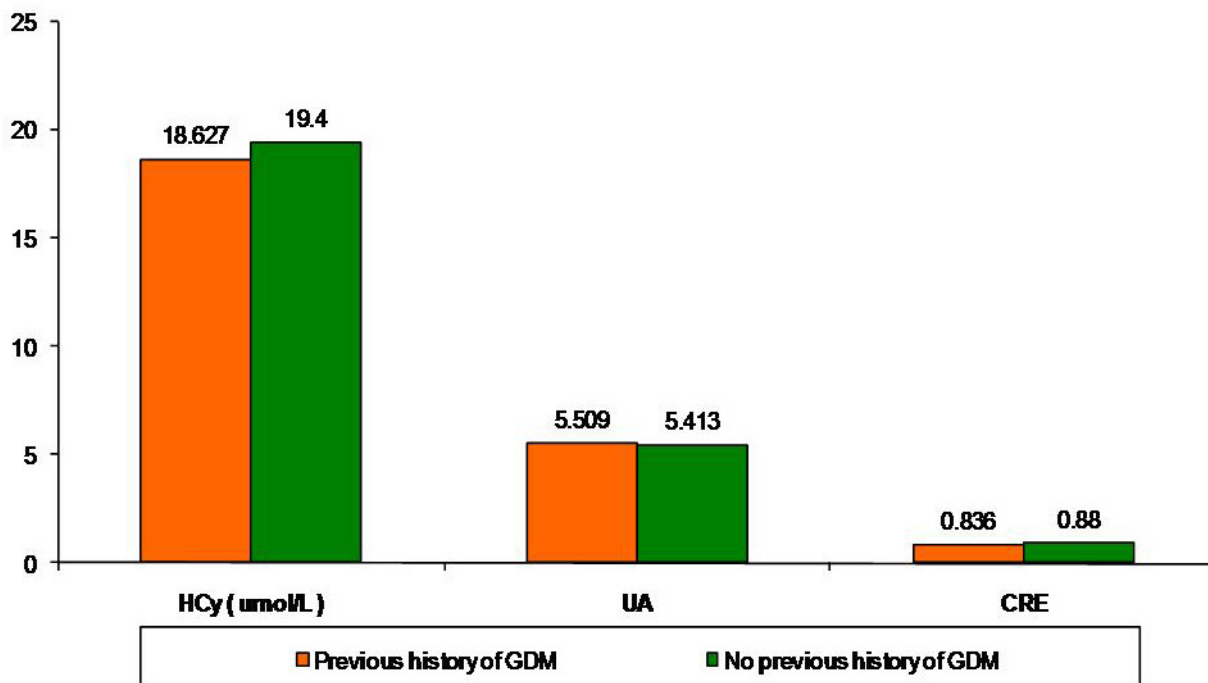**Figure 1: Biochemical variables and previous history of GDM**

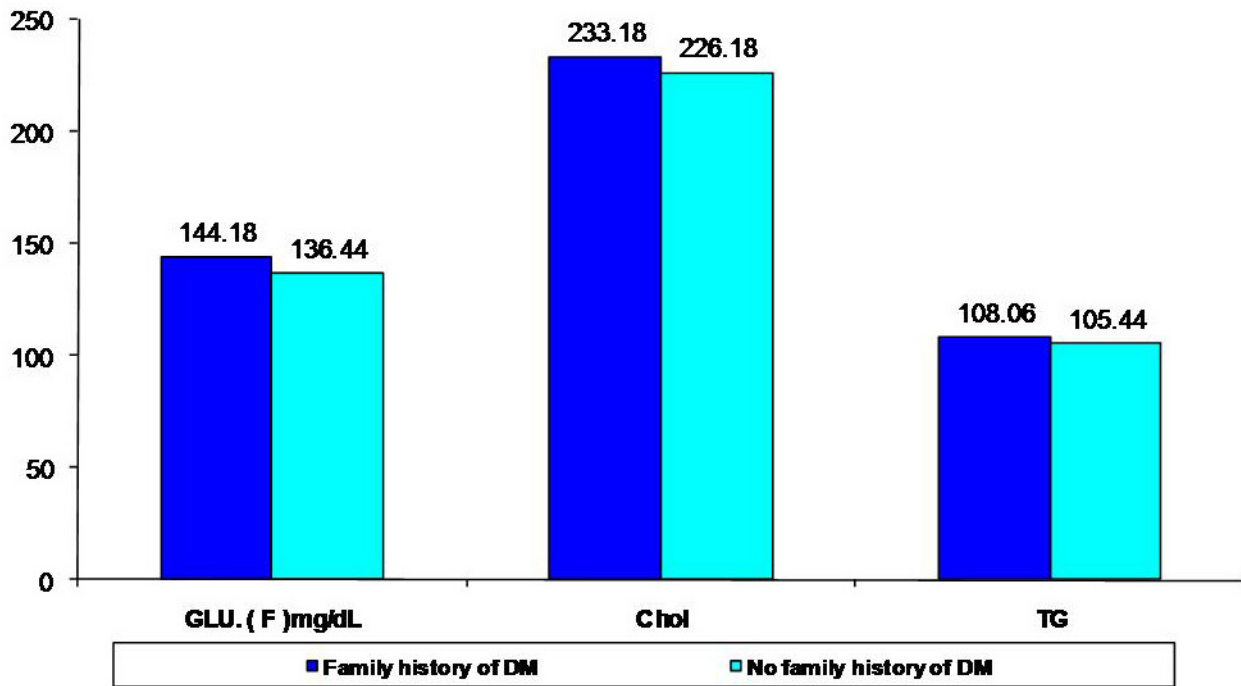**Figure 2: Biochemical variables and previous history of GDM**

Figure 3: Biochemical variables and Family History of Diabetes Mellitus
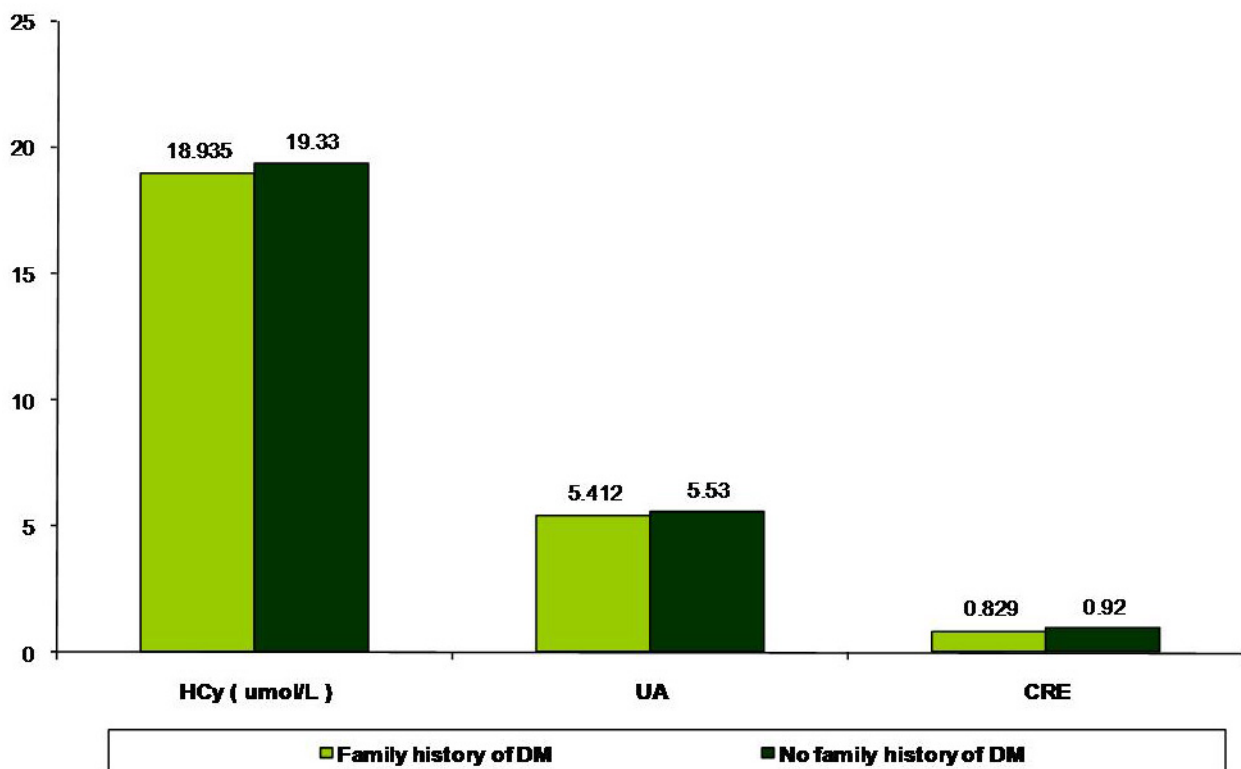

Figure 4: Biochemical variables and Family History of Diabetes Mellitus

Discussion

Our study shows pregnant women with GDM to be significantly older and have higher BMI (in the overweight or obese range) compared to normal women. This observation tallies well with those reported in literature where an age of more than 24 years was found to be positively associated with GDM in women with other risk factors. Obesity is a known risk factor for type 2 Diabetes and insulin resistance. Women with GDM have been reported to be older and obese compared to normal women however it was not found to have any confounding effect on the biochemical parameters including Homocysteine levels (1996).

Fasting Blood Glucose level is the most important diagnostic criterion for Gestational Diabetes. We have in our study used the most accepted criteria for diagnosis of GDM. Since then, the International Association of Diabetes and Pregnancy Study Groups (IADPSG) has, in March 2010, issued new guidelines for diagnosis of GDM because of the rising prevalence of obesity, type 2

diabetes, and other metabolic disturbances among younger age groups (2010). These are based on the HAPO findings which indicate that associations between maternal glycemia and adverse outcomes are continuous across the range of glucose concentrations (2008). New criteria for blood glucose levels on oral GTT are more stringent for fasting glucose and cutoff values are > 92, 180 and 153 mg/dL for fasting, 1hr and 2hr respectively (2010).

Serum Cholesterol and Triglyceride levels were found to differ significantly between the GDM and normal pregnant women. Serum cholesterol levels were found significantly elevated above the desirable range while Triacylglycerol though elevated, continued to be within the reference range. Our results differ from those mentioned in literature showing greater differences in serum triacylglycerol levels and lesser differences in serum cholesterol between the GDM and normal pregnant women (1996). Other studies have reported no significant difference in levels of serum triglyceride and cholesterol between normal women and women with gestational diabetes (2008).

Uric acid is a marker of metabolic syndrome and associated with insulin resistance in non-pregnant women (2005). The mechanism by which uric acid is related to insulin resistance is not clear but hyperuricemia is associated with deleterious effects on endothelial function, platelet adhesion and aggregation and oxidative metabolism. Serum uric acid has been reported to be higher at 24-28 weeks gestation in women diagnosed with GDM compared to women without diabetes though the difference was not found to be statistically significant (2009). In our study, we found Uric acid levels in blood to be significantly higher in GDM though the values were within the normal reference range. Serum Creatinine levels too were found to be significantly higher than in GDM compared to normal pregnant women. These findings are consistent with those reported in literature (2006). No

significant difference in any of the biochemical variables was observed between women with/without a family history of Diabetes mellitus nor was any difference observed in the parameters between women with/without a previous history of GDM.

Women with raised Hcy levels also have an increased risk of pregnancy complications and adverse pregnancy outcomes (2000). Our findings show higher homocysteine levels in women with GDM. This difference is highly significant and has been observed in these women even when they were on Folic acid supplements. These findings are consistent with the reports in literature (2008, 2004, 2008). However, the plasma homocysteine levels reported by us in GDM are much higher than has been mentioned in literature. This could be due to genetic differences in populations since homocysteine metabolism has been reported to vary with ethnicity (2010).

Conclusion
Homocysteine, Cholesterol, Triacylglycerol, Uric acid and Creatinine levels in blood were significantly elevated in women with GDM compared to normal pregnant women. Along with higher BMI, the pattern is similar to that seen in Metabolic Syndrome. Plasma total homocysteine level in women with GDM, reported by us, is much higher than that reported in literature. This could be related to genetic variations since the incidence of both Gestational and Type 2 Diabetes in the UAE is very high. Further studies are in progress, with larger numbers of patients, to study the association of each variable taking into account the confounders including ethnicity.

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(References continued from page 18 *Developmental Hip Dislocation Among Infants at King Hussein Medical Center*)

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Situation Analysis of School Health Services in Saudi Arabia and proposal for an application of A Four Quadrant School Health Model

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Abstract

The concept of school health services has started very precisely in developed countries and achieved so many outcomes; however in developing countries it has lost its true essence. No school services can be satisfactory unless they provide a full range of services to improve overall health status of children.

The literature reinforced that if we do not ponder on this crucial period then there will be a probability that children will develop so many diseases in later age which will ultimately reduce their longevity and will not increase life expectancy. The other aspect of health during this period is the educational aspect; if children are not healthy then it is difficult for them to learn and understand.

This review paper is an effort to look in detail at the existence of school health services in Saudi Arabia and review the available school health models. It also proposes a four quadrant school health model which describes the school health plans and strategies to be implemented easily with limited resources.

The evidence suggests that improved health services through joint efforts of multiple agencies shape healthy living, decrease chronic diseases, increase longevity and eventually enhance teaching and learning performance.

Key words: School Health services, school health model, childhood obesity, life expectancy

Introduction

Schools in any country are the first step in building a nation. If the bases are poor and not built properly then there will be no good nation building. Research shows that if we do not concentrate on this crucial period then there will be a chance to develop so many problems in later age. There is evidence (1) that aggressive treatment with currently available therapies to reverse modifiable obesity-related risk factors, would reduce, but not be eliminated, for example.

The projected increase in the number of Coronary Heart Disease (CHD) events (2) are also based on lifestyle, which mainly starts in school years. The other aspect of health during this period is the educational aspect; if children are not healthy then it is difficult for them to learn and understand. In short, a healthy childhood will develop a healthy nation and eventually develop the country.

The situation in Saudi Arabia seems quite similar to any other developing country; for example one study showed that prevalence of smoking was 21.3% among males and 4.9% among females. The rate of overweight was 20.8%. Driving without a license was reported by 68.8% of students and 82.3% said they didn't fasten seat belts (3). Another study revealed that school students consume more carbohydrates, do less physical activity and have more sleeping hours (4) which ultimately affect their health and learning.

In Saudi Arabia, the school health activities have been provided by the Ministry of Education for a long time. However, due to the limitation of resources, in terms of drugs and infrastructure for the delivery of health services by the Ministry of Education, and due to an increasing number of school children in the Kingdom, a

Year	Life expectancy at birth	Rank	Percent Change	Date of Information
2003	68.73	138		2003 est.
2004	75.46	73	9.79 %	2004 est.
2005	75.46	73	0.00 %	2005 est.
2006	75.67	73	0.28 %	2006 est.
2007	75.88	69	0.28 %	2007 est.
2008	76.09	69	0.28 %	2008 est.
2009	76.3	68	0.28 %	2009 est.
2010	73.87	108	-3.18 %	2010 est.

Table 1: Life expectancy in Saudi Arabia by year

suggestion is being highlighted nowadays of allowing the curative services to be provided by the Ministry of Health, while the preventive and promotive services are to be provided by the Ministry of Education (5).

Although, there are several programs launched under the umbrella of school health services such as Anti-smoking educational intervention (6), AIDs education intervention (7), School Dental Prevention Program and Mobile Dental Trailers (8), and some health education campaigns (9), so far no comprehensive program has been launched to address this issue.

Childhood Obesity and its impact: According to the CDC Childhood obesity has more than tripled in the past 30 years. The prevalence of obesity among children aged 6 to 11 years increased from 6.5% in 1980 to 19.6% in 2008. The prevalence of obesity among adolescents aged 12 to 19 years increased from 5.0% to 18.1% (10, 11). The situation in Saudi Arabia is also not different from the world as one study of university students in Riyadh (12) showed that 31% of the study sample were overweight, whereas in Abha, obesity (15.9%), and overweight (11%) were prevalent. Overweight and obesity were significantly more prevalent among females of primary and secondary grades (4).

Obesity is the result of caloric imbalance (too few calories expended for the amount of calories consumed) and is mediated by genetic, behavioral,

and environmental factors (12,13). Childhood obesity has both immediate and long-term health impacts:
- Obese youth are more likely to have risk factors for cardiovascular disease, such as high cholesterol or high blood pressure. In a population-based sample of 5 to 17 year olds, 70% of obese youth had at least one risk factor for cardiovascular disease (14).
- Children and adolescents who are obese are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems such as stigmatization and poor self-esteem (15, 16).
- Obese youth are more likely than youths of normal weight to become overweight or obese adults, and therefore are more at risk for associated adult health problems, including heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis (16).

Life expectancy:
Healthy lifestyle habits, including healthy eating and physical activity, can lower the risk of becoming obese and developing related diseases (15). Regarding the increase in life-span, simple, cost effective public health measures could lengthen the average human life span by five to 10 years, according to the latest World Health Report (17). The authors argue that simple interventions could add about six years healthy life expectancy in most developed regions and 10-15 years in developing regions. "Globally, we need to achieve a much better balance between preventing disease and merely treating its

consequences," said Christopher Murray, overall director of the World Health Report. "Although the report carries some ominous warnings, it also opens the door to a healthier future for all countries, if they're prepared to act boldly now."

We are living longer than ever before in developing countries. Yet, healthy life expectancy remains lower than most other developed countries. There is also a large variation within developing countries themselves. However, some countries like Saudi Arabia have very high GNP per capita but don't have high life expectancies (Table 1). Alternatively, there are countries like China and Cuba that have low GNP per capita and have reasonably high life expectancies.

Healthy life expectancy is influenced by a vast range, and complex interaction, of factors running through each individual's life, from conception to death. These include:

- Maternal health and wellbeing, including teenage pregnancy, smoking, drinking, drugs and diet.
- Parental relationships and influences in the early years of life, including breastfeeding, mental health,
..diet, physical activity, dental health and support for cognitive and educational development.
- Later health-related behaviours and lifestyle choices.
- Access to health and other services.
- Wider factors influencing health, such as income, education, skills and employment.
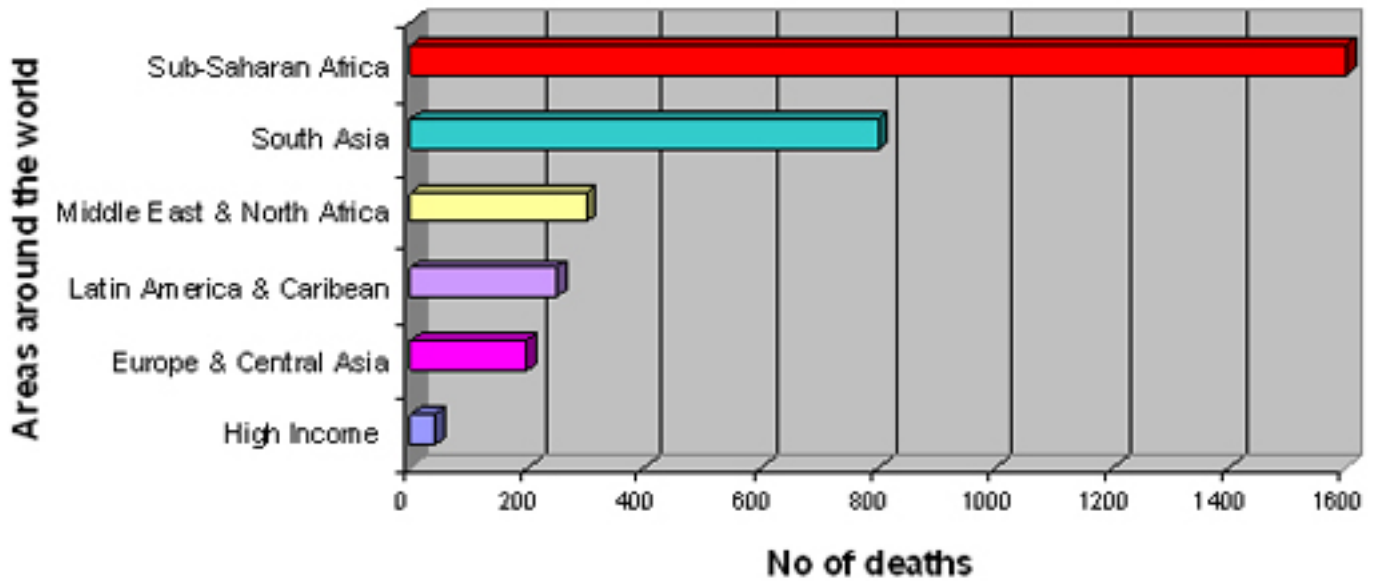
Death rate per 100 000 children aged 0-14

Figure 1: Death rate per 100 000 children aged 0-14 (17)

Figure 2: More developed regions of the world generally have higher life expectancies (green) than less developed regions with lower life expectancies (red)

What is the schools' role?
There are many key actions and interventions which can most significantly impact on the determinants and behaviours which drive the current levels of inequalities in healthy life expectancy across the world (19). The policies and activities to support early years, education, employment and income/poverty are most important in determining long term health outcomes. However, the schools play a pivotal role in planning of these.

During last 40-50 years, schools have grown up like mushrooms in every part of the world, but in essence are lost, especially in developing countries. The schools are not just places of education, they have other roles to play as well and one of the most important roles is to promote health in childhood. Schools have direct contact with more than 95 percent of our nation's young people aged 5-17 years, for about 6 hours a day, and for up to 13 critical years of their social, psychological, physical, and intellectual development (20).

Schools play an important role in improving students' health and social outcomes, as well as promoting academic success. Over the past 30 years, there have been several international initiatives to define and advance the role of schools in promoting and protecting health. In the more recent past, in 1995, the World Health Organization (WHO) facilitated a process leading to the establishment of the Global School Health Initiative. This Initiative advanced a comprehensive and integrated methodology for school health that has become widely known as Health Promoting Schools (21).

It is evident worldwide, with several examples (22,23,24,25,26,27,28) that school is a very important place

to promote health if it is utilized in a proper way. In Saudi Arabia, the real essence for utilization of schools as a health promotion resource center has not been addressed so far and the Ministry of Health and Ministry of Education are still trying to achieve the outcome in bits and pieces(5).

Discussion

During the last three to four decades the Kingdom of Saudi Arabia has become among the fastest growing economies in the world (29) however the statistics show that life expectancy has been reduced during the last five years and obesity and other chronic disorders are emerging as a challenge to this country. This situation, is due to several reasons and one of these is that it has not developed a comprehensive plan to tackle this situation. The special period of life that is childhood and the schools which are special areas of the community and deal with a very sensitive part of the population are being neglected or not utilized properly in the Kingdom. A special school system has on average 100 to 1000 children and these are house sensitive populations who need special attention (30) and might not be able to attract the attention of policy makers. Table 2 shows that most of the diseases are preventable and so simple measures can make a lot of difference. Although schools are an existing and established system built for teaching and learning, they can play an important role in prevention of at least some diseases. The relationship of schools and health has long been established (31) and it is constantly emphasized that the cleaning, maintenance, and refurbishing are some essential components of the school environment which indeed do affect hygiene in the highly active school environment.

The role of school in health is like a pulley; if there is any imbalance, the consequences are greater and greater. The present manner and environment of schools (20) are one of the main sources to bring existing disease pattern, for example obesity in the childhood. Off course, childhood obesity has

both immediate and long-term health impacts therefore they have a higher risk for associated adult health problems, including heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis (16).

Nevertheless, when we start having health problems in childhood, life expectancy will be reduced (15). Healthy lifestyle habits include healthy eating and physical activity, which can lower the risk of becoming obese and developing related diseases. According to the latest World Health Report (17) simple cost effective public health measures could lengthen the average human life span by five to 10 years. Most of the measures proposed by the World Health report are proven approaches, such as taxing tobacco, encouraging safer sex, and fortifying foods with vitamins and minerals.

There are several ways to handle this problem from the grass roots level and so far a variety of models (31, 32) are presented to describe the components of a school health program such as:

. The Three-Component Model.
Originating in the early 1900s and evolving through the 1980s, the three-component model is considered the traditional model of a school health program, consisting of the following basic components: (1) health education, (2) health services, and (3) a healthful environment.

. The Eight-Component Model.
In the 1980s, the three-component model was expanded into an eight-component model, traditionally referred to as a "comprehensive school health program"-consisting of the following components: (1) health education; (2) health services; (3) healthy school.

Significantly, schools can help students to adopt and maintain healthy eating, and physical activity behaviors. CDC (20) has published guidelines that identify school policies and practices most likely to be effective in promoting lifelong physical activity and healthy eating. The guidelines which are based on comprehensive reviews of the

research literature and extensive input from academic experts and school health practitioners contain many different recommendations that can be summarized as 10 key strategies and each strategy has its own component (33, 34). CSHPs focus on improving the quality of each of these components and expanding collaboration among the people working on them. A CSHP is a systematic approach to promote student health that emphasizes needs assessment; planning based on data, sound science, and analysis of gaps and redundancies in school health programming, and evaluation; it is a quite a huge job and requires a lot of effort.

The proposed Four Quadrant Model:
Of course, there is no need of further developing any other model; it is more feasible to extract from available resources and to corroborate its implementation. However, the presenting model is not much different from the existing models and it is an extract of all available models and guidelines. It is an effort to make it as easy as possible for implementation, even with limited resources. Indeed it addresses a few of those areas which have so far not been considered in available models and strategy plans, especially in Saudi Arabia.

Schools have the following different areas which affect the health of children.

1. Physical environment
2. Hygiene conditions
3. Attitude & awareness of students regarding health
4. Attitude & awareness of teachers and parents regarding health

1. Physical Environment:
The main causes of environmentally related illness in schools are water, food sources for the various bio-pollutants, non-existence or ineffective cleaning, and poor ventilation. Assessment of environmental risk in school environments must be done before further planning.
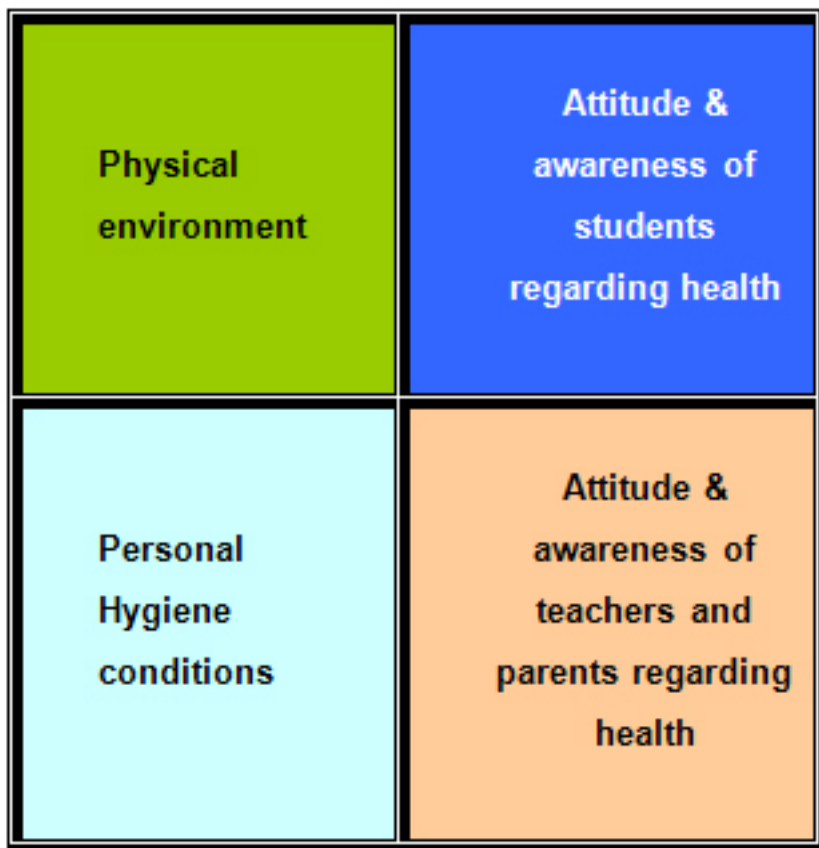
Figure 3: A four quadrant window school health plan

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A basic strategy for managing indoor bio-pollutants includes:

1. Control the temperature and moisture.
2. Take away food supplies.
3. Keep any organism or other non-viable pollutant away from humans. Kill it, remove it, or contain it.

The following are recommended as the focus of an environmental management program for virtually any school:

. Environmental coordinator and reporting system.
. Awareness training on the operation of a school building.
. Moisture management that emphasizes roof maintenance and drainage improvement.
. Water damage response plan.
. Mechanical ventilation systems assessment and repair.
. Cleaning and restoration effectiveness emphasizing effective cleaning equipment, a well designed cleaning program, and scheduling.

A cleaning effectiveness program includes:

. Training programs for custodians, teachers and students.
. Adequately sized doormats as particle barriers.
. High efficacy extraction cleaning equipment (vacuum cleaners).
. Hot water extraction of carpet.
. Damp mopping of hard surfaces.

2. Personal Hygiene Conditions:
Personal hygiene is most important in order to maintain health. The maintenance of personal hygiene is the main issue in schools. Therefore it should start with a personal hygiene survey of the following:

1. Teachers
2. Students
3. All other supportive staff (Admin, drivers and sweepers etc.)

Give all of them instructions and make plans regarding their awareness and check them randomly for continuity of personal hygiene. Develop some reward or incentive schemes for all of them.

3. Attitude and Awareness of Students:
Practical knowledge, skills, attitudes and beliefs that are a pre-requisite for health behavior change should be delivered in comprehensive kindergarten to grade-12 curricula that covers: health, personal/social development, physical education and family studies/home economics as well as appropriate coverage integrated within other subjects/ curricula.

The plan (see opposite page) can be developed in order to create awareness, increase knowledge, and change behavior and attitudes.

4. Attitude & Awareness of Parents & Teachers:
A training seminar / workshop can be planned for teachers to describe how curriculum instruction, in-service, administrative practices, services, relations with the community, parents or students and teaching duties, can change in order to achieve a healthy environment.

A plan should be developed to communicate the policy in writing to the media, community, parents, staff and students at the time of adoption and periodically after that, with a timetable for implementation, including action plans for the school district, relevant departments and individual schools.

The parents should be involved from the beginning of planning. The parents-teachers meeting; telephone conversation, quarterly newsletter or off-on development of health education materials for parents are a few methods to develop awareness among parents.

Conclusion
Without a strong contribution from schools, we are unlikely to eliminate the chronic diseases. Improving and escalating efforts to promote physical activity and healthy eating are entirely consistent with the fundamental mission of schools. The solution to a healthy school is to know the importance of health, cleanliness and the necessary tools, techniques, and management

Awareness	Lectures, Group Work, Video/Media, Displays, Posters Exhibitions competitions, Brochures
Knowledge	Lectures, One to One teaching, Written Materials, Research Assignments, Group Work, Reading Assignments, Internet Assignments
Self-Awareness, Attitude Change, Decision-making	Group Work, Clarifying/Discussing Values, Journaling, Ranking, Categorizing, Role Playing
Behaviour Change	Group Work, Self monitoring, Identifying benefits/risks, Setting goals, targets, Devising Coping strategies, Accessing social support, Accessing support services, Overcoming physical, economic, and practical barriers

Figure 4: The plan

systems to achieve those conditions as a first step and then implement a School Health Model through a public health approach with the collaboration of community, ministry of education, ministry of health and ministry of environment etc.

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Awareness and Practice of Evidence-Based Medicine among Medical Practitioners in a Nigerian Community

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Abstract

Aim: This study, which was conducted among Medical Practitioners working at Federal Medical Centre, Owo, Ondo State, Nigeria, aimed at assessing the awareness and practice of evidence-based medicine.

Methodology: This is a descriptive cross-sectional study which was conducted in June and July,2009. Eighty six respondents were interviewed with the aid of a self administered questionnaire. The information obtained with the aid of the study instrument included their bio-data, awareness of evidence-based medicine and evidence-based medical practice as well as the barriers to it.

Results: Most of the respondents: 83(96.5%) were aware of evidence-based medicine. The main source of awareness about evidence-based medicine was lectures and courses: 32(38.6%). The majority of the respondents: 68(79.1%) practiced evidence-based medicine.

Conclusion: Most respondents were aware of evidence-based medicine and also practiced it. There is a need for Medical Practitioners to avail themselves of the opportunity for evidence-based medicine in spite of their tight schedule.

Key words: Medical Practitioners, Evidence-based Medicine, Nigeria.

Introduction

Evidence is the basis for almost every human decision and action. A field such as the medical profession which deals with the health of individuals should ensure the utmost care in diagnosing and treating a patient(1). An evidence base for medicine is as old as medicine itself (2). The concept of evidence-based medicine has done a good job in focussing attention on the application of evidence from valid clinical research to clinical practice (3,4). Generally two basic classes have been proposed for scientific explanation of events. Deductive reasoning places emphasis on reaching a conclusion about a hypothesis based on verification of universal laws pertinent to that hypothesis, while inductive or probabilistic reasoning explains an event by calculation of some probabilities for that event to be related to a given hypothesis (5). Although both types of reasoning are used in clinical practice, evidence-based medicine stresses on the advantages of the second approach for most instances in medical decision making(5). Evidence-based medicine is the conscientious explicit and judicious use of current best evidence in making decisions about the care of patients. Current clinical practice is often evidence-based (6,7). It integrates the best available data from clinical practice to enhance the quality of clinical decisions and achieve the best possible outcome (2,8). Evidence- based practice has the potential to change the culture of medical practice and improve the quality of care for patients. In order to assure quality care the practice of medicine should be evidence based(9,10). The moving idea behind evidence based medicine is that doctors should not make use of unproven therapies which may be ineffective. Evidence-based medicine is a new emerging area of expertise that all physicians are increasingly required to acquire in order to remain relevant in contemporary

practice (3,11). Evidence- based medical practice helps ensure that the right treatment is given to the right patient (1). New diseases, new techniques and new methods are constantly emerging. Unless Doctors keep themselves abreast of the latest developments they may not be in a position to render the most effective and efficient services. The aim of evidence-based medicine is to reduce uncertainty in medical practice. It has gained prominence throughout the world especially in developed countries. Inclusion of evidence-based medicine in the course curricula of medical schools in some countries reflects this prominence (1). The knowledge of evidence-based medicine is thus increasingly becoming a core competence in medical education (12). In view of the above this study is aimed at determining the awareness and practice of evidence-based medicine among medical practitioners working at the Federal Medical Centre, Owo. It is hoped that policy implication drawn from this study shall guide policy formulators to evolve strategies that can improve the practice of evidence-based medicine among medical practitioners in Nigeria.

Methods

Ethical clearance was obtained from the Ethical Review Committee of the hospital prior to commencement of this study. This study was conducted in June and July, 2009. Eighty six consenting medical practitioners out of the one hundred and sixty working at Federal Medical Centre, Owo, participated in this study. Informed consent was obtained from the respondents. They were interviewed with the aid of a self administered questionnaire by the authors. Information obtained with the aid of the study instrument (questionnaire) included the bio-data of the respondents, awareness of evidence-based medicine and the sources of awareness. The other information obtained included the practice of evidence-based medicine and barriers to practice of evidence-based medicine among the respondents. The data obtained was collated and analyzed with the aid

of SPSS 15.0.1 statistical software. Relevant policy implication was then drawn from the ensuing findings.

Results

Eighty six respondents out of the one hundred interviewed returned their filled questionnaire giving a response rate of 86%.The ages of the respondents ranged between 24 years and 49 years, with a mean age of 32 years ±5.4 years. There were 66 males (76.7%) and 20 females (23.3%). The majority of the respondents were single, 50(58.1%) and the remaining were married, 36(41.9%). Most respondents were Yorubas, 74(86%), 7(8.1%) were Ibos while the remaining 5(5.8%) belonged to the other ethnic groups. The respondents were predominantly Christians, 77(89.5%), 7(8.1%) were Muslims while the remaining 2(2.3%) belonged to traditional religion. The respondents comprised 11(12.8%) Consultants, 17(19.8%) Resident Doctors, 38(44.2%) Medical Officers and 20(23.3%) House Officers.

Awareness of evidence- based medicine: The majority of the respondents 83(96.5%) were aware and the rest, 3(3.5%) were not aware.

Awareness of Cochrane library: Most respondents 50(58.1%) were not aware of Cochrane library while the remaining 36(41.9%) were aware.

Practice of evidence-based medicine: Most respondents 68(79.1%) practised evidence-based medicine while the remaining 18(20.9%) did not.

Consultation of Authority when faced with challenging situation: The majority of the respondents 84(97.7%) consulted an authority in their field while the remaining 2(2.3%) did not.

Access to Cochrane data base: Few respondents, 21(24.4%) had access to Cochrane data base while the remaining 65(75.6%) did not have access.

Access to internet at work: Most respondents, 68(79.1%) had access to internet at work while the remaining 18(20.9%) did not have access.

Computer use in scientific enquiry: The majority of the respondents, 75(87.2%) were familiar with the use of a computer in scientific enquiry while the rest, 11(12.8%) were not.

The sources of information consulted in connection with evidence-based medicine as detailed in Table 2 revealed that most respondents, 30(35.7%) consulted the print and electronic sources.

The barriers to the practice of evidence-based medicine is as detailed in Table 3 which revealed that the main barrier was time constraint, 24(27.9%).

Discussion

The age range of the respondents is in keeping with what is expected of a dynamic workforce in the field of Medicine in Nigeria as the retirement age is sixty years in the public service. The fact that most of our respondents were Christians is in tandem with the predominant religion in the community. Yoruba been the predominant ethnic group among our study population is also expected as the community is a Yoruba community in South-West Nigeria. All the cadres of Medical Doctors in the hospital participated in this study thus this helped in reducing cadre related bias to the barest minimum.

It is interesting that most of our respondents were aware of evidence-based medicine as it has gained prominence worldwide in recent times. Evidence-based care is now regarded as the gold standard in health care delivery world wide(13). Evidence-based medical practice helps ensure that the right treatment is given to the right patient(1). Clinical decision making which was based on pathophysiological principles, personal observation and intuition has moved towards the artful application of systematically analyzed results of scientific

Source	Frequency	Percentage (%)
Seminar and courses	32	38.6
Colleagues	21	25.3
Books	16	19.3
Internet	13	15.7
Journals	1	1.2
Total	83	100

Table 1: Sources of awareness of evidence-based medicine

Sources	Frequency	Percentage (%)
Print	25	30.1
Electronic	28	33.7
Print and electronic	30	36.1
Total	83	100

Table 2: Sources of information consulted in connection with evidence-based medicine

Barriers	Frequency	Percentage (%)
Time constraint	24	27.9
Paucity of evidence	17	19.8
Lack of skills in accessing Evidence-based information	13	15.1
Lack of library access	11	12.8
Lack of internet access	10	11.6
Lack of emphasis on evidence-based medicine in medical curricula	5	5.8
Lack of endorsement of evidence-based medicine by senior colleagues	4	4.7
Lack of computer access	2	2.3
Total	86	100

Table 3: Barriers to evidence-based medical practice

research(14). In a study conducted in India, the majority of the respondents(79%) were familiar with evidence based medicine(14). Another study done by Olatunbosun et al in the UK revealed that 76% of their respondents were aware of evidence-based medicine(15). A Nigerian study by Fawole et al among postgraduate specialist trainee doctors reported that most respondents(96.6%) were familiar with evidence-based medicine(16). The findings of these studies and ours are at variance with that of another study done by Zerea in Iran which revealed that physicians are not well aware of evidence-based medicine(17). A study done by Nwagwu among consultants in tertiary health care institutions in Nigeria revealed that less than half of the respondents(47.19%) had knowledge about evidence-based medicine(18). The fact that most of the respondents were informed of evidence-based medicine through

lectures and courses is a pointer to an efficient medical education however there is a need to build on this so as to improve evidence-based medical practice. It is not surprising that most of our respondents were not aware of the Cochrane library and only few of them had accessed Cochrane database as evidence-based medical practice is just gaining prominence in this part of the world. These findings are in agreement with that of Fawole et al in which only 18.7% of their respondents had ever used Cochrane library(16). Another study by Khoja et al in Saudi Arabia reported that only 12.9% of their respondents were aware of the Cochrane data base of systematic review; less than 10% of those that were aware made use of these resources in clinical decisions(19). Most of our respondents stated that they usually consult an authority when faced with a challenging situation. This is a pointer to cohesion among medical practitioners as nobody has a monopoly of knowledge. Our finding is higher than that of Olatunbosun in the UK in which 51% of their respondents consulted a respected authority when faced with a difficult clinical situation(15). It is commendable that most of the respondents were familiar with the use of a computer in scientific enquiry as the use of a computer could improve the practice of evidence-based medicine. Our finding is higher than that of a study done in UK in which 21% of the respondents reported that they were familiar with the use of a computer in scientific enquiry(15). In a survey among members of the American Society of Internal Medicine, younger physicians used computers more frequently in their clinical work(20). It is not surprising that most of our respondents had access to the internet at work in view of the fact that the hospital management offered internet services over the past three years. Time constraints related to pressure of work was the main barrier to evidence-based medicine in this study. This finding is similar to that of another study done in Saudi Arabia which identified patient overload as the major barrier

to evidence based medicine(19). Paucity of local evidence was also identified as a barrier to evidence-based medicine in this study and this brings to the fore the need to carry out research so as to enhance evidence-based medical practice. A study among urologists reported widespread agreement with the notion that practice of evidence-based medicine improved quality of health care(21).

Conclusion
Most respondents were aware of evidence-based medicine and also practised it. Few respondents accessed the Cochrane data base. The main barriers to practice of evidence-based medicine were time constraints and paucity of local evidence.

Recommendation
1) There is a need to carry out research locally so as to promote evidence-based medical practice.
2) Medical practitioners should avail themselves of the opportunities for evidence-based medical practice in spite of the pressure of work.

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Colorectal Cancer at One Centre

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Abstract

Objectives: The aim of this study is to present the gender, age distribution and histopathological profile of colorectal cancers seen at King Hussein Medical Center, Amman, Jordan.

Methods: Our study group consisted of 141 colorectal cancer specimens that were examined in the department of Histopathology at King Hussein Medical Center in Amman, Jordan, over a period of 5 years from July 2005 to August 2010. The data was retrieved and analyzed. The site of the tumour and histopathological characteristics such as differentiation and Duke's staging of all the tumors, were studied and compared with age and gender of the patients.

Results: Mean annual incidence was 28 patients/year. There were 106 males (57%) and 80 females (43%). The mean age at the time of diagnosis was 58.8 (range 16-86 years), with the median age of 47 years. There were 19 (10.2%) patients equal to or below the age of 40 years. One hundred and forty eight (78.7%) patients had colonic cancer and 40 (21.3%) had rectal cancer. In our study 0.7% of patients presented in their 2nd decade of life, 3.5% in the 3rd decade, 7.1% in the 4th decade, 14.2% in the 5th decade, 24.1% in the 6th decade, 39% in the 7th decade, 10% in the 8th decade and 1.4% in the 9th. Among these cases there were 127 cases (90%) of colorectal adenocarcinoma, 1 case (0.7%) of signet cell carcinoma, 1 case (0.7%) of neuroendocrine differentiation and 12 cases (8.6%) of mucinous adenocarcinoma.

Conclusions: Our study showed a relatively younger mean age, and high incidence of acute presentations. This should enforce the efforts for screening programs and introduction of a comprehensive colorectal cancer education program for the population via an efficient use of the press and audiovisual media.

Introduction

Every year, more than 945 000 people develop colorectal cancer worldwide, and around 492 000 patients die.(1) This cancer is more common in developed than developing countries. In developed countries, it is the second most common tumour, with a lifetime incidence of around 5%. (1 ,2) The overall 5-year survival rate in the USA exceeds 60%, but is less than 40% in less developed countries. (3) The incidence of colorectal cancer is gradually increasing. One reason for this is the ageing of the population: as with most forms of cancer, the probability of developing colorectal cancer rises sharply with age. In young people, the risk is very low (except in a small minority with hereditary forms of the disease); between the ages of 45 and 55, the incidence is about 25 per 100,000. Among those aged 75 and above, however, the rate is more than 10 times this: over 300 per 100,000 per year. The median age of patients at diagnosis is over 70 years.(4) Others report a decreasing trend in the incidence and mortality of CRC.(5)

Etiology of colorectal cancer is not completely clear. Epidemiologic studies demonstrate the importance of environmental factors, particularly dietary, in cancerogenesis. Familial aggregation within a given population shows that genetic factors play an important role. General risk factors are represented by age, sex, and physical activity, while some pathologies increased the risk of developing colorectal cancer or are frankly pre-cancerous (adenomas, ulcerative colitis, Crohn's disease).

The outlines of colonic malignancies are still not well reported in Jordan. The present situation of this common and serious health problem is less than ideal and indicates that a lot has to be carried out to detect the disease at an earlier stage. The incidence of mortality from these colorectal malignancies cannot be

determined accurately since there is no proper national cancer registry. In this study we reviewed and analyzed the epidemiology of colorectal carcinoma seen at our hospital.

Methods

This is a retrospective study of all patients who underwent colonic or/and rectal resection for colorectal cancer at King Hussein Medical Center over a 5 year period between July 2005 and August 2010. Our study group consisted of 141 colorectal cancer specimens that were examined in the department of Histopathology. The data was collected from the histopathology report, and analyzed. Characteristics of these patients; age, sex, stage at presentation, the differentiation of the tumor (well, moderate and poor), the mucinous and signet ring subtype, the presence or absence of invasion (lymphatic, vascular or perineural) and tumor location, were analyzed (Table 1 - opposite page).

Staging of the tumor was based on the Dukes' system, after operation and pathological evaluation: Stage A carcinoma confined to the mucosa; stage B, carcinoma extending into or through the muscularis propia without lymph node or distant metastasis; stage C, carcinoma with lymph node metastasis with no distant metastasis. No assessment could be done of the distant metastasis. Patients were divided into two groups regarding age; group I- equal or less than 40 years of age and group II- more than 40 years. This choice was made to facilitate comparison with other studies, as the age 40 years was the one most frequently used in the literature.

Tumors first were divided into either rectal or colonic to estimate the incidence of each and to compare it with literature, and then each site (ascending, hepatic flexure, transverse, splenic flexure, descending, sigmoid, rectosigmoid and rectal) was taken separately.

Patients who had an emergency operation for the colorectal cancer were also identified.
They were divided into two groups,

Age decade	No.	%
2	1	0.7
3	5	3.5
4	10	7.1
5	20	14.2
6	34	24.1
7	55	39
8	14	10
9	2	1.4

Table 2: Cancer frequency by age (decade)

group I- patients with bowel perforation, group II- with acute intestinal obstruction.

Results

There were 80 males (56.7%) and 61 females (43.3%), and an average annual incidence of 28 patients/year. The mean age at the time of diagnosis was 58.8 (range 16-86 years), with the median age of 47 years. The male to female ratio was 1.3:1 for colon cancer and 1.25:1 for rectal. The relative incidence of colon versus rectal cancers is 4:1 for both males and females. In our study 0.7% of patients presented in their 2nd decade of life, 3.5% in the 3rd decade, 7.1% in the 4th decade, 14.2% in the 5th decade, 24.1% in the 6th decade, 39% in the 7th decade, 10% in the 8th decade and 1.4% in the 9th (Table 2 - above) and (Figure 1 - page 40).

The number of patients below 40 years of age was 16 (11.3%), with eleven males and 5 females. Above the age of 40 years there were 69 (49%) males and 56 (39.7%) females. Two patients had familial adenomatous polyposis; one patient had ulcerative colitis.

One hundred and sixteen (81.1%) patients had colonic cancer and 27 (18.9%) had rectal cancer. The sigmoid colon and rectum were the

most common sites 45 (31%) and 27 (19%) of the patients respectively (Table 1- above) and (Figure 2). In patients aged less than 40 years there was an even distribution of cancers of sigmoid and rectum, 25% each, but the difference was obvious in the above 40 years age group where sigmoid cancer was the dominant (Figures 3, 4 - page 41).

The presenting symptoms were not different from those discussed in other studies, (1, 4) but 33 (23%) patients presented with acute intestinal obstruction and 6 (4%) patients with perforation and acute abdomen (Table 3). Two patients (12.5%) below the age of 40 years presented with bowel obstruction compared to 31 (24.8%) for patients above the age of 40. None of the patients below the age of 40 years had intestinal perforation as a presenting symptom, compared to 6 patients in the above 40 years group.

The majority of the patients were in stage Dukes C; 79 (55.2%). Fifty five (38.5%) patients were Dukes B and only 9 (6.3%) patients were Dukes A (Table 4 - page 42). Regarding age groups, i.e. below 40 and above 40 years, the distribution of stages were similar in both groups (Table 5 - page 42).

	Character	Number	%
Age	< 40 Y	16	11.3
	> 40 Y	125	88.7
Sex	Male	80	56.7
	Female	61	43.3
Diagnosis	Colon Ca	116	81.1
	Rectal Ca	27	18.9
Site	Ascending	24	16.8
	Hepatic flexure	5	3.5
	Transverse	5	3.5
	Splenic flexure	7	4.9
	Descending	14	9.8
	Sigmoid	45	31.4
	Rectosigmoid	16	11.2
	Rectum	27	18.9
Stage (Duke's)	A	9	6.3
	B	55	38.5
	C	79	55.2
Tumour differentiation	Well	9	6.3
	Moderately	116	81.1
	Poorly	18	12.6
Vascular invasion	Yes	29	20.6
	No	112	79.4

Table 1: Characteristic features of the study population with Colorectal Cancer at KHMC

Among these cases there were 127 cases (90%) of colorectal adenocarcinoma, 1 case (0.7%) of signet cell carcinoma, 1 case (0.7%) of neuroendocrine differentiation and 12 cases (8.6%) of mucinous adenocarcinoma.

Moderately differentiated tumour grade were the most common 116 (81.1%), followed by poorly differentiated 18 (12.6%) and well differentiated 9 (6.3%). In patients less than 40 years of age, 75% had moderately differentiated tumors, 25% poorly differentiated and none had well differentiated tumors, in contrary to the patients above 40 years of age where the distribution was as follows: well 7.1%, moderately 81.9% and poorly 11% (Table 6 - page 42).

Twenty nine (20.6%) patients had vascular and lymphatic invasion, one third below 40 years, but only a quarter in the above 40 years group (Table 7 - page 43).

Discussion
Adenocarcinoma of the colorectum is the third most frequent malignant neoplasm worldwide. Colorectal cancer ranks second behind breast
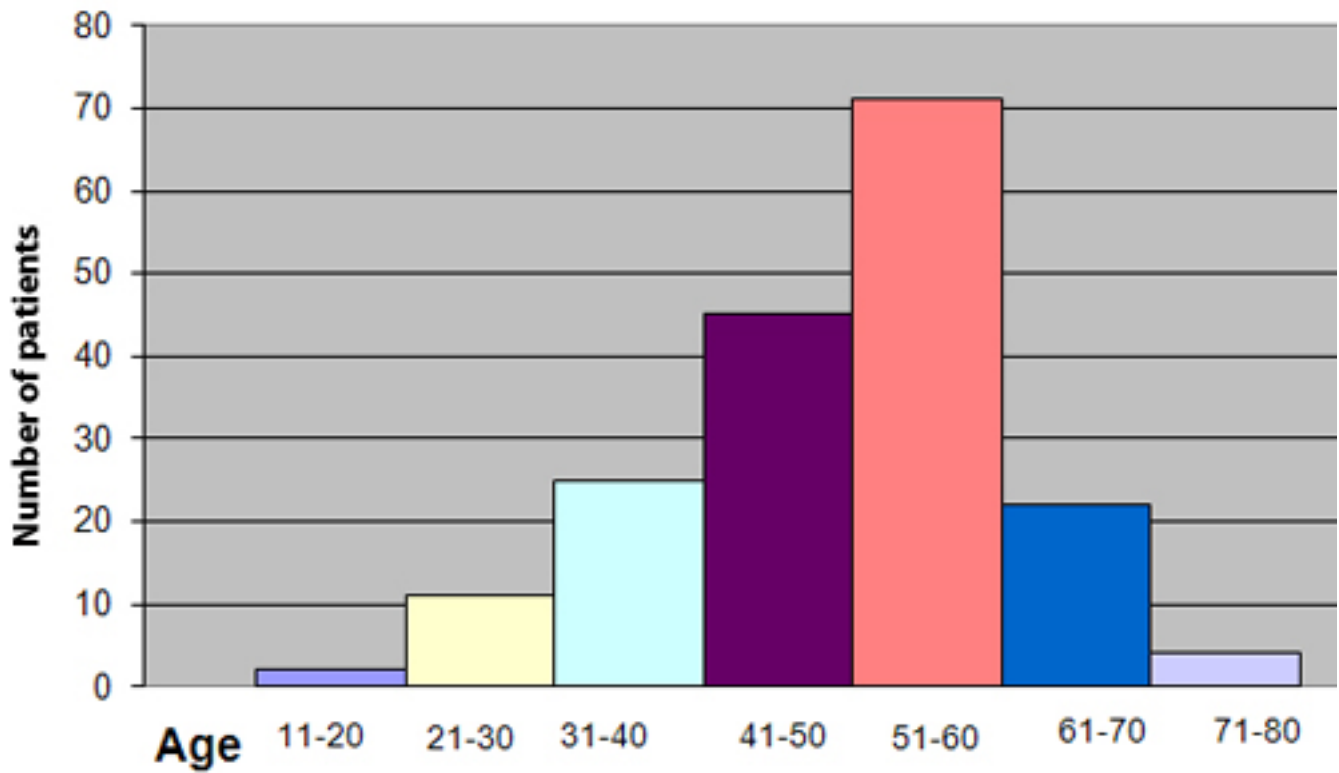
Figure 1: Tumour distribution by age
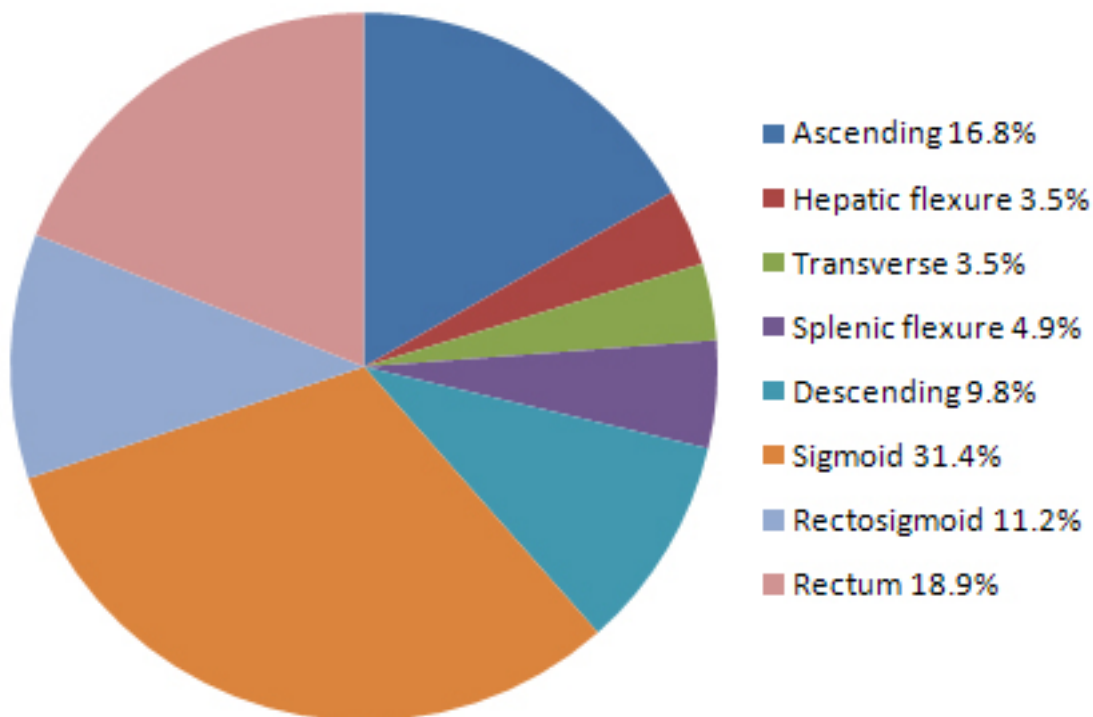
Cancer distribution by site

- Ascending 16.8%
- Hepatic flexure 3.5%
- Transverse 3.5%
- Splenic flexure 4.9%
- Descending 9.8%
- Sigmoid 31.4%
- Rectosigmoid 11.2%
- Rectum 18.9%

Figure 2: Cancer distribution by site

Distribution the site of cancer in patients' age < 40 years

- Ascending 12.5%
- Hepatic flexure 6.25%
- Transverse 0%
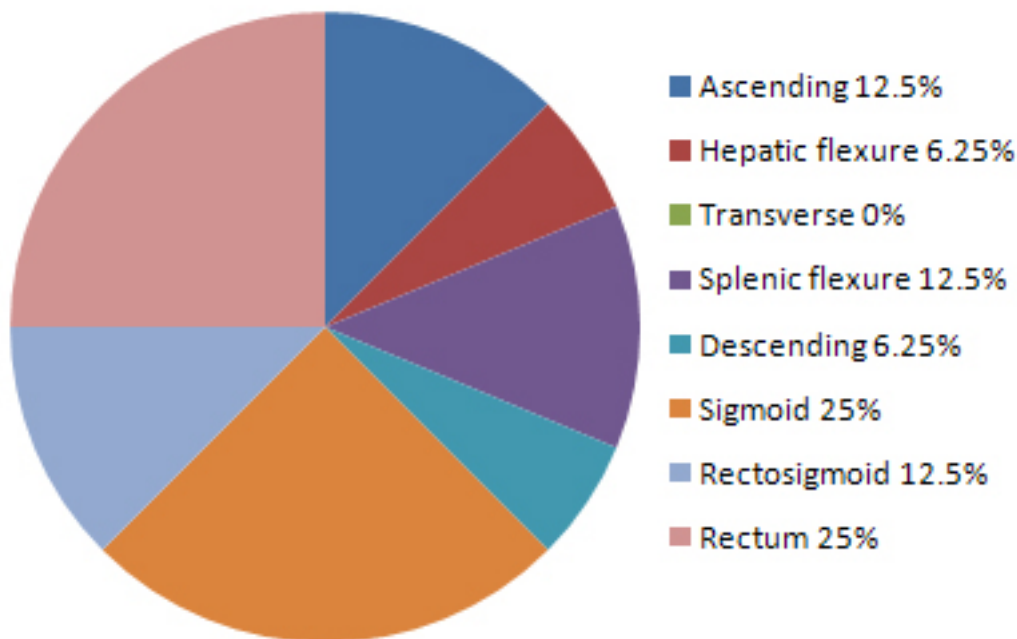- Splenic flexure 12.5%
- Descending 6.25%
- Sigmoid 25%
- Rectosigmoid 12.5%
- Rectum 25%

Figure 3: Distribution the site of cancer in patients' age < 40 years

Distribution the site of cancer in patients age > 40 years

- Ascending 17.3%
- Hepatic flexure 3.1%
- Transverse 4%
- Splenic flexure 4%
- Descending 10.2%
- Sigmoid 32.2%
- Rectosigmoid 11%
- Rectum 18.1%
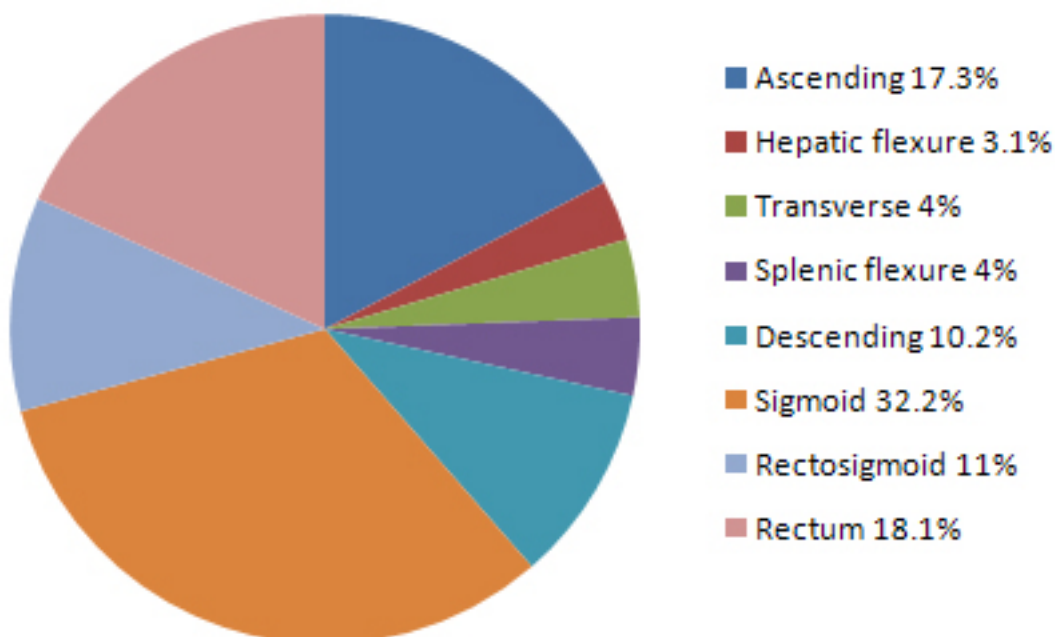
Figure 4: Distribution the site of cancer in patients' age > 40 years

	Male	Female	< 40 years	> 40 years	Total	%
Bowel obstruction	21	12	2	31	33	23
Perforation	3	3	0	6	6	4

Table 3: Distribution of the emergency presentation

Stage (Dukes)	No	%
A	9	6.3
B	55	38.5
C	79	55.2

Table 4: Dukes stage

Stage (Dukes)	Age < 40 years		Age > 40 years	
	No	%	No	%
A	1	6.25	8	6.3
B	6	37.5	49	38.6
C	9	56.25	70	55.1

Table 5: Dukes stage in different age group

	Age < 40 years		Age > 40 years	
Grade	No	%	No	%
Well differentiated	0	0	9	7.1
Moderately differentiated	12	75	104	81.9
Poorly differentiated	4	25	14	11

Table 6: Tumour grade by age group

Lymphovascular invasion	Age < 40 years		Age > 40 years	
	No	%	No	%
Yes	5	31.25	24	19.2
No	11	68.75	101	80.8

Table 7: Lymphovascular invasion

cancer in females and third behind prostate and lung cancer in males.(7) Each year in the United States, approximately 150,000 new cases of colon carcinoma are diagnosed, and approximately 57,000 individuals die of the disease. Those who are cured benefit from early diagnosis and curative surgical resection. Those who are diagnosed too late for curative resection face little chance of cure by available treatments.(6)

Patients with colorectal cancer suffer from considerable excess mortality during the first 6 to 8 years after diagnosis, and the cure rate, which is in the order of 35-40%, (7) has remained largely unchanged over several decades. The incidence rates show a steep rise with age, marked international differences, increasing incidence in developing countries, adjustments in cancer risk within a few decades in populations who move from low to high risk areas, and no consistent differences in relation to race. In addition, the incidence rates display a complex network of relationships to age, sex, segment of the large bowel and secular trends. (8)

The mean age of diagnosis of colorectal cancer in our study is 59 years which is approximately 10 years younger than stated in the literature. (9) Thirty nine percent of disease incidence fell in the seventh decade age category, followed by sixth then fifth, (24.1%, 14.2%), contrary to what is mentioned in other studies, (4, 10) that highest incidence is in the age group 70 + years.

In this study, 11.3% of colorectal cancer patients were found below the age of 40 years, compared to 20.2% in a study by Al-Jaberi et al. (11) Our figure lies above that reported in Western communities of 2-6% (12, 13, 14, 15) but lower than that in nearby countries such as Kingdom of Saudi Arabia (KSA) and Qatar (23% & 20%). (16, 17) Many articles have previously reported poor outcomes for young rectal cancer patients relative to the older population, (18, 19, 20) but a recent two articles by O'Connell et al. (12, 13) found that young colon cancer patients tend to have later-stage and higher-grade tumors. However, they have equivalent, or better overall, and 5-year cancer-specific survival, compared to older patients.

Colonic cancer is 4 times more frequent than rectal in both males and females. This is higher than 2:1 in males and 3:1 in females, (6) or generally 3:1. (21)

A relatively large (23%) proportion of patients presented with bowel obstruction, compared to other reports of around 15%, (22, 23, 24) with a high postoperative morbidity and mortality and a poor 5-year survival (23, 25) that it carries, indicates late presentation of the disease. Adding 4% of patients, who had perforation, gives us almost a third who presented as an emergency, which is almost double the reported series. (24, 26, 27, 28, 29) This high proportion of late presentation and emergency surgery for colonic and rectal cancers prompts rapid action to

introduce screening for this type of disease. The disease is well suited for prevention with screening programs.(7) CRC is invariably fatal when diagnosed at an advanced stage but curable when diagnosed early, since it passes through a detectable asymptomatic stage.

Despite advances in surgery and adjunctive treatments, the prognosis for CRC has not improved significantly over the past 20 years, with an average survival of 3 years following diagnosis. (31) CRC is therefore a major health problem the outcome of which is crucially dependent on the stage of disease at the time of diagnosis. Consequently, early detection of CRC by mass population screening is the subject of much international research and debate.

The majority of the patients in our study were in stage Dukes C; 79 (55.2%). Fifty five (38.5%) patients were Dukes B and 9 (6.3%) patients were Dukes A. Because of the design of the study, we could not assess the D stage (distant metastasis), but our data is similar to a published manual in 2004,(4) where more than half (55%) of cancers were in Dukes C and D. Only 6.3% of cancers were early cancers i.e. cancers localized within the bowel wall, and these cancers had a good prognosis, with around 83% five year survival. This also indicates the need for screening and early intervention upon finding an early disease.

In general, regarding the grade of the tumour, the majority of patients had

moderately differentiated (81.1%), followed by poorly (12.6%) and well (6.3%) differentiated. Three quarters of patients younger than 40 years of age were in the moderately differentiated group and a quarter in the poorly differentiated; none had well differentiated tumors. This again confirms that younger patients have higher grade tumors. (12, 13)

Conclusion

Although the total number of patients included in this study is too small to make a proper epidemiological study, we can conclude that relatively young mean age at diagnosis and high incidence of emergency presentation of the disease should focus our effort, time and resources on a comprehensive cancer education program. The public must be informed of the cancer warning signals and the benefits of regular checkups. Also a screening program for initially high risk individuals, then for the whole population should be launched. The unfavorable outlook for young adults with carcinoma of the colon and rectum emphasizes the importance of systematic study of these patients.

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