Depression and Anxiety among Males Attending Primary Health Care Centers, Eastern Saudi Arabia: Prevalence and Predictors

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Abstract: Background: Psychiatric disorders in Saudi Arabia, mainly depression and anxiety are estimated to have high prevalence. The aim of this study was to assess the magnitude of depression, and anxiety among Primary Health Care Centers (PHCCs) attendees in Dammam and Al-Qatif areas, Eastern Saudi Arabia and to identify possible predictors. **Methods:** This was a cross-sectional study conducted in ten randomly selected PHCCs. The study sample consisted of 822 adult male attendees. Data was collected using an interviewer-administered validated Arabic version of Patient Health Questionnaire (PHQ). The questionnaire consisted of socio-demographic characteristics and questions to assess depression and anxiety. The PHQ scoring system was used to derive severity scores for both conditions. Chi-square test and logistic regression were used for data analysis. **Results:** The overall prevalence of depression was 32.8% with mild depression accounting for 22.9%. The overall prevalence of anxiety was 22.3% with 17.0% of the attendees having mild degree of anxiety. Single marital status, younger age group, lower monthly income, and positive history of psychological and chronic disorders were statistically significantly associated with depression. Single marital status was statistically significantly associated with anxiety. Logistic regression analysis showed that, single marital status and positive history of psychological illness were significant predictors of depression; being single was the only predicting factor for the occurrence of anxiety. **Conclusion:** The prevalence rate of depression and anxiety among PHCCs male attendees was relatively high. Therefore, screening of mental illnesses, especially depression and anxiety should be implemented by PHC physicians during their routine activities.

1. Introduction

Mental disorders are a growing problem worldwide affecting hundred millions of people.[1] Westernization of life creates a large burden on health. Mental health takes a big part of this burden. Globally, the burden of mental disorders is estimated to account for 14% of the diseases burden.[1] The Epidemiologic Catchment Area (ECA) study of the early 1980s and the National Co-morbidity Survey (NCS) of the early 1990s in United States of America (USA) showed that the prevalence of mental health in USA is 20% of the total population.[2]

No country or socioeconomic status is immune from the burden of mental disorders, worldwide.[3] Mental disorders, their manifestations and their co-morbidity are considered to have high prevalence at primary health care (PHC) level.[5] One out of every three primary care patients presents with clinical problems related to mental illness.[4] The first point of contact between individuals and the health care system is the PHC which increases the responsibility of service care providers for initial diagnosis. Even

though studies show that PHC physicians fail to detect depression which remains under-diagnosed in one-third to one-half of the cases.[5,6] In Saudi Arabia psychiatric morbidity in PHC is estimated at 30-46%[7] with a 20%% prevalence of depression.[8]

Identification of mental disorders needs valid and reliable instrument of screening.[4,9] There are many screening tests for mental disorders in PHC; no clear evidence which shows that one of these tests is better than others.[10]

Depression is considered as a major public health issue and as the fourth leading cause of the world diseases burden. One in eight individuals with depression requires treatment during their life time.[5] In 2020 the World Health Organization (WHO) in their global prediction considers depression as the second most cause of disability after ischemic heart disease. Depression accounts for 12% of patients attending PHC.[11]

Integrating mental health services into PHC is the most viable way of ensuring that people receive the mental health care they need.[12] Most people

suffering mental disorders will visit their general practitioner, complaining either of psychological or somatic symptoms.[13,14]

The aim of the present study was to assess the magnitude of the most common types of mental disorders namely: depression, and anxiety among Primary Health Care Centers (PHCCs) attendees in Eastern Province, Saudi Arabia and to identify the possible predictors.

2. Subjects and Methods
Statistical Design:

This was a cross-sectional study conducted during November 2010 in ten randomly selected PHCCs in Dammam and Al-Qatif areas, Eastern Province, Saudi Arabia, (8 PHCCs out of the 22 in Dammam city and 2 PHCCs out of the 26 in Al-Qatif area). The study sample consisted of 822 adult males, Saudi and non Saudi citizens above 18 years attending the PHCCs for any reason during the period of the study.

Technical Design:

Data was collected using an interviewer-administered validated Arabic version of Patient Health Questionnaire (PHQ). PHQ is a psychiatric screening instrument for detection of mental disorders in PHC. [15]

Collection of data was done by well-trained fourth year medical students after receiving detailed training about mental disorders in PHC, as well as data collection, and interviewing.

The questionnaire consisted of the following main parts:

1-Socio-demographic characteristics of the patients attending the PHCCs regarding their nationality, age, marital status, occupation, educational level, family income, type of family, crowding index, and family history of psychiatric disease.

2-Questions to assess mental conditions including two main disorders: depression (9 questions), and anxiety (7 questions).

The PHQ scoring system was used to derive severity scores for depressive, and anxiety symptoms. Depression and anxiety severity was calculated by assigning scores of 0, 1, 2, and 3, to the response categories of "not at all", "several days", "more than half the days", and "nearly every day", respectively.

The depression total score for the nine items ranges from 0 to 27. Scores of 5, 10, 15, and 20 represent cut-off points for mild, moderate, moderately severe and severe depression, respectively.

The anxiety total score for the seven items ranges from 0 to 21. Scores of 5, 10, and 15 represent cut-off points for mild, moderate, and severe anxiety, respectively.

For the ease of statistical analysis, associations and interpretation of the results, depression and anxiety were then grouped into 2 categories only (depression, no depression) and (anxiety, no anxiety).

Necessary permissions to conduct the study were obtained from concerned authorities and confidentiality of the information was strictly adhered to by assuring the attendees that no details about their status will be released and data will be only used for research purpose.

Statistical Analysis:

The collected data were reviewed, coded, verified and statistically analyzed using the Statistical Package for Social Sciences (SPSS) software version 16.[16] Descriptive statistics for all studied variables and Chi-square test were used. Logistic regression analysis was used to find the association between the characteristics of the PHCCs attendees (Independent variables) and the study mental health problems (depression and anxiety) (Dependant variable) and a P-value level of <0.05 was considered significant throughout the study.

3. Results

The majority of the studied male attendees in the present study were Saudis (90.1%), 52.2% were in the age group of 20-<35 years and married (71.3%). Less than 20% of them were not working, 44.8% had a secondary or diploma level of education, 80.5% were living in nuclear families and 29.7% had less than 5000 Saudi Riyals (S.R.) monthly income. Only 7.5 % of the attendees had positive history of psychological disorders. About 70% of the attendees didn't mention any history of chronic diseases, while 11.7%, 4.9% and 4% of them had history of Diabetes mellitus, bronchial asthma and coronary heart diseases, respectively **(Table 1)**.

Table 2 shows the distribution of primary care male attendees according to their depression and anxiety state. The overall prevalence of various types of depression was 32.8% with a prevalence of mild depression accounting for 22.9%. Also, the overall prevalence of anxiety was 22.3% with 17.0% of the attendees having mild degree of anxiety.

According to **table 3**, there was a statistically significant association between depression state among attendees and their marital status, where 44.4% of singles had depression in comparison to 28.2% of the married attendees (P<0.001). Depression was found to be more prevalent (39.5%) among attendees with low monthly income (<5000 S.R.) compared to others with higher monthly income (P<0.01). Moreover, age was statistically significantly associated with depression, 37.5% of attendees in the age group 20-<35 years were depressed compared to 29.1% in the age group 35-<50 years. Attendees with a positive history of psychological disorders (51.6%) were significantly having depression more than others (P<0.01).

Attendees with history of chronic diseases such as diabetes mellitus (30.2%), coronary heart diseases (30.3%), bronchial asthma (55.0%) were found to have depression in comparison to others ($p<0.05$).

Table 1: Socio-demographic characteristics of primary care male attendees

Socio-demographic characteristics	Total (n= 822)	
	No.	%
1-City:		
Dammam	610	74.2
Qatif	212	25.8
2-Nationality		
Saudi	741	90.1
Non-Saudi	81	9.9
3-Age in years:		
20-<35	429	52.2
35-<50	268	32.6
50-<65	96	11.7
≥65	29	3.5
4-Marital Status:		
Single	222	28.2
Married	586	71.3
Divorced	4	0.5
5-Occupation:		
Work	690	83.9
Without work	132	16.1
6-Educational level:		
Illiterate or read and write	39	4.7
Primary or intermediate	186	22.6
Secondary or diploma	368	44.8
University or higher	229	27.9
7-Monthly income in Saudi Riyal(S.R.) :		
< 5000 S.R.	243	29.7
5000-15000 S.R.	478	58.4
>15000 S.R.	97	11.9
Refused to answer	4	0.5
8-Type of family:		
Nuclear	662	80.5
Extended	160	19.5
9-History of psychological disorders		
No	760	92.5
Yes	62	7.5
5-Histoiry of chronic diseases:		
No	575	69.9
Diabetes Mellitus	96	11.7
Bronchial asthma	40	4.9
Coronary Heart Diseases	33	4.0
Others	78	9.5

By studying the association between the depression state and other attendees characteristics (nationality, educational level, occupation, and family type), it was found that there was no statistically significant association. Marital status was the only socio-demographic characteristic that was found to be statistically significantly associated with anxiety. About 31.9% of singles were found to have anxiety in comparison to 18.3% of the married ($P<0.001$).

Table 4 represents the results of the logistic regression analysis of significant factors predicting occurrence of depression and anxiety among primary care male attendees. The following factors were found to be independently and significantly associated with depression: single marital status (OR=0.557, 95% CI=0.384-0.808) and positive history of psychological disorders (OR=1.607, 95% CI=1.140-2.266), ($P<0.001$). Moreover, single marital status was the only predicting factor for the occurrence of anxiety among the attendees (OR=0.516, 95% CI=0.358-0.744), ($P<0.01$).

Table 2: Distribution of primary care male attendees according to their depression and anxiety state

Diagnosis	Total (n=822)	
	No.	%
I-Depression		
A-No depression	552	67.2
B-Overall types of depression	270	32.8
-Mild depression	188	22.9
-Moderate depression	61	7.4
-Moderately severe depression	17	2.1
-Severe depression	4	0.5
II-Anxiety		
A-No anxiety	639	77.7
B-Overall types of anxiety	183	22.3
-Mild anxiety	140	17.0
-Moderate anxiety	35	4.3
-Severe Anxiety	8	1.0

Table 3: Association between socio-demographic characteristics of primary care male attendees and presence of depression and anxiety state

I-Depression							
Socio-demographic characteristics	No Depression		Depression		Total		Test of significance (*P-value*)
	No.	%	No.	%	No.	%	
1-Marital Status:							
Single	129	55.6	103	44.4	232	100.0	20.4
Married	421	71.8	165	28.2	586	100.0	(<0.001)
Divorced	2	50.0	2	50.0	4	100.0	
2-Monthly income in Saudi Riyals (S.R.):							
< 5000 S.R.	147	60.5	96	39.5	243	100.0	
5000-15000 S.R.	340	71.1	138	28.9	478	100.0	11.6
>15000 S.R.	64	66.0	33	34.0	97	100.0	(<0.01)
Refused to answer	1	25.0	3	75.0	4	100.0	
3-Age in years:							
20-<35	268	62.5	161	37.5	429	100.0	
35-<50	190	70.9	78	29.1	268	100.0	10.3
50-<65	74	77.1	22	22.9	96	100.0	(<0.05)
≥65	20	69.0	9	31.0	29	100.0	
4- History of psychological disorders:							
No	522	68.7	238	31.3	760	100.0	10.7
Yes	30	48.4	32	51.6	62	100.0	(<0.01)
5-Histoiry of chronic diseases:							
No	398	69.2	177	30.8	575	100.0	
Diabetes Mellitus	67	69.8	29	30.2	96	100.0	12.8
Bronchial asthma	18	45.0	22	55.0	40	100.0	(<0.05)
Coronary Heart Diseases	23	69.7	10	30.3	33	100.0	
Others	46	59.0	32	41.0	78	100.0	
II- Anxiety							
Socio-demographic characteristics	No Anxiety		Anxiety		Total		Test of significance (*P-value*)
	No.	%	No.	%	No.	%	
1-Marital Status:							
Single	158	68.1	74	31.9	232	100.0	19.6
Married	479	81.7	107	18.3	586	100.0	(<0.001)
Divorced	2	50.0	2	50.0	4	100.0	

Table 4: Logistic regression analysis of significant factors predicting depression and anxiety among primary care male attendees

Variables	B coefficient	S.E. of B	*P*-Value	O.R.	95 % Confidence interval of O.R.	
					Lower	Upper
I-Depression						
Marital status	-0.585	0.190	0.002	0.557	0.384	0.808
History of psychological problems	0.475	0.175	0.007	1.607	1.140	2.266
Constant	0.482	0.448	-	-	-	-
Model X^2 (5) = 30.6, P < 0.001						
II-Anxiety						
Marital status	-0.662	0.187	0.000	0.516	0.358	0.744
Constant	-0.163	0.403	-	-	-	-
Model X^2 (2) = 14.5, *P* < 0.01						

4. Discussion

The public health significance of mental disorders, as a chronic community health problem, includes quality of life that is determined by a person's mental state. Many physical disorders have an important mental component, and a large proportion of people who need medical care have mental or brain disorders.[17] Accordingly, if environmental factors play a large role, preventive strategies for causes of these disorders can be an urgently needed.[17]

The overall prevalence of various types of depression (32.8%) and anxiety (22.3%) in the present study (Table 2) were in agreement with other study carried-out in primary care in Saudi Arabia where psychiatric disorders ranged from 30-46% with 20% prevalence for depression [8] and in Qatar (27.8%).[18] However, WHO prediction in 2020, considers depression as a second cause of disability that accounts for 12% of patients attending primary health care. [11] Also other studies showed that the prevalence of generalized anxiety disorders and major depression in primary care in Belgium and Luxemburg ranged from 4.2% to 8.3%.[19] In Bahrain, the prevalence rate of generalized anxiety disorders was 17.3%, life time depression was 19.3% and current depression was 5.6%.[20] A study conducted in Qatar to determine the prevalence of mental disorders in adult population attending PHCcs, showed that the overall prevalence of mental disorders was 36.6%. Depression (13.5%) was the most common mental disorder, followed by anxiety disorders (10.3%).[3]

The significant factors associated with depression among primary care attendees in the present study were age, marital status, monthly income, history of psychological disorders and chronic diseases such as diabetes mellitus, coronary heart diseases, and bronchial asthma. However, the only significant factor associated with anxiety was marital status (Table 3). Other socio-demographic characteristics as nationality, occupation, educational level and type of families were not significantly associated either with depression or anxiety. This finding is consistent with other findings of previous studies that indicated high prevalence of depression among young age group (55.3%), unmarried individuals (35.5%) and people with history of chronic illnesses including psychological disorders (46.1%).[18,21] Regarding the age in the present study, high prevalence of depression (37.5%) was observed at younger age group (20-<35years) that is comparable to other studies in Qatar (18-34 years) and US general population (15-24 years).[18,22] Also depression was more prevalent among unmarried (single or divorced) male primary care male attendees and this was consistent with other studies[9,23] Moreover, other studies carried-out among Kuwaiti patients attending primary health care setting, and among Saudi elderly reported that chronic illness increase the rate of depression.[9,23] However, other studies cannot find a significant relation between depression and different chronic illness as diabetes mellitus, coronary heart diseases or bronchial asthma.[18]

The profile of significant predictors for both depression and anxiety considerably differs by the type of mental disorders among primary care male attendees in the present study. Marital status was the common significant factor that predicting both depression and anxiety. In addition history of psychological disorders was the other significant predictor for depression only. These findings are similar to those generally reported by other studies.[24,25]

5. Conclusions and Recommendations

The results of the present study concluded that prevalence rate of depression and anxiety among primary care male attendees was relatively high. Marital status and history of psychological disorders were the main significant predictors for depression whereas; marital status alone was the only significant factor which predicts anxiety.

Therefore, it is recommended that screening and early detection of mental health problems, in general, and depression and anxiety, in particular, should be implemented by PHC physicians during their routine daily activity. This is best achieved by proper integration of screening within PHC services. Also all PHC providers particularly physicians should have periodic and in-service training programs about psychological disorders as a part of their continuous medical education. Male patients should be encouraged to report their psychological complaints to their family physicians.

Since the present study was a community questionnaire based, therefore in-depth studies are recommended to identify the real underlying causes of such increase in the prevalence of depression and anxiety in the Saudi community.

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