Lifetime Prevalence of Common Mental Disorders in Qatar: Using WHO Composite International Diagnostic Interview (WHO-CIDI)

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Abstract: *Background*: Mental Disorders, particularly Depression, are recognised as one of the biggest burden of disease worldwide. Two of the top three burdens of disease in Qatar are mental health related. Yet, this is scarcity of lifetime prevalence data available to understand the impact in this country.

Aim: This study uses the WHO Composite International Diagnostic Interview (WHO-CIDI), to measure the lifetime prevalence of the most presenting mental disorders in the adult Qatari population, aged 18-65, and examine their symptom patterns and co-morbidity.

Design: This is a cross sectional study conducted during the period from April 2010 to October 2011.

Setting: Five Primary Health Care (PHC) Centres distributed around the country.

Subjects: A total of 1,500 Qatari subjects aged 18 to 65 years were approached; 1,063 (70.8%) gave consent and participated in this study.

Methods: Four field supervisors from Qatar were trained and certified as trainers by IDRAAC, the education and training centre responsible for the Arabic translation and validation of CIDI. Variations in Arabic dialect were reported to IDRAAC for verification and approval. In line with the World Health Organization (WHO) World Mental Health (WMH) Survey Initiative, a nationally representative psychiatric epidemiological survey was carried out in Qatar. Prevalence and severity of ICD-10 disorders were assessed with the WHO Composite International Diagnostic Interview (CIDI, Version 3.0).

Results: Of the studied 1063 subjects, 50.1% were males and 49.9% were females. Most of the respondents were in the age group 18-34 years (46.1%), followed by 35-49 years (34.1%), then 50-65 years (19.8%). The most common ICD-10 disorders were specific generalized anxiety disorders (20.4)%, and major depression (19.1%), with a higher prevalence in women. 20.6% of the sample had chronic physical conditions. There were high levels of statistically significant differences between age groups and gender regarding Generalized Anxiety Disorders, Social phobia, specific phobia, major depression, and personality disorders screen. Women performed significantly worse as assessed by the 30 day functioning screen ($p < 0.001$).

Conclusion: The findings of this study in lifetime prevalence of mental disorders in Qatar are comparable with international figures. Women were more likely than men to have mental illness. Overall, Generalized Anxiety Disorders; Social phobia, specific phobia, major depression, and personality disorders were the commonest disorders.

Keywords: Prevalence, community, mental disorders, CIDI, Qatar.

INTRODUCTION

Mental disorders are widely recognized as a major contributor (14%) to the global burden of disease worldwide [1]. Patients often present to their Family Physician as their first contact with health services, Depression and Anxiety disorders being the most common in such setups. Yet, symptoms are commonly undetected [2]. Although potentially treatable, lack of early detection and the subsequent non-treatment results in substantial morbidity and contributes to the higher social burden of disease [3-5]. Psychiatrists in the Middle East are well accustomed to patients presenting late to professional services, often under pressure from family as opposed to self-referral. Generally, epidemiological data regarding lifetime prevalence of mental illness, sociodemographic variables, and disease burden are relatively scarce in the Arab world [3, 4].

Internationally, the public health burden of Depression is well recognised, ranking fourth among global burden of diseases. By 2020, its impact is estimated to rise to second [6, 7]. In previously published data regarding lifetime prevalence of mental illness in Qatar, depression was the most common; second only to heart diseases as a cause of disability

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E-ISSN: 2310-8231/14

in this country [3, 4]. Depression is the most common mental health presentation at Primary Care (PHC) level, often presenting with multiple somatic complaints and comorbid with anxiety disorders [3, 4]. Lack of awareness and high levels of stigma related to mental health are a barrier to accessing mental health services at an early stage, resulting in impairments in social functioning, employment, and quality of life.

In the United States [8], the lifetime prevalence of Anxiety disorders among adults aged 18 to 54 is 13.3%. Prevalence rates are higher in women in most countries [9]. In primary care setting, the high prevalence of anxiety and depressive disorders increases use of health services, and delays response to physical treatments [3, 4].

In the early 1980s, the Diagnostic Interview Schedule (DIS) was the first structured instrument for use by non-clinicians utilising computerized algorithms to diagnose based on DSM-III criteria. It was used in the Epidemiologic Catchment Area (ECA) study, replicated in other countries. Other structured diagnostic tools followed, most notably the World Health Organization Composite International Diagnostic Interview (CIDI), currently used worldwide [10]. In fact, the Composite International Diagnostic Interview (CIDI) is a fully standardized, structured interview that provides a psychiatric diagnosis through computerized algorithms according to the International Classification of Diseases, 10^{th} edition (ICD-10), and the Diagnostic and Statistical Manual of the American Psychiatric Association, 4^{th} edition (DSM-IV) [11]. The CIDI ascertains diagnoses based on WHO International Classification of Disease (ICD) criteria. With ICD being the most widely used international classification system, CIDI facilitates cross-national comparative research of epidemiological studies of mental illnesses [8, 12, 13].

The aim of this study was to assess the lifetime prevalence of common mental disorders at Primary Health Care (PHC) Centres using the WHO Composite International Diagnostic Interview (WHO-CIDI) in the Qatari population who attended PHC settings and examine their co-morbidity.

SUBJECTS AND METHODS

This is a cross sectional study that included Qatari patients aged 18 to 65 years who attended the PHC, during the period from April 2010 to October 2011, using WHO Composite International Diagnostic Interview. Primary health care centres are frequented by all levels of the general population as a gateway to specialist care.

A multistage stratified random sampling design was developed using an administrative division of Qatar into 21 primary health care centers in terms of number of inhabitants. Of these health centres, 13 were visited primarily by Qatari people; the remainder were excluded. We selected 5 centers to cover 5 geographic catchment areas in and around the capital city of Doha, three of which are urban health centres and 2 are semi-rural (Figure **1**). Equal proportion of subjects from each health center was chosen.

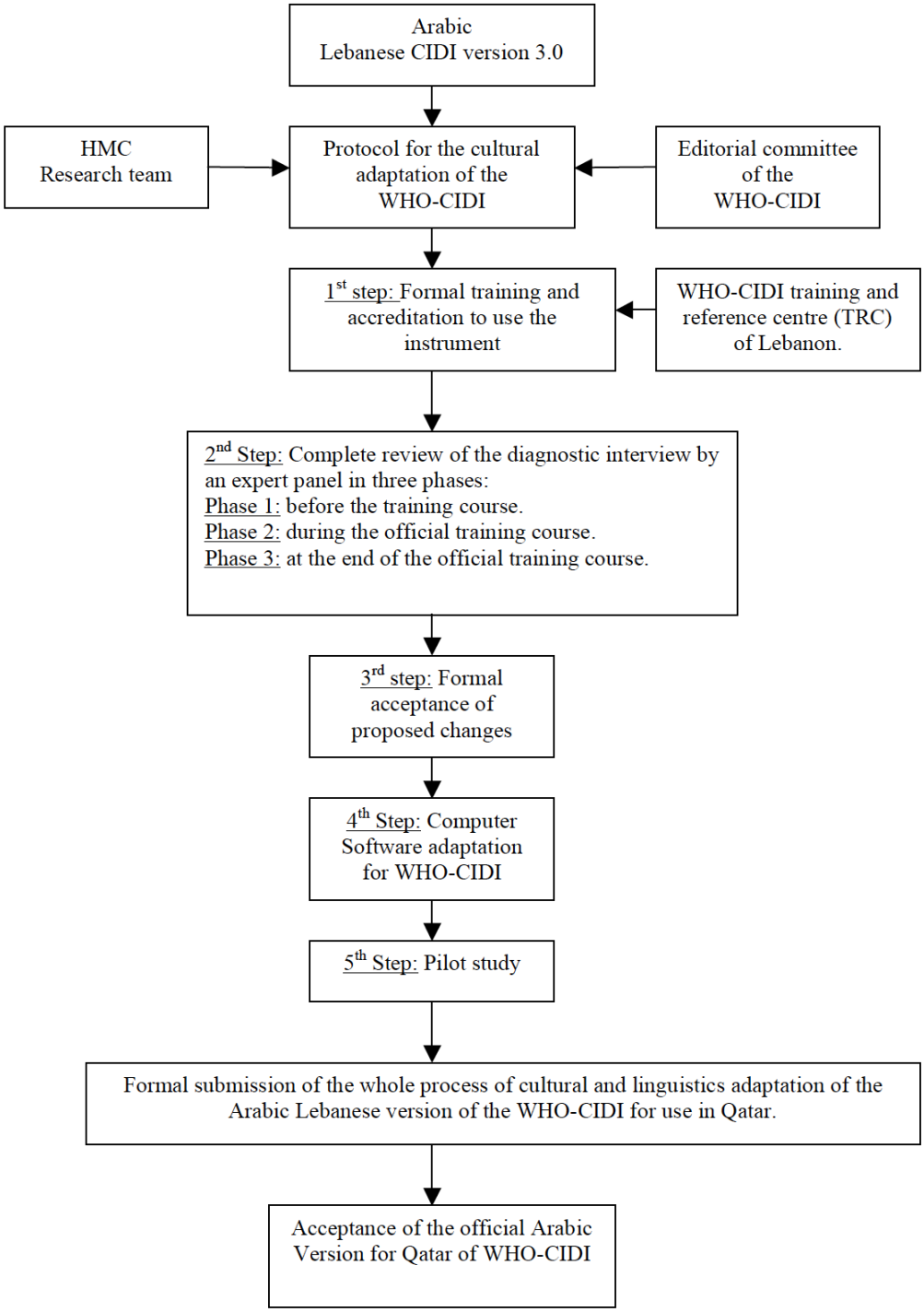
With similarities in culture and social composition, prevalence rates of depression and anxiety disorders in Qatar were assumed similar to rates found in other Arabian Gulf countries and the Eastern Mediterranean [3, 4], with reported prevalence ranging from 20 to 25%. Assuming the lifetime prevalence of depression and anxiety disorders to be 22.5%, with the 99% confidence interval for an error of 3% at the level of significance, a sample size of 1,500 subjects would be required to meet the objectives of the study. A random sample of Qatari nationals aged 18 – 65 years old was drawn from the primary care registry. A total of 1,500 Qatari subjects were approached; 1.063 (70.8%) participated and were interviewed with the Arabic World Mental Health Composite International Diagnostic Interview (WMH- CIDI) during the period from April 2010 to October 2011.

The data was collected through a validated self-administered questionnaire with the help of physicians and qualified nurses. The questionnaire had three parts. The first part included the socio-demographic details of the patients, the second part with the medical and family history of the patients, and the third part was the diagnostic screening questionnaire.

IRB approval was obtained from Hamad Medical Corporation for conducting this research in Qatar.

Interviewer Training

Four field supervisors, three psychiatrists and one clinical psychologist, were formally trained and certified at IDRAAC research centre in Beirut, Lebanon. IDRAAC is the educational and research training centre that translated and validated the WMH-CIDI instrument to Arabic language. These trainers subsequently trained 11 interviewers to administer the instrument.



[a] WHO-CIDI: World Health Organization Composite International Diagnostic Interview.

Figure 1: Flow chart of the cultural and linguistics adaptation of the Arabic WHO-CIDI version for use in Qatar.

The interviewers were all nurses working at the psychiatry department of Hamad Medical Corporation. Each centre was given an identification number. In addition every 20 questionnaires were grouped together into Replicate numbers. These conventions were of paramount importance in organizing the editing process of the data and generation of field reports. The field supervisors edited all the returned questionnaires and produced field reports to monitor and guide the interviewers.

The psychiatric diagnoses reported were based on ICD-10 criteria and generated with the Arabic WMH-CIDI version 3.0. Paper and pencil Personal Interview (PAPI) version 6 was utilized to bridge the data into BLAISE software, a third party computer program

customized to capture ICD-10 diagnoses and generate statistical data into SPSS version 20, statistical analysis software.

The Arabic version of WMH-CIDI was validated by the IDRAAC centre in Lebanon. However, due to linguistic variations of the Arabic dialect, a few words were replaced during the pilot phase of the study in Qatar to be in line with the common dialect in the gulf region. The wording of the reviewed questions were then back-translated and reported to IDRAAC centre to ascertain their relevance to the original wording used in the validated questionnaire.

The ICD-10 diagnoses generated in this study included Generalised Anxiety Disorders, Major Depressive Disorder, Social Phobia, Obsessive Compulsive disorder, Psychosis and Personality disorder. Chronic conditions sections section was also included. Functional disability section was randomized to every 10th interview. The original WMH-CIDI includes 41 sections and takes an average of 2 hours to administer. The WHO field trials of the CIDI have documented good inter-rater reliability, test-retest reliability and validity for almost all diagnostic categories.

Analysis Methods

Prevalence and severity were estimated by calculating means, percentages and standard error. Odds Ratio (OR) and their 95% confidence intervals (CI) were calculated by using Mantel-Haenszel test. One Way Analysis of variance (ANOVA) was employed for comparison of several group means and to determine the presence of significant differences between group means. Student-t test was used to ascertain the significance of differences between mean values of two continuous variables and confirmed by non-parametric Mann-Whitney test. Chi-square and Fisher's exact test were performed to test for differences in proportions of categorical variables between two or more groups. The level $p<0.05$ was considered as the cut-off value for significance.

RESULTS

Of the studied 1063 subjects, 50.1% were males and 49.9% were females. Most of the respondents were in the age group 18-34 years (46.1%). Majority of them were married (75.1%).

Table **1** gives the prevalence and severity of ICD-10 disorders by severe, moderate and mild condition. The three most common disorders were generalized anxiety disorders (20.4%), major depression (19.1%), followed by social phobia (17.03%). Of the studied population, chronic physical conditions were prevalent in 20.6%. The majority of subjects were in the mild to moderate range of symptom severity.

Table **2** shows the prevalence and severity of disorders by gender. In the present study, prevalence

Table 1: Prevalence and Severity of Disorders in Studied Subjects (N=1063)

	Total	SE*	Sever	SE	Moderate	SE	Mild	SE
	n(%)		n(%)		n(%)		n(%)	
Anxiety Disorder								
Generalized Anxiety Disorders	217(20.41)	(1.2)	23(10.6)	(2.1)	87(40.09)	(3.3)	107(49.31)	(11.1)
Specific Phobia	154(14.49)	(1.1)	21(13.64)	(2.8)	67(43.51)	(4)	66(42.86)	(13)
Social Phobia	181(17.03)	(1.2)	22(12.15)	(2.4)	53(29.28)	(3.4)	106(58.56)	(11.9)
Obsessive Compulsive Disorders	142(13.36)	(1.0)	29(20.42)	(3.4)	51(35.92)	(4)	62(43.66)	(13.6)
Mood Disorder								
Major Depression Disorders	203(19.1)	(1.2)	17(8.37)	(1.9)	61(30.05)	(3.2)	125(61.58)	(11.1)
Bipolar Disorders I and II	176(16.56)	(1.1)	10(5.68)	(1.7)	71(40.34)	(3.7)	95(53.98)	(12.2)
Psychosis	63(5.9)	(1.0)	11(17.46)	(0.4)	20(31.74)	(4)	36(50.80)	(13.5)
Personality Disorders Screen	165(15.52)	(1.1)	23(13.94)	(2.7)	62(37.58)	(3.8)	80(48.48)	(12.7)
30 Day Functioning	124(11.67)	(1.0)	13(10.48)	(2.8)	38(30.65)	(4.1)	73(58.87)	(14.4)

*Standard Error = SE.

Table 2: Prevalence of ICD-10 Disorders of Studied Subjects by Gender (N=1063)

Variable	Gender		OR(95% CI)	P-Value*
	Male	Female		
	n=533 n(%)	n=530 n(%)		
Anxiety Disorder				
Generalized Anxiety Disorders	85(15.9)	132(24.9)	1.75 (1.29 – 2.37)	<0.01
Social Phobia	62(11.6)	119(22.5)	1.76 (1.24 – 2.49)	<0.01
Specific Phobia	59(11.1)	95(17.9)	2.2 (1.56 – 3.07)	<0.01
Obsessive Compulsive Disorders	62(11.6)	80(15.1)	1.35 (0.95 – 1.93)	0.09
Mood Disorder				
Major Depression Disorders	80(15.0)	123(23.2)	1.71 (1.25 – 2.34)	<0.01
Bipolar Disorders I and II	77(14.4)	99(18.7)	1.36 (0.98 – 1.88)	0.06
Psychosis	21(3.9)	43(8.1)	2.15 (1.22 – 3.81)	<0.01
Personality Disorders Screen	64(12.0)	101(19.1)	1.73 (1.73 – 2.42)	<0.01
30 Day Functioning	45(8.4)	79(14.9)	1.9 (1.29 – 2.80)	<0.01

*Reference (Male).

in women was significantly higher than men for the most common mental disorders, specifically generalised anxiety disorder, social phobia, specific phobias, and major depressive disorder. More women had psychotic illness, and personality disorders, and more women had comorbid chronic physical conditions. The impact of the disease in women was worse, as reflected by the 30-day functioning screen.

Table **3** presents the prevalence and severity of ICD-10 disorders by age group. Most of the respondents were in the age group 18-34 years (46.1%) followed by 35-49 years (34.1%), then 50-65 years (19.8%). Across the diagnostic categories covered in this study, the most affected were the 18-34 years age group with a high statistical significance ($p<0.001$). This was also the age group most impaired as assessed by the 30-day functioning.

Table **4** describes the most common co-morbid chronic physical conditions. The highest co-morbidity

Table 3: Prevalence of ICD-10 Disorders of Studied Subjects by Age Group (N=1063)

Variables	Age Group			OR(95% CI)	P-Value
	18-34	35-49	50-65		
	n=490 n(%)	n=362 n(%)	n=211 n(%)		
Anxiety Disorder					
Generalized Anxiety Disorders	133(27.1)	66(18.2)	18(8.5)	1.89(1.51 – 2.35)	<0.01
Social Phobia	109(22.2)	60(16.6)	12(5.7)	1.6(1.25– 2.04)	<0.01
Specific Phobia	88(18.0)	52(14.4)	14(6.6)	1.87(1.47 – 2.37)	<0.01
Obsessive Compulsive Disorders	83(16.9)	44(12.2)	15(7.1)	1.59(1.23 – 2.04)	<0.01
Mood Disorder					
Major Depression Disorders	118(24.1)	68(18.8)	17(8.1)	1.71(1.37 – 2.14)	<0.01
Bipolar Disorders I and II	103(21.0)	60(16.6)	13(6.2)	1.75(1.38 – 2.22)	<0.01
Psychosis	35(7.1)	25(6.9)	3(0.2)	1.67(1.29 – 2.16)	<0.01
Personality Disorders Screen	101(20.6)	54(14.9)	10(4.7)	1.93(1.50 – 2.48)	<0.01
30 Day Functioning	72(14.7)	42(11.6)	10(4.7)	1.65(1.26 – 2.17)	<0.01

was for Ischaemic heart disease, followed by Diabetes then hypertension.

Table 4: Morbidity (Chronic Conditions) Associated with Mental Illnesses (219 / 1063 = 20.6)

Morbidity	n (%)
Ischeamic Heart Disease	48(4.52)
Diabetes	30(2.82)
Generalised Abdominal Pain	16(1.50)
Low Back Pain	17(1.60)
Asthma	15(1.40)
Muscle Pain	14(1.32)
Trauma	17(1.60)
Lower Respiratory Infections	13(1.22)
Hypertensive Disease	21(2.00)
Endocrine	19(1.78)
Cancer	9(0.84)
Total	**20.60**

DISCUSSION

The impact of mental illness on burden of disease data worldwide is well established [6-8]. In Qatar, three of the top five causes of disability are mental disorders. Yet, very few studies have been conducted to provide strong data. In this study, we used the WHO-CIDI for the first time to study the lifetime prevalence of mental illness among the Qatari population. Like most countries in this region, a culture of public participation in research does not exist and our researchers faced considerable challenge attempting to seek consent to participate. Stigma is particularly high in this part of the world and denial of symptoms very common. It is worth noting that screening for substance misuse and suicidality was in fact conducted. However, almost unanimously, all subjects denied either. The data was thus excluded. The subject of suicide is a religious taboo and people are more likely to deny an attempt reporting it is accidental. The overall lifetime prevalence of mental disorders in the Qatari general population was over 20%, which is consistent with other epidemiological surveys [9]; this places mental disorders among the most prevalent classes of chronic diseases. Almost one quarter of respondents typically met the criteria for at least one type of mental disorder. According to previous studies conducted in various countries, the prevalence of mental disorders range from 3 to 52%. According to WHO estimates [7, 14], nearly 25% of individuals develop one or more mental disorders at some stage in their life, in both developed and developing countries. In the U.S [14], mental disorders are common and an estimated 22.1% of Americans aged 18 year and older – about 1 in 5 adults - suffer from a diagnostic mental disorder. Meanwhile, it is worth to note that the high rates of psychosis and mania Bipolar Disorders I and II were observed in current survey.

In the present study, prevalence of General Anxiety Disorders in women was significantly higher than men (24.9%). Other studies reported that women are more likely than men to be adversely affected by mental disorders [14]. Prince *et al*. [1] revealed that women are at higher risk for common mental disorders with a higher female to male sex ratio of 1.5:1. Culturally, the role of women in this society is changing. The level of education for Qatari women is higher than men. More women are now working in leadership positions, while the cultural expectation of them as wives and mothers remains unchanged. The extent of stress this imposes on women, and its reflection on their mental health needs further exploring. The study finding that 30-day functioning was more impaired in women is an area for future research. Qatar's recently approved mental health strategy recognises women's mental health as one of the national priorities.

The highest prevalence of common mental disorders in Qatari population was anxiety disorders (24.9%) followed by major depression (23.2%). The result matches previous studies [15-17] conducted in various countries, where depression and anxiety disorders were the most frequent mental disorders. Probably, it should be acknowledged that use of primary care centers may be associated with higher rates of mental illness than the general community, as there is a long-standing clinical literature in the West reporting increased rates of mental illness in general practice settings (particularly depression and anxiety) A lower prevalence of depression was reported by Wright [18], with figures of depression occurring in around 10% of general practice attendees. A Canadian study determined that 12.2% of the Canadian population [19] were affected with anxiety disorders, which is higher than the rate in the Qatari population. In the U.S population, it's been reported that nearly twice as many women (12%) as men (6.6%) are affected by a depressive disorder each year [11]. Anxiety disorder was more prevalent among Qatari women (10.9%) than in men (9.6%) which is consistent with other

researches [20, 21]. Dementia (1.7%), Schizophrenia (4.0%) and Obsessive-compulsive disorders (4.9%) were not very common in Qatari population as compared to other disorders.

The study findings showed that young Qatari population in the age group 18 – 34 years were the most affected with mental disorders (45.6%). The prevalence of Anxiety and Depressive disorders was highest in the age group 18 to 34 years (43% & 42%), followed by 35-49 years (40% & 42%). Our finding of a peak age for depression and anxiety disorders during midlife is in keeping with other epidemiological findings in the State of Qatar [22] and other Western countries [18-28].

The relationship between physical and mental illness is a complex one with close cause-effect factors. Diabetes, hypertension, and ischaemic heart disease are among the most prevalent physical condition in this society, with a sedentary lifestyle and eating habits that contribute to the risk. Co-morbidity with mental illness raises concerns about the management options, quality of life and burden of disease for these disorders [29-33].

The present study estimates are high enough to place mental disorders among the most commonly occurring health problems in Qatar. This research shed light on the prevalence of mental disorders and the high risk groups for having mental illness in Qatar. Mental disorders are among the most burdensome of all classes of disease because of their high prevalence and chronicity, early age of onset and resulting serious impairment. The study findings highlight the urgent need for systematic development of community-based mental health services for the screening, early identification, and treatment of people with Mental disorders. This study is timely as the national mental health strategy is launched and the Qatar mental health implementation plan is shaped, with a focus on prevention, early recognition and intervention. These data will ensure our plans are better informed of the unique needs for this country and services are targeting the right population.

CONCLUSION

The study findings revealed that almost one-fifth of all adults who attended the primary health care setting presented with at least one type of mental disorders. This study identified people at higher risk for having mental illness. Women's mental health is a significant public health issue. The highest lifetime prevalence of common mental disorders in Qatari population was depression and anxiety disorder. The young Qatari population in the age group 18 – 34 years were the most affected with mental disorders. There is an urgent need to not only assess prevalence, but also risk factors, burden, treatment gaps and outcomes to obtain evidence for policy making.

The format of the WHO-CIDI has been successfully adapted and its correct functioning has been pilot-tested for its use in Qatar. This version will facilitate the use of an international diagnostic instrument allowing cross-national comparative research in epidemiological studies of mental illness in Qatar.

LIMITATIONS

As explained earlier, public research participation is a relatively recent approach in this country and mental health stigma is considerably high. The interview lasted an average of 50 minutes, which was difficult to maintain with many patients. We therefore selected to focus our study on primarily the diagnoses reported to aim for shorter interview duration. Although suicide and substance misuse were among the categories selected, denial was almost unanimous among the studied subjects because of legal, cultural, and religious factors. The CIDI indirectly requires some knowledge or judgment capacity to identify organic disorders and mental symptoms. The most common difficulties were: 1) the interviewer should understand the interviewees' answers and decide in which category they fit and 2) at some moments, the questionnaire has rules through which the interviewer should judge and codify a symptom mentioned by the interviewee. Questions such as: "has the interviewee felt worthless/guilty only due to depression?," require a minimum level of clinical experience to decide about the presence of the symptom. Other complication generated by the lack of clinical expertise is the information provided by the interviewees about their clinical diseases, which are unknown to the interviewers. In these cases, in addition to the interviewer's clinical judgment, the patient should understand the diagnosis he/she had received.

ACKNOWLEDGEMENTS

This study was generously supported and funded by the Qatar National Research Fund- QNRF NPRP 30-6-7-38. The authors would like to thank the Hamad Medical Corporation for their support and ethical

approval. We also extend special thanks to IDRAAC centre in Lebanon for their support through the project.

COMPETING INTERESTS

The authors have no conflict of interest to declare.

AUTHORS' CONTRIBUTIONS

AB and SG organised the study, collected and analysed data and wrote the article.

AB, SG, EEA, AEA and TEY all contributed to the analysis and the interpretation of the data. Also, AB made contributions to conception and design and revised the manuscript critically.

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Received on 04-03-2014 Accepted on 01-04-2014 Published on 08-05-2014

DOI: http://dx.doi.org/10.12970/2310-8231.2014.02.01.4