

# The Prevalence and Burden of Psychiatric Disorders in Primary Health Care Visits in Qatar: Too Little Time?

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## ABSTRACT

**Background:** Psychiatric disorders including anxiety, depression, somatization, obsessive compulsive, and bipolar disorders are recognized as causing the biggest burden of disease worldwide. **Aim:** In this study, we aimed to assess the prevalence and burden of common mental disorders at Primary Health Care Centers (PHCC) using the World Health Organization Composite International Diagnostic Interview (WHO-CIDI) in the Qatari population, aged 18–65 who attended Primary Health Care (PHC) settings. **Design:** A prospective cross-sectional study conducted during November 2011 to October 2012. **Setting:** Primary Health Care Centers of the Supreme Council of Health, Qatar. **Subjects:** A total of 2,000 Qatari subjects aged 18–65 years were approached; 1475 (73.3%) agreed to participate. **Methods:** Prevalence and severity of International Classification of Disease-10 disorders were assessed with the WHO-CIDI (Version 3.0). **Results:** Of the 1475 participants, 830 (56.3%) were females and 645 (43.7%) was males. One-third were aged 35–49 years 558 (37.8%). The three most common disorders were major depression disorders (18.31%), any anxiety disorders (17.3%), any mood disorders (16.95%), followed by separation anxiety disorders (15.25%), personality disorder (14.1%). In the present study, prevalence in women was significantly higher than men for the most common psychiatric disorders, specifically generalized anxiety disorder, panic disorder, social phobia, specific phobias, obsessive compulsive disorders, posttraumatic disorder, somatization, major depressive disorder, bipolar disorder, dysthymia, and oppositional defiant disorder. Of the total 20% had only one psychiatric diagnosis and 12% had two disorders, 9.7% respondents with three diagnoses, and finally 4.3% of respondents had four or more diagnoses. **Conclusion:** One-fifth of all adults who attended the PHCC (20%) had at least one psychiatric diagnosis. The CIDI is a useful instrument for psychiatric diagnosis in community settings such as PHC clinics, clinical research and intervention studies. 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.

**Keywords:** Composite International Diagnostic Interview, prevalence, Primary Health Care visits, psychiatric disorders, Qatar, size and burden disorders

## Introduction

Recent cross-national epidemiologic studies have demonstrated a wide variation in the prevalence of common mental disorders across countries.<sup>[1–4]</sup> Mental disorders are widely recognized as a major contributor (14%) to the global burden of disease worldwide.<sup>[1]</sup> Patients often present to their family physician as their first contact with health services, depression and anxiety

disorders remain the most common conditions in primary care. Yet, symptoms are commonly undetected.<sup>[5]</sup> Although potentially treatable, lack of early detection and the subsequent nontreatment results in substantial morbidity and contributes to the higher social burden of disease.<sup>[5–7]</sup> Psychiatrists in the Middle East are well accustomed to patients with psychiatric problems presenting late to health services, often under pressure from family.<sup>[6–9]</sup>

Internationally, the public health burden of anxiety and depression are well recognized, ranking fourth among global

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burden of diseases. By 2020, their impact is estimated to rise to second.<sup>[10,11]</sup> In previously published studies from Qatar depression was the most common; second only to heart disease as a cause of disability in this country.<sup>[6,7]</sup> Depression is also the most common mental health presentation at Primary Health Care Centre (PHCC) level, often presenting with multiple somatic complaints and co-morbid anxiety disorders.<sup>[6-8]</sup> Lack of awareness and high levels of stigma related to mental health is a barrier to accessing mental health services at an early stage, resulting in impairments in social functioning, employment, and quality of life. Furthermore, it is well-established that prevalence rates of common mental disorders are higher in women in most countries.<sup>[12,13]</sup>

In primary care setting, the high prevalence of anxiety and depressive disorders increases use of health services, and delays response to effective treatments.<sup>[14,15]</sup> Certain demographic and psychosocial risk factors for anxiety-depression appear to be universal, in particular,<sup>[16-19]</sup> female gender;<sup>[16]</sup> unemployment;<sup>[17]</sup> lower levels of education;<sup>[18]</sup> young (vs. older) adulthood;<sup>[19]</sup> co-morbid substance use disorder (SUD);<sup>[20]</sup> physical ill-health;<sup>[21]</sup> and exposure to potentially traumatic events or postpartum depression.<sup>[22,23]</sup>

Structured psychiatric diagnostic tools have been developed by the World Health Organization (WHO) of which the Composite International Diagnostic Interview (CIDI) has been used worldwide.<sup>[3,4,14,24-26]</sup> The CIDI ascertains diagnoses based on WHO International Classification of Disease (ICD) criteria facilitating cross-national comparative epidemiological studies of mental disorders.<sup>[8]</sup>

The aim of this study was to assess the prevalence and burden of common psychiatric disorders at PHCC using the WHO-CIDI in the Qatari population, aged 18–65, and examine their symptom patterns and co-morbidity.

## Methods

This is a prospective cross-sectional study that included Qatari patients aged 18–65 years who attended the Primary Health Care (PHC), during the period from November 2011 to October 2012, using WHO-CIDI instrument.<sup>[3,4,14,24-27]</sup> The field of psychiatric epidemiology has made considerable progress in the last few decades, with the expansion and refinement of the definitions and criteria for mental disorders in the main diagnostic systems: The WHO's ICD,<sup>[28]</sup> and the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM),<sup>[29]</sup> allowing the use of operationalized diagnostic criteria within fully structured research questionnaires that can be administered by trained nonclinical interviewers. Using such procedures, community epidemiological surveys have started to be carried out in many countries, leading over time to the refinement of survey methods design and questionnaire development.

## Design

A multistage stratified sampling design was developed, using an administrative division of Qatar into 23 PHCs in terms of number of inhabitants. Only 13 health centers were visited mostly by Qatari nationals and other Arab expatriates, the remaining 10 health centers were excluded from our survey. The selected 13 health centers represented the Arab population mostly geographically, in Qatar.

## Ethical approval

Institutional review board approval was obtained from Weill Cornell Medical College and Hamad Medical Corporation, MRC for conducting this research in Qatar.

## Subjects

The subjects were selected by simple random sampling among population who visited the 13 health centers (10 urban and 3 semi-urban). Qualified nurses and health educators were trained to interview structurally and complete a questionnaire for randomly selected Qatari and Arab expatriates population of age 20 years and above. Assuming the prevalence rates of depression and anxiety disorders in Qatar to be similar to rates found in other Arabian Gulf countries and the Eastern Mediterranean,<sup>[6,8,9]</sup> with reported prevalence of 20% with the 99% confidence interval (CI) for an error of 3% at the level of significance, a sample size of 1500 subjects would be required to meet the objectives of the study. Allowing an error of 2.5%, level of significance (type 1 error) of 1%, and 99% CI, the computer program indicated that a sample size of 2000 subjects was required to achieve the objective of our study.

A random sample of Qatari nationals aged 18–65 years old was drawn from the primary care registry. A total of 2000 Qatari subjects were approached; 1475 (73.3%) agreed to participate. The study was conducted during the period from March 2011 to December 2012.

## Questionnaires

The data were 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 sociodemographic 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.

## Disorder severity

Cases were classified with an ad hoc three-category severity rating. Cases were classified as serious if they had any of the following: Bipolar I disorder; substance dependence with a physiological dependence syndrome; suicide attempt within the previous 12 months; severe impairment in at least two areas of role functioning assessed in the Sheehan Disability Scales (SDS),<sup>[19]</sup> or role functioning at a level consistent with a Global Assessment of Functioning<sup>[9]</sup> score of 50 or less. Cases not classified as serious

were judged to be moderate if the individual had either substance dependence without a physiological dependence syndrome or at least moderate role impairment in two or more SDS domains. Remaining cases were classified mildly.

The World Mental Health (WMH)-CIDI instrument in Arabic language was used by the trained 12 interviewers to administer the instrument. The interviewers were all nurses working at the psychiatry department of Hamad Medical Corporation and PHCC. The psychiatric diagnoses reported were based on ICD-10 criteria<sup>[27,28]</sup> and generated with the Arabic WMH-CIDI version 3.0. The participants completed the Arabic WMH-CIDI which was previously validated<sup>[9]</sup> although some Arabic words had to be replaced due to a different dialect. Paper and pencil Personal Interview version 6 was utilized to bridge the data into BLAISE survey software for professionals; Blaise 4.8.4 version, 1888, The Netherlands 2014. Blaise<sup>®</sup> is a registered trademark of Statistics Netherlands, a third party computer program customized to capture ICD-10 diagnoses and generate statistical data into SPSS statistical analysis software. The ICD-10 diagnoses<sup>[27,28]</sup> generated in this study included generalized anxiety disorders, major depressive disorder, social phobia, obsessive-compulsive disorder (OCD), psychosis and personality disorder. Chronic conditions section was also included. Functional disability section was randomized to every 10<sup>th</sup> interview. The original WMH-CIDI<sup>[24-26,30]</sup> includes 41 sections and takes an average of 1, 5 h to administer. The WHO field trials of the CIDI have documented good inter-rate reliability, test-retest reliability and validity for almost all diagnostic categories.

Student's *t*-test was used to ascertain the significance of differences between mean values of two continuous variables and confirmed by nonparametric 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. Multivariate logistic regression analysis using the forward inclusion and backward deletion method was used to determine for potential confounders and importance of risk factors. The level *P* < 0.05 was considered to be the cut-off value for significance.

## Results

Of the 1475 participants, 830 (56.3%) were females, and 645 (43.7%) was males. One-third were aged 35–49 years 558 (37.8%). Majority of them were married (75.10%).

Table 1 gives the prevalence and severity of ICD-10 disorders by severe, moderate and mild condition. The three most common disorders were major depression disorders (18.3%), any anxiety disorders (17.3%), any mood disorders (17%), followed by separation anxiety disorders (15.3%), personality disorder (14.1%). The majority of subjects were in the mild to moderate range of symptom severity. In addition, the most common co-morbid chronic physical conditions were ischemic heart disease, followed by diabetes than hypertension.

Table 2 presents the prevalence and severity of DSM-IV disorders by age group. More than one-third of the participants were in the

**Table 1: Prevalence and severity of Qatari CIDI disorders of studied subject (n=1475)**

	Prevalence n (%)	Conditional prevalence n (%)		
		Sever	Moderate	Mild
<b>Anxiety disorder</b>				
Generalized anxiety disorders	154 (10.4)	22 (14.3)	62 (40.3)	70 (45.5)
Panic disorder	152 (10.3)	17 (23.4)	28 (19.0)	57 (38.6)
Agoraphobia without panic	141 (9.6)	28 (19.9)	54 (38.3)	59 (41.8)
Specific phobia	123 (8.3)	24 (19.5)	36 (29.3)	63 (51.2)
Social phobia	129 (8.7)	18 (14.0)	38 (29.5)	73 (56.6)
Posttraumatic stress disorder	155 (10.5)	30 (19.4)	60 (38.7)	65 (41.9)
OCDs	162 (11.0)	25 (9.9)	58 (35.8)	79 (48.8)
Separation anxiety disorders	225 (15.3)	42 (18.7)	68 (30.2)	115 (51.1)
Somatization disorder	191 (13.0)	30 (15.7)	78 (40.8)	83 (43.5)
Any anxiety disorders	255 (17.3)	47 (18.4)	61 (23.9)	147 (57.7)
<b>Mood disorder</b>				
Major depression disorders	270 (18.3)	27 (10.0)	84 (31.1)	159 (58.9)
Dysthymia	90 (6.1)	18 (20.0)	34 (37.8)	38 (42.2)
Bipolar disorders I and II	132 (8.5)	17 (12.9)	43 (32.6)	72 (54.5)
Any mood disorders	250 (17.0)	43 (17.2)	93 (37.2)	114 (45.6)
Oppositional defiant disorder	131 (8.9)	20 (15.3)	32 (24.4)	79 (53.6)
<b>Impulse-control disorder</b>				
Conduct disorders	133 (9.0)	19 (14.3)	39 (29.3)	75 (56.4)
Attention deficit hyperactivity disorders	189 (12.8)	30 (15.9)	66 (34.9)	93 (49.2)
Intermittent explosive disorder	193 (13.1)	18 (9.3)	63 (32.6)	112 (58.0)
Any impulse control condition	271 (18.4)	35 (12.9)	67 (24.7)	169 (62.4)
<b>Substance abuse disorder</b>				
Alcohol abuse	12 (0.8)	0 (0)	0 (0)	12 (100)
Alcohol dependence	12 (0.8)	0 (0)	0 (0)	12 (100)
Drug abuse	21 (1.4)	0 (0)	0 (0)	21 (100)
Drug dependence	21 (1.4)	0 (0)	0 (0)	21 (100)
<b>Others</b>				
30-day functioning	184 (12.5)	20 (10.9)	59 (32.1)	105 (57.1)
Chronic condition	310 (21.0)	26 (8.4)	97 (31.3)	187 (60.3)
Suicidality	12 (0.8)	0 (0)	0 (0)	12 (100)
Psychosis	97 (6.6)	17 (17.5)	30 (30.9)	50 (51.6)
Personality disorders screen	208 (14.1)	33 (15.9)	77 (37.0)	98 (47.1)

CIDI: Composite international diagnostic interview; OCDs: Obsessive compulsive disorders

age group 35–49 years (37.8%), followed by 18–34 years (34%), then 50–64 years (19.6%) and above aged 65 years old (8.5%). Across the diagnostic categories covered in this study, the most affected were the 35–49 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 3 shows the prevalence and severity of disorders by gender. Not surprisingly, prevalence rates in women were significantly higher than men for the most common mental disorders. In the present study, prevalence in women was significantly higher than

**Table 2: CIDI disorders of studied subject by age group (n=1475)**

Variables	Age group n (%)				P
	18-34 n=502	35-49 n=558	50-64 n=290	65+ n=125	
<b>Anxiety disorder</b>					
Generalized anxiety disorders	37 (7.4)	58 (10.4)	42 (14.5)	17 (13.6)	0.009
Panic disorder	38 (7.6)	60 (10.8)	29 (10.0)	25 (20)	0.005
Agoraphobia without panic	37 (7.4)	50 (9.0)	31 (10.7)	23 (18.4)	0.002
Specific phobia	36 (7.1)	40 (7.2)	32 (11.0)	15 (12.0)	0.194
Social phobia	74 (14.7)	96 (17.2)	56 (19.3)	23 (18.4)	0.385
Posttraumatic disorder	39 (7.8)	54 (9.7)	36 (12.4)	27 (21.6)	0.274
OCDs	62 (12.3)	50 (9.0)	36 (12.4)	14 (11.2)	0.364
Separation anxiety disorders	61 (12.2)	91 (16.3)	52 (17.9)	21 (16.8)	0.127
Any anxiety disorders	97 (19.3)	87 (15.6)	38 (13.1)	34 (27.2)	0.002
<b>Mood disorder</b>					
Major depression disorders	88 (17.5)	101 (18.1)	52 (17.9)	31 (24.8)	0.292
Dysthymia	19 (3.8)	36 (6.5)	23 (7.9)	12 (9.6)	0.027
Bipolar disorders I and II	42 (8.4)	52 (9.3)	19 (6.6)	19 (15.2)	0.192
Any mood disorders	80 (15.9)	93 (16.7)	50 (17.9)	27 (20.0)	0.262
Oppositional defiant disorder	42 (8.4)	50 (9.0)	25 (8.6)	14 (11.2)	0.925
<b>Impulse-control disorder</b>					
Conduct disorders	34 (6.8)	54 (9.7)	31 (10.7)	14 (11.2)	0.165
Attention deficit hyperactivity disorders	55 (11.0)	72 (12.9)	38 (13.1)	24 (19.2)	0.176
Intermittent explosive disorder	62 (12.4)	66 (11.8)	40 (13.8)	25 (20.0)	0.094
Any impulse control condition	81 (16.1)	99 (17.7)	65 (22.4)	26 (20.8)	0.140
<b>Substance abuse disorder</b>					
Alcohol abuse	3 (0.6)	3 (0.5)	3 (1.0)	3 (2.4)	0.180
Alcohol dependence	3 (0.6)	3 (0.5)	3 (1.0)	3 (2.4)	0.180
Drug abuse	7 (1.4)	7 (1.3)	4 (1.4)	3 (2.4)	0.809
Drug dependence	7 (1.4)	7 (1.3)	4 (1.4)	3 (2.4)	0.809
<b>Others</b>					
30-day functioning	64 (12.7)	61 (10.9)	38 (13.1)	21 (16.8)	0.321
Chronic condition	107 (21.3)	112 (20.1)	62 (21.4)	29 (23.2)	0.871
Suicidality	3 (0.6)	3 (0.5)	3 (1.0)	3 (2.4)	0.180
Psychosis	39 (7.8)	36 (6.5)	14 (4.8)	8 (6.4)	0.483
Personality disorders screen	79 (15.7)	88 (15.8)	47 (16.2)	25 (20.0)	0.918

\* $\chi^2$  test. CIDI: Composite international diagnostic interview; OCDs: Obsessive compulsive disorders

men for the most common psychiatric disorders, specifically generalized anxiety disorder, panic disorder, social phobia, specific phobias, OCDs, posttraumatic disorder, somatization, major depressive disorder, bipolar disorder, dysthymia, and oppositional defiant disorder.

Table 4 shows the prevalence rate of CIDI psychiatric disorders by degree of co-morbidity be gender and age groups. Of the total sample of 1475, 20% had at least one psychiatric diagnosis, and 12% had two disorders, 9.7% respondents with three diagnoses, finally 4.3% of respondents had four or more diagnoses.

**Table 3: Multivariate logistic regression analysis results of CIDI disorders by gender (n=1475)**

Variable	Gender n (%)		OR (95% CI)	P*
	Male n=645	Female n=830		
<b>Anxiety disorder</b>				
Generalized anxiety disorders	50 (7.8)	104 (12.5)	1.45 (1.00-2.11)	0.050
Panic disorder	50 (7.8)	102 (12.2)	1.44 (1.08-1.92)	0.013
Agoraphobia without panic	37 (5.7)	104 (12.5)	2.35 (1.57-3.52)	<0.001
Specific phobia	38 (5.9)	85 (10.2)	2.53 (1.60-2.95)	0.003
Social phobia	35 (5.4)	88 (10.6)	1.35 (1.28-2.39)	0.005
Obsessive compulsive disorder	50 (7.8)	112 (13.5)	1.47 (1.10-1.83)	0.004
Posttraumatic stress disorders	37 (5.7)	118 (14.2)	2.58 (1.91-2.86)	<0.001
Somatization	51 (8.0)	136 (16.4)	1.83 (1.38-3.27)	0.001
Any anxiety disorders	78 (12.1)	178 (21.4)	1.95 (1.36-3.05)	<0.001
<b>Mood disorder</b>				
Major depression disorders	89 (13.8)	183 (22.0)	2.02 (1.44-2.83)	<0.001
Bipolar disorders I and II	38 (5.9)	94 (11.3)	1.83 (1.35-2.60)	0.025
Dysthymia	21 (3.3)	69 (8.3)	1.52 (1.27-2.10)	<0.001
Oppositional defiant disorder	42 (6.5)	89 (14.1)	1.54 (1.13-2.09)	0.006
Any mood disorder	86 (13.3)	164 (19.8)	1.70 (1.45-2.20)	0.004
<b>Impulse-control disorder</b>				
Conduct disorders	39 (6.0)	94 (11.3)	1.67 (1.11-2.52)	0.014
Attention deficit hyperactivity disorders	56 (8.7)	133 (16.0)	1.72 (1.21-2.43)	0.002

\*Reference (male). OR: Odds ratio; CI: Confidence interval; CIDI: Composite international diagnostic interview

**Table 4: The prevalence of rate CIDI psychiatric disorders by degree of co-morbidity be gender and age groups (n=1475)**

Variables	Psychiatric disorder n (%)					P
	4+ disorders	3 disorders	2 disorder	1 disorder	None	
<b>Gender</b>						
Male	30 (2.0)	57 (3.9)	69 (4.7)	121 (8.2)	368 (24.9)	<0.001
Female	34 (2.3)	86 (5.8)	108 (7.3)	174 (11.8)	428 (29.1)	
Total	68 (4.6)	143 (9.4)	177 (12.0)	295 (20.0)	796 (54)	
<b>Age groups</b>						
18-34	25 (1.7)	50 (3.4)	72 (4.9)	89 (6.0)	281 (19.1)	<0.001
35-49	24 (1.6)	52 (3.5)	59 (4.0)	137 (9.3)	341 (23.1)	
50-64	10 (0.7)	25 (1.7)	31 (2.1)	59 (4.0)	155 (10.5)	
64+	5 (0.3)	16 (1.1)	15 (1.0)	10 (0.7)	74 (5.0)	
Total	64 (4.3)	143 (9.7)	177 (12.0)	295 (20.0)	851 (57.7)	

CIDI: Composite international diagnostic interview

## Discussion

The prevalence of current psychiatric disorders was found to be relatively high in primary care clinics in Qatar. Major depression disorders, any anxiety disorder, any impulse control condition, and mood disorder were the most common disorders, afflicting, respectively, one patient out of five. These estimates

are amongst the highest reported in the world.<sup>[2-4,10,11]</sup> Higher levels of psychiatric morbidity may be associated with higher consanguineous marriages, rapid urbanization, heterogeneous population as social groups living in adverse situations under chronic stress would be more likely to present mental disorders as previously reported.<sup>[8,31-33]</sup>

We found advantages in using the CIDI, such as standardization of data collection, widening and extending investigation field of the physician,<sup>[3,4,9,21,24-26,30]</sup> standardization of the communication between different professionals, and utilization of nonmedical interviewers as a way to increase capacity and capability for psychiatric assessment and to reduce costs in population studies. Our results confirm previous findings that the rates of common mental disorders are higher in women.<sup>[2,3,8-10,14,21,24-26]</sup>

Major depression is a serious, recurrent disorder linked to diminished role functioning and quality of life, medical comorbidity, and mortality.<sup>[2-4,10,14,30-32]</sup> In the present study, prevalence of any anxiety disorders in women was significantly higher than men (21.4% vs. 12.1%) and major depression disorders (22.0% vs. 13.8%). Prince *et al.*,<sup>[1]</sup> noted 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.<sup>[6,7]</sup> 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 investigation. 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 recognizes women's mental health as one of the national priorities.

The study findings showed that young 37.8% of Qatari population in the age group 35–49 years were affected with mental disorders. The prevalence of anxiety and depression, panic and any anxiety disorders were highest in the age group 65 and above, followed by 50–64 years. 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 and other Western countries.<sup>[9,13,16,34-39]</sup> More recently a study reported<sup>[13]</sup> that the widely documented decrease in the prevalence of mental depression episode among the elderly is much more pronounced in developed than in developing countries. Although the prevalence of chronic physical conditions increased with age in both developed and developing countries, the association between depression and chronic conditions generally decreases with age. This is in line with findings of previous studies.<sup>[13-15,26,27]</sup>

Furthermore, there is great variation in the prevalence estimates of individual disorders, which could be due to the assumption that the WMH-CIDI does not adequately or consistently capture psychopathological syndromes in different cultures,<sup>[2-4,10,11]</sup> as the lowest prevalence rates were found in non-Western countries (Nigeria 12%, China 13.2% and Japan 18.1%),<sup>[21]</sup>

with the exception of Israel with an overall prevalence rate of 17.6%<sup>[34,35]</sup> (but only including the assessment of mood and SUDs, and few anxiety disorders). Finally, the lifetime prevalence estimate of OCD in our study was high (10.98%, standard error [SE] = 0.5), compared with the Brazilian study (6.7%, SE = 0.5).<sup>[21]</sup> Although the instrument used was the same, it was found to show little sensitivity in Brazil, and the skip patterns were modified to keep respondents in the section, answering more questions, with a greater probability of picking up otherwise false-negatives, or conversely, identifying more false-positives. Since the CIDI is based on the assessment of symptoms that compose diagnostic criteria for psychiatric disorders, it may have detected mild cases with no clinical relevance, contributing to the high prevalence rates.

High rates of somatization disorders in primary care clinics in our study might be explained by higher rates in the community, due, in particular, to the high proportion of immigrants expatriate workers in Qatar, since higher rates of somatization symptoms have been described in immigrant populations and minority ethnic groups than in native populations.<sup>[8,31,32]</sup> It is worthwhile noting that in two other Middle East populations, conversion disorder has also been reported to be high in primary care in Israel,<sup>[14,34,35]</sup> in general practice attendees across Europe<sup>[36-39]</sup> and in Qatar.<sup>[16,31,32]</sup>

The relationship between physical and mental illness is a complex one with close cause-effect factors. Diabetes, hypertension, and ischemic 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. Further studies are much needed as a matter of urgency.

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 psychiatric disorders.

## Limitations

No ongoing comprehensive electronic health registry exists to assess the morbidity burden at the national level. Therefore, we substituted and back translated a few words to be certain of the relevance of the questions. Some of the limitations of the instrument were: The rigidity of its rules; the inflexibility of the diagnostic algorithms; the need of some clinical judgment, with the consequent hampering of the administration by totally lay interviewers. The rigidity of the rules and the inflexibility of the diagnostic algorithms caused the detection of only the number of occurred symptoms and not their severity or hierarchical importance. The interview lasted an average of 75 min, which was difficult to maintain with many patients. Most of them were in the center because they were actually sick which affected their ability to continue the interview. Finally, the stigma of mental illness and particularly questions about suicide and substance

abuse hindered the engagement of the responders, many of which preferred to abort the interview.

## Conclusion

The study findings revealed that almost one-fifth of all adults who attended the PHCC setting presented with at least one type of mental disorders. Overall, the prevalence of the generalized anxiety disorders; social phobia, specific phobia, major depression, and personality disorders were the significantly higher in women than in men. The young Qatari population in the age groups 35–49 years and above 65 years old were the most affected with mental disorders. These results suggest that caution must be taken when using the CIDI as the sole diagnostic instrument in epidemiological research to estimate prevalence and incidence. The CIDI may be more useful for screening out potential candidates in clinical research and psychopharmacological trials. 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.

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