

## Cross-Sectional: Prevalence Of Mental Disorders By Sex Among Hera General Hospital Patients Over The Last 10 Years

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### Abstract

**Background:** *Mental disorders manifest as social, occupational, or emotional dysfunctions. Many countries struggle to recognize mental disorders and their effects on communities. Mental health awareness in Saudi Arabia has improved in recent years as psychiatric treatment has become more acceptable in Saudi society. The aim of this study was to determine the percentages of mental disorders among a hospital population at Hera General Hospital, Makkah, Saudi Arabia, using the diagnostic criteria of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders and the tenth revision of the International Classification of Diseases. We aimed to determine sex differences and to identify the five most common disorders.*

**Results:** *The most common mental disorders in patients attending the psychiatric clinic of Hera General Hospital were found to be major depressive disorder (41.3%), followed by anxiety disorders (22.1%), substance-induced psychotic disorder (11.4%), schizophrenia (8.9%), and Mental retardation (7.0%). Females were observed to have a higher risk for mood and anxiety disorders, whereas males had a higher risk for substance-induced psychotic disorder and schizophrenia.*

**Conclusions:** *Major depressive disorder was the most prevalent mental disorder at Hera General Hospital. Most patients with depressive disorder were female.*

**Keywords:** *Diagnostic and Statistical Manual of Mental Disorders, Mood Disorders, Anxiety Disorders, Depressive Disorder, Sex Characteristics.*

### Introduction

Mental disorders manifest as social, occupational, or emotional dysfunctions [1]. Each year around 14.3% of the deaths worldwide are due to mental disorders [2]. Many countries struggle to recognize mental disorders and their impact on communities and the economic status of those countries [3]. Mental health awareness in Saudi Arabia has improved in recent years as psychiatric treatment has become more acceptable in Saudi society [4]. Many private and public psychiatric institutions in Saudi now have outstanding inpatient and outpatient services [5].

The most common disorder in the United States, Colombia, France, and Lebanon are anxiety disorders, whereas Ukraine has a higher prevalence of mood disorders, and Nigeria and Beijing have a higher prevalence of substance use disorders [6]. Patient health questionnaires in 431 primary health care patients in Saudi Arabia, found that 20% of the population had depression and 19.3% had somatic conditions [7]. A self-medication questionnaire found that 28.5% of patients who attended primary health care had underlying mental disorders [8]. Using the

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Rahim Anxiety-Depression Scale, Al-Khathami found that one in three primary health care patients suffered from some form of mental illness [9]. Using the General Health Questionnaire-28 (GHQ-28), Al-Sughayr found mental illness in 48% of high schoolers, with a greater proportion among female students [10]. A study in Latvia found the prevalence of mental disorders among primary care patients to be 37.2%, with a greater percentage among females [11].

The majority of Saudi Arabian studies [7-9] on the prevalence of mental disorders have used self-reporting questionnaires rather than a certified psychiatrist following standardized diagnostic criteria. The Rahim Anxiety-Depression Scale and self-reporting questionnaires used in these studies are simply instruments for mental health screening [12].

The aim of this study was to determine the prevalence of mental disorders by sex among patients of Hera General Hospital, Makkah, Saudi Arabia, using the diagnostic criteria of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and the tenth revision of the International Classification of Diseases (ICD-10) and to establish the five most common disorders.

### **Materials & Methods**

We identified clusters of mental disorders seen at Hera General Hospital psychiatric clinic using the diagnostic criteria of the DSM-VI and ICD-10. These included major depressive disorder; anxiety disorders, including generalized anxiety disorder, specific phobias, acute anxiety disorder, Hypochondriasis, obsessive-compulsive disorder, mixed anxiety and depressive disorder, habit and impulse disorder, panic disorder, and social anxiety disorder; and Psychotic disorder due to substance abuse; schizophrenia, including schizoaffective disorder and schizophreniform disorder; Mental retardation; bipolar affective disorder; personality disorder; adjustment disorder; attention deficit hyperactive disorder (ADHD); dementia; sleep disorders; somatization disorders, including tic disorder, speech disturbances, and irritable bowel syndrome; and psychosexual disorder.

This was a cross-sectional study of patients at a psychiatric outpatient department from July 2009 to June 2019 in Hera General Hospital, Makkah, Saudi Arabia, with a total of 11,841 patients. The inclusion criteria:

1. Patients who were interviewed by a board-certified psychiatrist through a primary health care referral, follow-up appointments, or consultation with in-hospital departments, patients seen between July 1, 2009 and June 30, 2019, and diagnosed with a mental disorder based on the DSM-IV or ICD-10 diagnostic criteria.

#### **The exclusion criteria:**

1. Patients who were interviewed by a board-certified psychiatrist but did not fulfill the diagnostic criteria for a mental disorder.
2. In case of multiple medical record numbers (MRN) for the same patient, the least used MRN was excluded from the study population.
3. In instances where there was an alteration of diagnosis, the primary investigator adopted a hierarchical approach to encode the mental disorder.

The Statistical Package for the Social Sciences version 26.0 (2018) was used for statistical analysis. Data consisted of three variables: MRN, sex, and diagnosis. The data were described with descriptive statistics, including frequencies and crosstabs.

### **Results**

After following the inclusion and exclusion criteria, 2,940 out of 11,841 subjects were included

**Table 1: frequencies of mental disorders with percentage**

	Frequency	Percent	Valid Percent	Cumulative Present
ADHD	33	1.1	1.1	1.1
Adjustment Disorder	53	1.8	1.8	2.9
Anxiety Disorder	650	22.1	22.1	25.0
Bipolar Affective Disorder	60	2.0	2.0	27.1
Dementia	39	1.3	1.3	28.4
Mental Retardation	207	7.0	7.0	35.4
Major Depressive Disorder	1213	41.3	41.3	76.7
Personality Disorder	44	1.5	1.5	78.2
Psychosexual Disorder	2	.1	.1	78.3
Psychotic Disorder	331	11.3	11.3	89.5
Schizophrenia	263	8.9	8.9	98.5
Sleep Disorder	20	.7	.7	99.1
Somatization Disorder	25	.9	.9	100.0
Total	2940	100.0	100.0	

in the study population. Diagnostic frequencies were calculated (Table 1).

(Table 1) shows the five most frequently occurring mental disorders in the study ranked in order of prevalence: 1,213 patients (41.3%) had a diagnosis of major depressive disorder, 650 patients (22.1%) were diagnosed with an anxiety disorder, 331 patients (11.3%) were diagnosed with a substance-induced psychotic disorder, 263 patients (8.9%) had a diagnosis of schizophrenia, and 207 patients (7%) were diagnosed with a mental retardation.

**Table 2: frequencies of sex with percentage**

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	1300	44.2	44.2	44.2
Female	1640	55.8	55.8	100.0
Total	2940	100.0	100.0	

(Table 2) shows the sex of the sample. 1,640 patients (55.8%) were female and 1,300 (44.2%) were male.

**Table 3: cross-table of mental disorders and sex, with percentage of sex within the diagnosis**

Diagnosis			Gender		Total
			Male	Female	
ADHD	Count	24	9	33	
	% within Diagnosis	72.7%	27.3%	100.0%	
Adjustment Disorder	Count	18	35	53	
	% within Diagnosis	34.0%	66.0%	100.0%	
Anxiety Disorder	Count	273	377	650	
	% within Diagnosis	42.0%	58.0%	100.0%	
Bipolar Affective Disorder	Count	28	32	60	
	% within Diagnosis	46.7%	53.3%	100.0%	
Dementia	Count	12	27	39	
	% within Diagnosis	30.8%	69.2%	100.0%	
Mental Retardation	Count	115	92	207	
	% within Diagnosis	55.6%	44.4%	100.0%	
Major Depressive Disorder	Count	432	781	1213	
	% within Diagnosis	35.6%	64.4%	100.0%	
Personality Disorder	Count	14	30	44	
	% within Diagnosis	31.8%	68.2%	100.0%	
Psychosexual Disorder	Count	1	1	2	
	% within Diagnosis	50.0%	50.0%	100.0%	
Psychotic Disorder	Count	210	121	331	
	% within Diagnosis	63.4%	36.6%	100.0%	
Schizophrenia	Count	153	110	263	
	% within Diagnosis	58.2%	41.8%	100.0%	
Sleep Disorder	Count	9	11	20	
	% within Diagnosis	45.0%	55.0%	100.0%	
Somatization Disorder	Count	11	14	25	
	% within Diagnosis	44.0%	56.0%	100.0%	
Total	Count	1300	1640	2940	
	% within Diagnosis	44.2%	55.8%	100.0%	

Of the 1,213 patients with major depressive disorder, 781 (64.4%) were female and 432 (35.6%) were male. Of the 650 with anxiety disorders, 377 (58%) were female and 273 (42%) were male. Of the 331 patients diagnosed with substance-induced psychotic disorder, 210 (63.4%) were male and 121 (36.6%) were female. Of the 263 patients with schizophrenia, 110 (41.8%) were female and 153 (58.2%) were male. Of the 207 patients with a mental retardation, 115 (55.6%) were male and 92 (44.4%) were female (Table 3).

## Discussion

Major depressive disorder was the most common disorder in our study population, with a prevalence of 41.3% among a population diagnosed with mental disorders. This is significantly higher than the prevalence of 19.3% found in an equivalent population in the psychiatric outpatient department clinic in King Fahd Hospital of the University, Dammam, Saudi Arabia [13]. Picco et al. have reported that major depressive disorder is more common in females than in males with a ratio of 1.5:1, which is consistent with our finding [14].

Anxiety disorders were the second most common mental disorder in this study, accounting for 22.1% of our sample. This is significantly lower than the prevalence of 35.1% found by Alharbi at two tertiary-care military hospitals in Riyadh, Saudi Arabia [15]. There was little relationship between anxiety disorders and sex in this study as the male to female ratio was 1:1.38. This is higher than the ratio found by Alharbi of 1:1.27 [15].

Substance-induced psychotic disorder accounted for 11.3% of the population of this study. Multiple studies have been conducted into substance use disorder (SUD), with approximately 8% of Saudis having abused substances, most commonly, amphetamines [16]. Another study reported that 13% of the worldwide population suffers from SUD [17]. Lambert et al. indicate that 74% of those with SUD will experience a psychotic episode [18]. This is expressed by the following mathematical equation:  $\text{percentage of SUD in worldwide population}/100 \times \text{percentage of psychotic episode from SUD}/100 = \text{new data} \times 100 = \text{percentage of psychotic disorder due to substance use disorder}$ .

Psychotic disorder due to SUD was higher in our population than in the worldwide population. Males showed a higher prevalence for substance-induced psychotic disorder than females, with a ratio of 2:1, which is consistent with previous research by Ochoa et al [19].

We found that 8.9% of the psychiatric sample from Hera General Hospital suffered from schizophrenia. In a study by Sarwat, the estimated lifetime prevalence of schizophrenia among a psychiatric population was found to be 4.3% [20]. There was a slightly higher prevalence of schizophrenia among males than females in our sample, with a ratio of 1.39:1. This is supported by previous research indicating that males have a two to three times greater risk of schizophrenia than females [19].

Mental retardation has a global prevalence between 1% and 3% and tends to affect more males than females [21]. However, the prevalence in our sample was 7% from the psychiatric population which is 4%-6% higher than that in the global population. The sex ratio was in accord with that of previous research.

The prevalence of bipolar spectrum disorders in two tertiary care military hospital found to be 7.1%. This is higher than our finding that 2% of the study population was diagnosed with bipolar affective disorder [15]. Sex played no significant role in bipolar affective disorder in this study, and previous research has similarly found no such association [15,22].

ADHD accounted for 1.1% of our study population with lacking of articles on similar study population, comparison and supporting our finding is difficult to be accomplished. Research indicates that females are less likely to develop ADHD than males, with an approximate ratio of 1:4. Our findings were in accord with this [23].

Adjustment disorder accounted for 1.8% of the diagnoses in our sample. This is higher than that found in a German study, which indicated a prevalence of less than 1% for adjustment disorder [24]. Previous research has found no relationship between adjustment disorder and sex. However, in our sample, 66% of the 53 subjects with this condition were female. This may be due to the small number of the sample with the condition [25].

The percentage of patients in our sample with dementia was 1.3%. However, this only represents dementia with behavioral disturbances. Alkhunizan et al. reported that the prevalence of dementia in Saudi Arabia is 6.4% [26]. We, therefore, speculate that one in five patients with dementia will experience behavioral disturbances that require treatment from a mental health professional. Ruitenbergh et al. found sex to be unrelated to unspecified dementia but Alzheimer's disease and vascular dementia are more common in females than in males. In our sample, unspecified dementia occurred more often in females than males at a ratio of 2:1 [27,28].

In our sample, 0.7% had a sleep disorder. However, this cannot be considered representative as sleep disorders rarely require psychiatric treatment and can usually be managed at the level of primary health care, internal medicine, or by referral to a pulmonologist. We found no sex differences in sleep disorders.

Our study population had a higher overall percentage of females (55.8%) than males (44.2%). Mood disorders and anxiety disorders were more common in females than males and substance-induced psychotic disorder and schizophrenia were more common in males than females. These findings are consistent with previous research.

### **Study limitations**

The small number of patients in our sample with personality disorders, sleep disorders, somatization disorders, and psychosexual disorders meant that prevalence and sex differences were difficult to determine as the frequencies were likely to lack validity and reliability.

Limitation in literatures for prevalence in psychiatric population for Mental retardation and ADHD.

Generalized anxiety disorder, specific phobias, acute anxiety disorder, hypochondriasis, obsessive-compulsive disorder, mixed anxiety and depressive disorder, and habit and impulse disorder were included in the broader category of anxiety disorders due to frequent changes in the ICD coding of patients with anxiety disorders.

Our study did not include sociodemographic data or possible risk factors.

### **Conclusions**

Mental disorders manifest as social, occupational, or emotional dysfunctions. Major depressive disorder is the most common mental disorder seen at Hera General Hospital, and the majority of individuals with this condition are female.

We urge fellow medical professions to work toward identifying the causes of mental disorders in each country and to work with governments to reduce their incidence. We urge our fellow



researchers to contribute to the advancement of mental health research and the identification of risks for mental illness among the global population.

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