

Generalized Anxiety Disorder among Physicians in Jeddah, Saudi Arabia: Prevalence and Determinants

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ABSTRACT

Background: Generalized anxiety disorder (GAD) is one of the most common mental disorders in primary care settings and is associated with increased use of health services. Patients with GAD demonstrate a considerable degree of impairment and disability, even in its pure form, uncomplicated by depression or other mental disorders.

Objectives: To explore the magnitude of the problem of anxiety disorders among physicians working in general governmental hospitals in Jeddah and its determinants.

Subjects and Methods: Across sectional study was carried out in Jeddah city, Saudi Arabia. A representative sample of physicians working in general governmental hospitals in Jeddah were included. A Self administration questionnaire was used for data collection. It contains participants' personal characteristics, questions about factors that may determine the development of GAD and Generalized Anxiety Disorder 7-item (GAD-7) scale to diagnose GAD.

Results: The study included 151 physicians. Males represent 64.9% of them and 40.4% aged between 25 and 29 years. Majority of them (80.8%) were Saudis. Mild anxiety disorder was observed among 31.8% of the physicians whereas each of moderate and severity forms was reported among 16.6% of them. Moderate and severe anxieties were more reported among young physicians (30-34 years) compared to old physicians (≥ 40 years) (25% and 15.9% compared to zero). The difference was statistically significant, $p=0.022$. Saudi physicians reported higher rate of moderate and severe anxiety than non-Saudi physicians (18.9% and 12.3% versus 6.9% and 3.4%). The difference, $p = 0.05$. Severe GAD was reported

among 33.3% of physicians with history of sexual abuse, 37.5% of those with history of early separation from parents and 42.9% of those with history of childhood school difficulty compared to 5.1% of those without such histories. The difference was significant=0.019. Physicians who had history of mental disorders reported higher significant rate of severe anxiety compared to those without such history (28.9% versus 6.8%, $p<0.001$). Physicians who had stressful life reported higher significant rate of severe anxiety.

Conclusion: Physicians working at primary health care centers in Jeddah showed significant rate of generalized anxiety disorders particularly younger and Saudi physicians.

Keywords: Generalized Anxiety Disorder, Physicians, Prevalence, Risk Factors.

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INTRODUCTION

Generalized anxiety disorder (GAD) is characterized by excessive, persistent worrying which is hard to control, and by psychological and physical symptoms of anxiety that together cause significant personal distress and impairment of everyday functioning.¹ It is common in community and clinical settings and it is one of the most common mental disorders in primary care settings and is associated with increased use of health services. Major

depression and other anxiety disorders are common co-morbidities of GAD.¹

Genetic factors appear to predispose individuals to the development of GAD, though data from twin studies have been inconsistent. GAD shares a common heritability with major depression and with the personality trait of 'neuroticism'.¹ Adversity and undesirable life events can exacerbate symptoms of

GAD. Neuroimaging and other studies suggest the symptoms of GAD are accompanied by an enhanced emotional responsiveness in fear-related brain circuits.¹ Excessive and persistent worrying is the pathognomic symptom of GAD, but symptoms related to hyperarousal, autonomic hyperactivity, motor tension, sleep disturbance and pain are all common.¹

The natural course of GAD can be characterized as chronic with few complete remissions, a waxing and waning course of GAD symptoms, and the occurrence of substantial co-morbidity particularly with depression.² Patients with GAD demonstrate a considerable degree of impairment and disability, even in its pure form, uncomplicated by depression or other mental disorders.²

The degree of impairment is similar to that of cases with major depression. GAD co-morbid with depression usually reveals considerably higher numbers of disability days in the past month than either condition in its pure form. As a result, GAD is associated with a significant economic burden owing to decreased work productivity and increased use of health care services, particularly primary health care.² The appropriate use of psychological treatments and antidepressants may improve both anxiety and depression symptoms and may also play a role in preventing co-morbid major depression in GAD thus reducing the burden on both the individual and society.²

The diagnosis of generalized anxiety disorder (GAD) is based on the presence of generalized, persistent and excessive anxiety and a combination of various psychological and somatic complaints.³ DSM-IV-TR diagnostic criteria for generalized anxiety disorder requires excessive anxiety and worry, occurring more days than not for at least six months, about a number of events or activities, the person finds it difficult to control the worry, he anxiety and worry are associated with at least three of the following symptoms (restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension and sleep disturbance), the anxiety, worry, or physical symptoms cause clinically significant distress or impaired functioning and the disturbance is not due to the direct physiological effects of a substance or a general medical condition.⁴

Because the majority of the anxiety symptoms are not specific to GAD, it is important to exclude the other anxiety disorders before making the diagnosis.⁵ The essential feature of diagnostic criteria for GAD in the World Health Organization's ICD-10 is 'free-floating' anxiety, with prominent tension, worry, and feelings of apprehension about everyday events and problems. Diagnosis additionally requires the presence of at least four more features from a list of 22 symptoms relating to autonomic arousal, tension, mental state, chest/ abdominal discomfort, and sleep disturbance. Symptoms have to be present for most days over the preceding six months.⁶

In this study, DSM-IV-TR diagnostic criteria for generalized anxiety disorder were considered throughout the whole study.

This study aimed to study the magnitude of the problem of anxiety disorders among physicians working in general governmental hospitals in Jeddah.

SUBJECTS AND METHODS

Analytical cross sectional study was carried out in Jeddah city, Saudi Arabia. Jeddah is city located in the middle of the Eastern coast of the Red Sea known as the 'Bride of the Red Sea' and is considered the economic and tourism capital of the country. Its

population is estimated to be around 3.4 million and it is the second largest city after Riyadh.⁷ It included five general governmental hospitals (King Fahad, King Abdulaziz, Althaghr, Sharq Jeddah and north Jeddah).

All physicians working in general governmental hospitals in Jeddah were eligible for inclusion in the study. The sample size was calculated using Raosoft statistical program.⁸ Assuming that the prevalence of GAD in Saudi Arabia is 14% according to Amr (2012)⁹ study, the confidence interval was 95% and margin of error was 5%. Then, the sample size was 128 physicians This sample was increased to 150 in order to compensate for the expected low responsiveness of the physicians. Physicians who were assigned to work outside Jeddah as well as those who were on vacations during the period of study conduction were excluded. By using simple random technique, two general governmental hospitals out of the five present in Jeddah city were chosen. All physicians in these two sectors were recruited in the study till the sample size was reached.

A Self administration questionnaire was distributed to all physicians included in the study sample. It contains three main parts. The first part consists of the participants' personal characteristics (age, gender, nationality, specialty, qualification and years of experience). The second part contains questions about factors that may be associated with the development of GAD. This part was validated by three consultants in psychiatry, psychology and family medicine. While the third part consists of the criteria needed to make the diagnosis of GAD. Generalized Anxiety Disorder 7-item (GAD-7) scale was utilized in this regard. The GAD-7 assesses possible cases of generalized anxiety disorder and assesses symptom severity among males and females in the following age groups: Young Adulthood (18-29 yrs); Thirties (30-39 yrs); Middle Age (40-64 yrs); Aged (65 yrs & older); Very old (85 yrs & older); Adolescence (13-17 yrs); and Adulthood (18 yrs & older). The 7-item Generalized Anxiety Disorder Scale (GAD-7) is a practical self-report anxiety questionnaire that proved valid in primary care and general population.^{10,11} The questionnaires were distributed by the researchers to each participant directly at their workplace to guarantee their privacy. Within a time period of two weeks, the questionnaires were distributed to the recruited physicians at their hospitals on Sundays and collected on Thursdays of the same week. The participant next on the list replaced any non- respondent.

Approval of the Regional Research and Ethics Committee in King Abdulaziz hospital was obtained as well as permission from directorate of involved hospitals in Jeddah. Written consent will be taken from all participants prior to participation in the study.

Data were entered to a personal computer and analyzed by using Statistical Package for the Social sciences (SPSS) program version 23. Chi-square was used to test for the association between GAD and risk factors. A p- value of less than 0.05 was adopted for statistical significance.

RESULTS

As presented in table 1, the study included 151 physicians. Almost two-thirds (64.9%) were males. More than one third of them (40.4%) were in the age group 25-29. Majority of them (80.8%) were Saudis and approaching fifth of them (21.9%) were internists whereas 13.3% of them were either family Medicine specialists or general practitioners. More than a quarter of them (27.8%) were

PhD/Board or equivalent holders whereas 58.3% were MBBS holders. Their experience ranged between one month and 27 years with a mean of 4.7 years and SD of 4.7 years. The experience of 65.9% of them was 5 years or less. (Table 1)

Table 2 summarizes the social and medical risk factors for GAD among physicians. It is seen that most of physicians (77.5%) not experienced any problems during childhood period whereas physical abuse, early separation from parents, school difficulties and sexual abuse were reported by 8.6%, 7.9%, 6.6% and 6% of them, respectively. Eighteen physicians (11.9%) had or have been treated with any mental disorders. Difficulty in seeing or hearing

and bronchial asthma were reported by 19.9% and 12.6% of physicians, respectively. Painful conditions were reported by 6% of them. Family history of GAD was reported by 10.6% whereas almost two-thirds (64.2%) of physicians reported by stressful life.

From figure 1, it is shown that 31.8% of physicians had mild and 16.6% had moderate anxiety disorders. Severe anxiety was reported among 10.6% them. Regarding difficulty of anxiety problem on physician's work, taking care of things at home or getting alone with other people, more than half of them (81; 53.6%) reported somewhat difficulty whereas 18; 12.6% reported very or extremely difficulty.

Table 1: Socio-demographic characteristics of the participants

	Frequency N=151	Percentage
Gender		
Male	98	64.9
Female	53	35.1
Age (years)		
25-29	61	40.4
30-34	44	29.1
35-39	25	16.6
40-44	13	8.6
≥45	8	5.3
Nationality		
Saudi	122	80.8
Non-Saudi	29	19.2
Specialty		
Family Medicine	20	13.3
Internal Medicine/subspecialties	33	21.9
Surgery/subspecialties	18	11.9
Emergency department (ER)	18	11.9
General practitioners	20	13.3
Others	42	27.7
Qualification		
MBBS	88	58.3
Diploma	11	7.3
Master	6	4.0
PhD/Board/equivalent	42	27.8
Others	4	2.6
Experience (years)		
≤5	99	65.6
6-10	38	25.2
>10	14	9.2

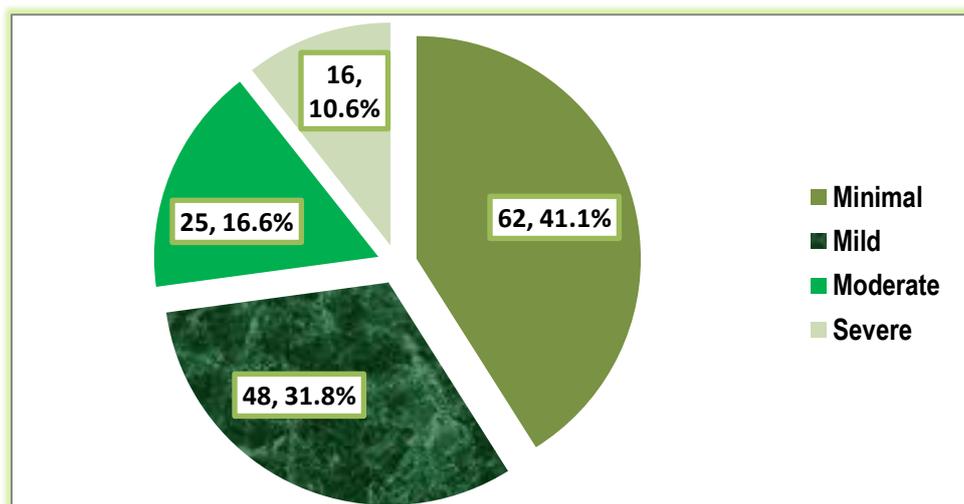


Figure 1: Generalized anxiety disorder among physicians, Jeddah based on GAD-7 scale.

Table 2: Social and medical risk factors for generalized anxiety disorders among physicians

	Frequency	Percentage
Problems experienced during childhood*		
Physical abuse	13	8.6
Sexual abuse	9	6.0
Early separation from parents	12	7.9
Difficulties in schools	10	6.6
None	117	77.5
History of mental disorders		
Yes	18	11.9
No	133	88.1
Medical history		
Bronchial asthma	19	12.6
Difficult seeing or hearing	30	19.9
Painful conditions	9	6.0
None	93	61.5
Family history of generalized anxiety disorder		
Yes	16	10.6
No	135	89.4
Stressful life		
Yes	97	64.2
No	54	35.8

* More than one answer was applicable (sum exceeded 100%)

Table 3: Socio-demographic characteristics of physicians and generalized anxiety disorders

	Generalized anxiety disorder				p-value
	Minimal n=62 N (%)	Mild n=48 N (%)	Moderate n=25 N (%)	Severe N=16 N (%)	
Gender					
Male (n=98)	41 (41.8)	32 (32.7)	18 (18.4)	7 (7.1)	0.284
Female (n=53)	21 (39.6)	16 (30.2)	7 (13.2)	9 (17.0)	
Age (years)					
25-29 (n=61)	23 (37.7)	20 (32.8)	11 (18.0)	17 (11.5)	0.022
30-34 (n=44)	9 (20.5)	17 (38.6)	11 (25.0)	7 (15.9)	
35-39 (n=25)	16 (64.0)	4 (16.0)	3 (12.0)	2 (8.0)	
40-44 (n=13)	8 (61.5)	5 (38.5)	0 (0.0)	0 (0.0)	
≥45 (n=8)	6 (75.0)	2 (25.0)	0 (0.0)	0 (0.0)	
Nationality					
Saudi (n=122)	44 (36.1)	40 (32.8)	23 (18.9)	15 (12.3)	0.050
Non-Saudi (n=29)	18 (62.1)	8 (27.6)	2 (6.9)	1 (3.4)	
Specialty					
Family Medicine (n=20)	5 (25.0)	7 (35.0)	5 (25.0)	3 (15.0)	0.924
Internal Medicine (n=33)	12 (36.4)	11 (33.3)	7 (21.2)	3 (9.1)	
Surgery (n=18)	7 (38.9)	8 (44.4)	1 (5.6)	2 (11.1)	
Emergency Room (n=18)	8 (44.4)	6 (33.3)	3 (16.7)	1 (5.6)	
General practitioners (n=20)	9 (45.0)	6 (30.0)	3 (15.0)	2 (10.0)	
Others (n=42)	21 (50.0)	10 (23.8)	6 (14.3)	5 (11.9)	
Qualification					
MBBS (n=88)	31 (35.2)	31 (35.2)	17 (19.3)	9 (10.2)	0.567
Diploma (n=11)	4 (36.4)	2 (18.2)	3 (27.3)	2 (18.2)	
Master (n=6)	4 (66.7)	2 (33.3)	0 (0.0)	0 (0.0)	
PhD/Board (n=42)	21 (50.0)	13 (31.0)	4 (9.5)	4 (9.5)	
Others (n=4)	2 (50.0)	0 (0.0)	1 (25.0)	1 (25.0)	
Experience (years)					
≤5 (n=99)	36 (36.4)	33 (33.3)	19 (19.2)	11 (11.1)	0.211
6-10 (n=38)	16 (42.1)	11 (28.9)	6 (15.8)	5 (13.2)	
>10 (n=14)	10 (71.4)	4 (28.6)	0 (0.0)	0 (0.0)	

Table 4: Social and medical characteristics of physicians and generalized anxiety disorders

	Generalized anxiety disorder				p-value
	Minimal n=62 N (%)	Mild n=48 N (%)	Moderate n=25 N (%)	Severe N=16 N (%)	
Problems experienced during childhood*					
Physical abuse (n=9)	4 (44.4)	2 (22.2)	2 (22.2)	1 (11.2)	0.019
Sexual abuse (n=3)	1 (33.3)	0 (0.0)	1 (33.3)	1 (33.3)	
Early separation from parents (n=8)	2 (25.0)	2 (25.0)	1 (12.5)	3 (37.5)	
Difficulties in schools (n=7)	1 (14.2)	3 (42.9)	0 (0.0)	3 (42.9)	
None (n=117)	51 (43.7)	40 (34.2)	20 (17.1)	6 (5.1)	
History of mental disorders					
Yes (n=18)	1 (5.6)	5 (27.8)	5 (27.8)	7 (28.9)	<0.001
No (n=133)	61 (45.9)	43 (32.3)	20 (15.0)	9 (6.8)	
Medical history					
Bronchial asthma (n=19)	8 (42.1)	7 (36.8)	2 (10.5)	2 (10.5)	0.329
Difficult seeing or hearing (n=30)	12 (40.0)	11 (36.7)	5 (16.7)	2 (6.7)	
Painful conditions (n=9)	3 (33.3)	0 (0.0)	3 (33.3)	3 (33.3)	
None (n=93)	39 (41.9)	30 (32.3)	15 (16.1)	9 (9.7)	
Family history of generalized anxiety disorder					
Yes (n=16)	7 (43.8)	2 (12.5)	3 (18.8)	4 (25.0)	0.128
No (n=135)	55 (40.7)	46 (34.1)	22 (16.3)	12 (8.9)	
Stressful life					
Yes (n=97)	29 (29.9)	34 (35.1)	20 (20.6)	14 (14.4)	0.001
No (n=54)	33 (61.1)	14 (25.9)	5 (9.7)	2 (3.7)	

*Combinations were omitted

As demonstrated from table 3, moderate and severe anxieties were more reported among young physicians (30-34 years) compared to old physicians (≥ 40 years) (25% and 15.9% compared to zero). The difference was statistically significant, $p=0.022$. Saudi physicians reported higher rate of moderate and severe anxiety than non-Saudi physicians (18.9% and 12.3% versus 6.9% and 3.4%). The difference, $p=0.05$. Gender, qualification, experience and specialty of physicians were not significantly associated with GAD.

Severe GAD was reported among 33.3% of physicians with history of sexual abuse, 37.5% of those with history of early separation from parents and 42.9% of those with history of childhood school difficulty compared to 5.1% of those without such histories. The difference was significant= 0.019 . Physicians who had history of mental disorders reported higher significant rate of severe anxiety compared to those without such history (28.9% versus 6.8%, $p<0.001$). Physicians who had stressful life reported higher significant rate of severe anxiety compared to those without stressful life (14.4% versus 3.7%, $p=0.001$). (Table 4)

DISCUSSION

Because of overwork and stressful work environment, many physicians do not take enough care of themselves. Yet are not immune to those illnesses they encounter in their medical practices on a routine basis, independent of specialty.¹² Physicians' poor mental health not only influences their professional performance and affects the quality of healthcare provided but also adversely impacts patients' health outcomes.¹³ Higher prevalence of anxiety was reported among different communities; however, very limited evidence is available on the mental issues among physicians. So the present study was

conducted to determine the prevalence and associated factors of anxiety among physicians in Jeddah using GAD-7 scale.

To the best of our knowledge, this is the first study in Jeddah, Saudi Arabia to assess the level of anxiety among physicians. Our study demonstrated that generalized anxiety disorders were common among physicians as almost one fourth of them (27.2%) had either moderate or severe anxiety disorders. Our results confirm previous findings regarding physicians' anxiety symptoms. However, different study designs and assessment tools were utilized in these studies. In Pakistan, using AKUADS, 39% of family practitioners had anxiety disorders.¹⁴ In China, using Zung Self-Rating Anxiety Scale (SAS), an estimated 25.67% of physicians had anxiety symptoms.¹³

Even though variation existed, in comparison with the Saudi general population, the status of anxiety symptoms among physicians was significantly higher than those reported among general population.^{9,15} The same has been reported in China where the rate of anxiety among physicians was significantly higher compared to general population.^{16,17} Physicians tend to have certain personality traits that contribute to better patient care while concurrently increasing their vulnerability to anxiety. In addition, they develop an exaggerated sense of responsibility and continually tend to be better which lead them to extremes of anxiety.¹²

The relatively poor mental health status among physicians in Saudi Arabia may be attributed to various reasons. The workload of physicians in Saudi continues to increase owing to the aging population, universal health care, and inadequate growth in the number of physicians.^{18,19} Additionally, the physician-patient relationship in Saudi Arabia is perceived as unsatisfactory within healthcare facilities.²⁰

In the current study, physician's gender was not significantly associated with GAD, although it was higher among females. In a study conducted in Pakistan,¹⁴ It was found that females had significantly higher levels of stress and that affects on their mental health.

In the present study, physicians who described their life as stressful, particularly at work places were more likely to have GAD. Other studies identified that excessive workload and stressful work environment were a statistically significant factor among physicians. In a study conducted in China, workplace violence was a significant predictor of physician's mental health. Physicians who often experienced workplace violence were nearly seven times more likely to be anxious compared to those who seldom or never encountered it.¹³ In Poland and Turkey also demonstrated that workplace violence increases the prevalence of psychological conditions such as anxiety and depression among exposed employees.^{21,22} Consequently, the physician-patient relationship should be improved by the implementation of several measures, some of them are already implemented in Saudi Arabia such as including introducing malpractice insurance for physicians.

In accordance with others,^{13,14} our study revealed that physicians with younger age had significantly higher levels of anxiety disorders. It is understood that majority of physicians trying for their post- graduation examinations at their younger age and doing post-graduation needs extra time, cost and efforts and failing in these examinations may result to anxiety. Moreover, it is also noticed that physicians at the beginning of their career are more concerned and thoughtful about their future prospective which can lead them towards anxiety. In this context, Saudi physicians were more prone to anxiety than non-Saudis, most probably because majority of them were younger than none-Saudis counterparts.

Although early anxiety syndromes may remit spontaneously, the vast majority of children and adolescents that have developed a threshold anxiety disorder will be affected by the same condition or other mental disorders (including other anxiety disorders) over the further course of life.²³ The identification of early vulnerability and risk factors for anxiety disorders is of crucial importance to facilitate research into the development of targeted prevention or early interventions programs. In the present study, several variables related to childhood events have been identified as potential risk factors for anxiety disorders, as physical abuse, sexual abuse and early separation from parents. More work is needed to identify the most powerful predictors, and to understand their complex biological and psychological mechanisms and interactions in promoting the onset of anxiety disorders, and further, the adverse long-term course, to identify those variables that might provide the best guidance for early intervention.

Our study demonstrated that generalized anxiety disorders were common among physicians in Jeddah. Interventions implemented to minimize workload, improve doctor-patient relationships, and assist physicians in developing healthier lifestyles are essential to combat anxiety symptoms among physicians, which may improve their professional performance.

Because of inherited limitation of cross-sectional study, cause-effect association between studied characteristics and GAD cannot be made from this study, however, it does indicate possible associations between various factors studied. In addition,

the study included physicians in one city (Jeddah), therefore generalizability of the results over all physicians in Saudi Arabia in question. Finally, the data of this study was 'self-reported' and considering the stigma attached to mental illness, there may be a reporting bias. Despite these limitations, this study gives some insight about the prevalence of GAD with its all levels and its associated factors among physicians in Jeddah which is the second largest city in Saudi Arabia.

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