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ORIGINAL ARTICLE

Assessment of anxiety among emergency health care providers and other departments at Bahrain Defense Force Hospital

Maryam Adam Ali[1*], Noora Adam Ali[2], Salah Ali Alghanem[3]

ABSTRACT

Background: Emergency physicians are exposed daily to many workplace stressors; hence, this study aimed to evaluate the prevalence of anxiety level amongst emergency physicians in comparison to physicians from other departments.

Methods: This is a 1-year period cross-sectional study that determined the anxiety level of 140 physicians from different departments at Bahrain Defense Force (BDF) Hospital by using the Generalized Anxiety Disorder 7-item scale. This study was done from (May 2019 until April 2020).

Results: Overall, almost half of the participants had minimal level of anxiety and only 5.7% had severe anxiety level. The radiologists showed the highest anxiety level (mean 7.80), while emergency physicians had scored a mean of 5.63. In addition, the anxiety level was seen more prevalent amongst junior physicians with a mean of 6.26 and amongst female residents with a mean of 6.38.

Conclusion: This study concluded that the average of anxiety level amongst BDF physicians was not high and that some departments had higher anxiety level than emergency department physicians.

Keywords: Emergency department, doctors, anxiety, mental health.

Introduction

Generalized anxiety disorder (GAD) is characterized by persistent and exaggerated uncontrollable worrying that can impair individual's daily activity and performance. GAD is associated with psychological symptoms, such as tension, irritability and arousal. Furthermore, it can lead to somatic complains, including muscular tension and gastrointestinal distress [1].

Variable workplace stressors include exposure to different forms of violence, intense level of workload, long working hours, carrier development barriers, administration, and colleague conflicts can all negatively affect the quality of work performance and lead to negative impact on the employees physical and mental health [2,3]. Working in the medical field, where doctor–patient relationship is important to be maintained despite all the variable workplace stressors, put physicians at a high level of stress and depression [4].

A study was conducted on Pakistani hospital, which showed that the first source of anxiety in doctors occurred due to lack of sleep and workload [5], whereas another study showed that the junior interns had the highest level of anxiety and depression, and they were the most prevalent amongst the clinical surgical specialties [6].

On the other hand, many studies showed that working in the emergency department (ER) where dealing with critically ill patients is necessary, put the healthcare givers at a higher level of burnout, anxiety and mental exhaustion [7–12]. In Kingdom of Bahrain, previous studies showed that the prevalence rate of anxiety amongst primary health care physicians was 37.6% [13].

It was hypothesized in the present study that emergency physicians would have higher level of anxiety in

Correspondence to: Maryam Adam Ali
*Intern at Emergency Department, BDF Hospital, Kingdom of Bahrain.
Email: maa12159@rcsi-mub.com
Full list of author information is available at the end of the article.
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comparison to other departments. The aim of the present study was to assess the prevalence rate of anxiety amongst Bahrain Defense Force (BDF) doctors and to explore the possible associated demographic factors.

Subjects and Methods

This is a 1-year period cross-sectional study that determined the anxiety level of 140 physicians from different departments at BDF Hospital by using the Generalized Anxiety Disorder 7-item (GAD-7) scale [14]. All physicians who worked at least for 6 months in emergency, medical, surgical, ophthalmology, radiology, ear, nose, and throat (ENT), pediatrics, obstetrics and gynecology, pathology, microbiology, cardiology and orthopedic departments, were enrolled in this study after signing the informed consent. At enrollment, the demographic data were recorded onto standardized forms. Any physician, who disregarded, was not available at the time of the study, refused to answer the questionnaire, or did not complete it were excluded from the study. Moreover, general practitioners (GP) and interns working at BDF hospital were excluded as GP physicians covered only the outpatient clinic, whilst the latter group rotated through different departments and thus anxiety level might be affected accordingly.

Data were stored on Excel program and subsequently analyzed using Statistical Package for the Social Sciences. Results were summarized as means, medians, frequencies, and percentages, which were presented as odds ratios with 95% confidence.

Results

The study sample comprised 140 doctors, 57.1% (80) were males, whereas 42.9% (60) were females with a mean age of (38.22 ± 9.78). The majority of the sample constituted of senior interns 35.8% (50). Followed by 27.8% (39) of junior interns, 19.3% (27) were consultants, 17.1% (24) were chief residents. Most of the study sample participants were from medical 23.6% (33) and surgical departments 19.3% (27). Participants number from radiology and ENT departments were equivalent 3.6% (5). Furthermore, laboratory and anesthesia doctors had the same participants' number 2.9% (4). Almost a similar number of participants were from obstetric, gynecological department and ER 12.9% (18), 11.4% (16), respectively. In addition, 8.6% (12) were from pediatric, 6.4% (9) from ophthalmology, and 5% (7) from cardiology department (Table 1).

Married participants were 75.7% (106) with a mean number of children (1.76 ± 1.62) and single participants were 24.3% (34). The mean number of years working in BDF in comparison to years outside BDF were 7.41, and 6.14, respectively (Table 1).

Approximately, half of the physicians had minimal level of anxiety 50.7% (71). However, 28.6% (40) of doctors had mild anxiety level and 15% (21) had moderate anxiety level, where only 5.7% (8) had severe anxiety. The mean and standard deviation (SD) for anxiety score was (5.50 ± 4.873) which was considered as mild ± moderate level of anxiety (Table 2).

Spearman correlation was applied to assess the relationships between anxiety score and each of the numerical variables. Spearman Rank correlation coefficient as a non-parametric measure; thus Shapiro–Wilk test of normality was conducted to confirm that all of the numerical variables are non-parametric. Whenever the coefficient is closer to ±1, the relationship is stronger. There was a significant, yet weak negative correlation between anxiety score, age, number of children and experience years inside and outside BDF Hospital (−0.317), (−0.174), (−0.196), (−0.216), respectively (Table 3).

Two tests were performed, Mann–Whitney and Kruskal–Wallis on all categorical variables to test whether there was a difference in the means of the categories, if there was a difference in the categories of a variable then this variable may be a factor that affects the level of anxiety.

Results showed that age, gender, and number of years working outside and inside BDF Hospital had at least one difference in the means of their categories, thus they can be considered as factors affecting the anxiety level. However, for the other variables there seemed to be no difference between their categories. Therefore, they were not factors affecting the anxiety level. In addition, results showed no significant difference between the anxiety scores amongst participants aged from 20 to 39. Moreover, participants with ages that ranged from 40 to 69 had no significant difference between their anxiety scores. However, there was a significant difference between these two groups (p-value = 0.000) for 20–39 years age group, mean and SD were (6.74 ± 4.934), as for 40–69 years age group (3.94 ± 4.349) (Table 4).

Regarding, number of years working inside BDF hospital, results illustrated a significant difference in two groups of doctors who worked for (<1 year *vs.* 21–30 years) and (1–10 years *vs.* 21–30 years). There was a significant difference between anxiety scores of participants who had worked for 10 years or less (5.82 ± 4.990) and between those who had worked for 21–30 years (1.71 ± 1.704) (p-value = 0.019). Furthermore, there was a significant difference between physicians who had worked outside BDF hospital for period in years (<1 *vs.* 11–20) and (1–10 *vs.* 11–20), consequently, there was significant difference between anxiety scores of participants who had worked for 10 years or less (5.97 ± 4.784) and between those who had worked for 11–20 years (3.59 ± 4.693) (p-value = 0.004) (Table 4).

Although the following results were not deemed factors affecting the anxiety level, it is worth to mention that the mean of anxiety level amongst female gender was 6.38, which was higher than the mean of anxiety level amongst males 4.84. In addition, junior doctors showed the highest anxiety level in comparison to chief residents who scored the lowest level (mean 6.26, 4.50,

Table 1. *Demographic characteristics.*

Variable	*n* (%)
Age (mean ± SD)	(38.22 ± 9.78)
Number of children (mean ± SD)	(1.76 ± 1.62)
Number of years working in BDF Hospital (mean ± SD)	(7.41 ± 6.93)
Number of years working outside BDF Hospital (mean ± SD)	(6.14 ± 7.21)
Age groups *n* (%)	
20–29	35 (25.0)
30–39	43 (30.7)
40–49	43 (30.7)
50–59	14 (10.0)
60–69	5 (3.6)
Gender *n* (%)	
Female	60 (42.9)
Male	80 (57.1)
Marital status *n* (%)	
Single	34 (24.3)
Married	106 (75.7)
Position *n* (%)	
Junior	39 (27.8)
Senior	50 (35.8)
Chief	24 (17.1)
Consultant	27 (19.3)
Specialty *n* (%)	
Anesthesia	4 (2.9)
Cardiology	7 (5.0)
Emergency	16 (11.4)
ENT	5 (3.6)
Gynae	18 (12.9)
Laboratory	4 (2.9)
Medicine	33 (23.6)
Ophthalmology	9 (6.4)
Pediatric	12 (8.6)
Radiology	5 (3.6)
Surgery	27 (19.3)

Table 2. *Frequencies of anxiety levels.*

Anxiety level	Frequency	Percent
Minimal (0–4)	71	50.7%
Mild (5–9)	40	28.6%
Moderate (10–14)	21	15.0%
Severe (15–21)	8	5.7%
Total	140	100%

respectively). Moreover, the radiologists followed by the gynecologists showed the highest anxiety level (mean 7.80, 6.39, respectively), while the anthologists scored the least score (mean 2.25), where emergency physicians had scored a mean of 5.63 (Table 4).

DiscussionThe present study findings showed that the most prevalent anxiety level amongst BDF physicians recruited from all the departments was the minimal level, accounting for 50.7%. Similarly, another study, conducted in Bahrain targeting primarily care physicians, concluded that most prevalent level of anxiety was the moderate level [13]. In contrast, a study done amongst doctors working at South Indian tertiary hospital, revealed that the most prevalent anxiety level was extremely severe 24.56%, where only 5.7% of physicians from the present sample had severe anxiety [15]. The difference between these results can be attributed to the variable geographical setting with different population size, different anxiety measuring scales, and the characteristic of study sample participants.

Table 3. *Correlation coefficients between anxiety score and each of the numerical variables.*

	Age	Number of children	Number of years working in BDF	Number of years working outside BDF
Correlation Coefficient	−0.317[a]	−0.174[b]	−0.196[b]	−0.216[b]

All of the relationships are weak negative relationships.

[a]Correlation is significant at the 0.01 level (2-tailed).

[b]Correlation is significant at the 0.05 level (2-tailed).

Table 4. *Test results.*

Variable	Median (inter quartile range)	Mean (95% confidence interval)	*p*-value
Age			
20–29	5 (5)	6.94 (5.27, 8.62)	0.003[a]
30–39	6 (8)	6.58 (5.03, 8.13)	
40–49	3 (5)	4.14 (2.73, 5.54)	
50–59	3 (4)	3.93 (1.57, 6.29)	
60–69	1 (5)	2.2 (−1.96, 6.36)	
Gender			
Male	3 (7)	4.84 (3.74, 5.93)	0.019[b]
Female	5 (6)	6.38 (5.17, 7.60)	
Number of years working outside BDF			
0	5 (7)	6.13 (4.82, 7.45)	0.036[b]
1–10	5 (7)	5.82 (5.06, 6.88)	
11–20	2 (5)	3.59 (1.74, 5.45)	
21–30	5 (12)	5.60 (−2.18, 13.38)	
Number of years working in BDF			
0	8 (13)	8.07 (4.77, 11.36)	0.045[b]
1–10	4 (6)	5.46 (4.52, 7.13)	
11–20	4 (7)	5.19 (3.33, 7.05)	
21–30	2 (2)	1.71 (0.14, 3.29)	
Position			
Junior	5 (8)	6.26 (4.74, 7.79)	
Senior	5 (6)	5.48 (4.21, 6.74)	
Chief	2.5 (9)	4.50 (2.25, 6.75)	
Consultant	3 (7)	5.07 (2.94, 7.21)	
Number of children			
0	5 (7)	6.28 (4.86, 7.69)	0.126
1	3.5 (11)	5.36 (2.14, 8.57)	
2	5 (7)	5.35 (3.87, 6.84)	
3	6 (6)	5.90 (3.79, 8.01)	
4	1 (3)	2.64 (0.57, 4.71)	
5	5 (12)	5.50 (−4.69, 15.69)	
6	9.5 (−)	9.50 (−111.21, 130.21)	
7	–	–	
Marital status			
Single	5 (6)	6.47 (4.58, 8.35)	0.277
Married	4 (7)	5.14 (4.24, 6.05)	
Divorced	5 (14)	7.75 (−4.67, 20.17)	

Variable	Median (inter quartile range)	Mean (95% confidence interval)	*p*-value
Speciality			
Anesthesia	2.5 (2)	2.25 (0.73, 3.77)	0.770
Cardiology	5 (3)	4.57 (1.70, 7.44)	
Emergency	5 (8)	5.63 (3.24, 8.01)	
ENT	3 (7)	3.20 (−1.40, 7.80)	
Gynae	5.5 (7)	6.39 (3.97, 8.81)	
Laboratory	3 (4)	3.75 (−0.01, 7.51)	
Medicine	5 (8)	6.24 (4.43, 8.05)	
Ophthalmology	3 (10)	5.11 (1.52, 8.71)	
Pediatric	3 (8)	5.00 (1.83, 8.17)	
Radiology	4 (11)	7.80 (−0.07, 15.67)	
Surgery	4 (6)	5.26 (2.97, 7.55)	

[a]Significant at the 0.01 level.

[b]Significant at the 0.05 level.

Two previous studies showed that anxiety was more prevalent amongst clinical branches [6], and especially amongst the surgical branches [9]. However, in present study, although it was statistically insignificant, the highest mean score of anxiety was noted amongst the radiology department (7.80), followed by the gynecology and obstetrics department (6.39). While the ER physicians' anxiety mean score was only (5.63), which is lower than the findings noted by previous studies [12,16]. These unexpected results indicate many important points that need to be highlighted.

First, heavy work load, inadequate training, lack of staff might be potential causes for radiologists to have high anxiety, and burnout as suggested by previous papers [17,18]. Although, these factors might be present in any specialty and might be even more noted across others departments [19].

Other possible causes related to BDF hospital environment, that should be taken into consideration, for example, having free access for some radiological facilities with insufficient number of radiologists, and with the increased of utilization of the radiological imaging by all departments for important and in some cases unnecessary requests done by junior interns might be a possible leading cause of radiologists stress. Also, lack of self-interaction with patients and depending on computer-based reports and images might lead to doctor isolation and low mood. In addition, the feeling for the need of maintaining high accuracy all the time might cause chronic stress and anxiety. Moreover, lack of some modern radiology sub-specialties, might add further stress and fears.

On the other hand, the ER in BDF seemed to have less anxious environment than other hospitals. One possible explanation might be due to the small population number in Bahrain in comparison with other countries, having other two big governmental hospitals, thus less cases are likely to be encountered. Therefore, this hospital receives lesser complex cases and the presence of consultants daily on all shifts seemed to cause high psychological support. Other possible causes might be the difference in the anxiety measuring scale and the responders' number.

In this study, although the physicians' grade was not statically significant, the age, experience years inside and outside BDF affected the anxiety level and were statistically significant.

In line with previous studies, younger physicians in BDF, especially those who were younger than the age of forty had higher anxiety level than older physicians [9,15,20]. This might be explained by stress-related to team work, frequent on-call duties where they should be present in hospital 24 hours for the patients' care, the heavy workload on residents, and the continuous learning journey where they must do exams, attend workshops, conferences, and do research studies [4,15]. On the other hand, older physicians and consultants might be more financially secured and thus less burnout as suggested by another study [20].

Regarding the gender, it was found that female doctors had more anxiety level, but this was statistically insignificant although it was significant in many previous studies [5,21]. However, the gender might be a confounding factor as females are by their nature more prone to mental illness [13].

The design of the study was cross-sectional, which cannot determine a definitive causal relationship between the findings. In addition, some confounders might have been present and affected the present results, such as the presence of personal stressors, major life event, or the availability of psychological support. Other limitation was related to the questionnaire that was used, which was the GAD-7 scale that had low specificity and it was a self-reported tool that might lead to response bias.

The current study showed that ER physicians had relatively low anxiety level in contrast to other

departments. However, the new Bahrain National Ambulance project, which was established in 2019, might increase the number of patients encountered at the ER, and hence increase the workload and might expose doctors to a higher level of anxiety. Further studies need to be conducted to re-evaluate ER doctors' anxiety levels.

Conclusion

Overall, the most prevalent level of anxiety amongst BDF hospital physicians was the minimal level. The emergency physicians, by and large, did not show the highest level of anxiety in comparison to other departments as was hypothesized, yet the radiologists did. The anxiety level was associated with female gender and young residents.

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List of Abbreviations

BDF	Bahrain Defense Force Hospital
ENT	Ear, Nose and Throat
ER	Emergency Department
GAD	Generalized Anxiety Disorder
GAD-7	Anxiety Disorder 7-item
GP	General Practitioners
SD	Standard Deviation

Conflict of interest
The authors declare that there is no conflict of interest regarding the publication of this article.

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Ethical approval
The study was entirely based on register data and was approved by the BDF Hospital (BDF/R&REC/2019-337). Ethical approval date: 10th May 2019.

Author details
Maryam Adam Ali[1], Noora Adam Ali[2], Salah Ali Alghanem[3]
1. Intern at Emergency Department, BDF Hospital, Kingdom of Bahrain
2. Medical Student at Royal College of Surgeons in Ireland – Medical University of Bahrain, Kingdom of Bahrain
3. Consultant Emergency Medicine, Emergency Department at BDF Hospital, Kingdom of Bahrain

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