Prevalence of Anxiety among Paramedic Students in Saudi Arabia

Abdullah Alzahrani

Department of Family Medicine, King Abdulaziz Medical City, Ministry of the National Guard – Health Affairs, Jeddah, Saudi Arabia.

Abdulrahman Bayazeed

Department of Family Medicine, King Abdulaziz Medical City, Ministry of the National Guard – Health Affairs, Jeddah, Saudi Arabia.

Alhussain Alzahrani (✉ Dr.hussainsaad.z@gmail.com)

Department of Family Medicine, King Abdulaziz Medical City, Ministry of the National Guard – Health Affairs, Jeddah, Saudi Arabia.

Faisal Alkahtani

Department of Family Medicine, King Abdulaziz Medical City, Ministry of the National Guard – Health Affairs, Jeddah, Saudi Arabia.

Saeed Alzahrani

Department of Family Medicine, King Abdulaziz Medical City, Ministry of the National Guard – Health Affairs, Jeddah, Saudi Arabia.

Abdullah Alzahrani

College of Applied Medical Sciences, King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia

Research Article

Keywords: Anxiety, Paramedic Students, Saudi Arabia

Posted Date: October 18th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-956849/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Abstract

Background: Anxiety disorders are the most common of all psychiatric illnesses and result in considerable functional impairment and distress. The stressful nature and hard work demand of studying and practicing paramedics makes them more prone to psychiatric illnesses one of which is Anxiety. The aim of this study is to determine the prevalence of anxiety among paramedic students in Saudi Arabia.

Methods: A cross-sectional study was conducted among Paramedic students of third and fourth year from Emergency Medical Services of College of Applied Medical Sciences at all KSAU-HS branches in Jeddah, Riyadh and Al-Ahsa'a in Saudi Arabia. Data were collected in May 2020. The study utilized the General Anxiety Disorder -7 (GAD-7) test to screen for anxiety and assess its severity level in paramedic students.

Results: There were a total of 181 participants, of which 133 (73.5%) were male students, and with almost all participants being unmarried (99.4%). For GAD-7 test, 32.6% had no anxiety, while the most had mild anxiety (43.1%), and 14.9% had moderate anxiety, with the fewest (9.4%) had severe anxiety.

Conclusion: Significant levels of anxiety were reported among the students and most of them showed excessive levels of worrying and nervousness, which affected their academically and occupationally. Hopefully, more researches are required to assess the prevalence of anxiety among paramedic practitioners. Addressing the problem at an earlier stage will positively affect the students who will become practitioners in the future.

Introduction:

Anxiety is a normal reaction to stress and can be beneficial in some situations as it can alert us to dangers and help us prepare and pay attention (1). The symptoms of anxiety disorders are the same as those of a normal anxiety response (2). Anxiety has been implicated in several chronic physical illnesses, including heart disease, chronic respiratory disorders, and gastrointestinal conditions, and when it is left untreated the disease itself is more difficult to treat (3). Regarding the etiology of anxiety like it is speculated that alterations in the structure and function of the amygdala which are central to fear related behavior, or heightened cortical activity and decreased basal ganglia activity as the prefrontal cortex and temporal lobe are involved in controlling fear and anxiety (4). Another cause is genetic which is important in predisposing to all anxiety disorders (2). Also, a history of stressful or traumatic experiences can arise to Anxiety disorders (4). Although it's likely due to combination of several factors (5).

Anxiety is the most prevalent psychiatric illness in the general community and is present in 15-20% of medical clinic patients (6). Approximately 8% of children and teenagers experience an anxiety disorder with most people developing symptoms before age 21 (7). According to World Health Organization (WHO) 2017 booklet of Global Health Estimates, the total estimated number of people living with anxiety disorders in the world was 264 million which is 14.9% increase since 2005 (8). Furthermore, the percentage of anxiety in Eastern Mediterranean Region which the Gulf countries are part of is 12% or 31.36 million (8), and in the Kingdom of Saudi Arabia the prevalence of anxiety is 4.3% of the total population (8).

There are some studies assessing the level of anxiety in paramedic practitioners worldwide, but there are very few studies conducted in Saudi Arabia. Therefore, we are conducting this research to assess the prevalence of anxiety among paramedic students and address the factors leading to their anxiety, also comparing the results with researches published worldwide.

Methods:

This cross-sectional study was conducted at King Saud bin Abdulaziz University for Health Sciences, which is a university focused on health sciences like medicine, nursing, pharmacy and many more including paramedics. It has three branches located in the main cities of Saudi Arabia, which are Riyadh, Jeddah and Al-Ahsa'a. The survey was done at the Emergency Medical Services of College of Applied Medical Science at all three branches. Students from the third and fourth year were included, however students from year one and two were excluded as they are considered in their preparatory years. Data were collected in May 2020 by distributing the questionnaire among all paramedic students at the three branches. The sample size was calculated using the Raosoft website. Out of 232 paramedic students, 181 participated. The minimum required sample size was calculated to be 145 students, taking in account 10% non-response rate.

General Anxiety Disorder -7 (GAD-7) test and Demographic profile included few personal questions (gender, academic grade, marital status, and presence of chronic diseases). (GAD-7) test has scores of 0, 1, 2, and 3, to the response categories of “not at all,” “several days,” “more than half the days,” and “nearly every day,” respectively. (GAD-7) total score for the seven items ranges from 0 to 21. Scores of 5, 10, and 15 represent cut points for mild, moderate, and severe anxiety, respectively. (GAD-7) is primarily used as a screening and severity measure for generalized anxiety disorder. When screening for individual or any anxiety disorder, a recommended cut point for further evaluation is a score of 10 or greater with a sensitivity of 89% and a specificity of 82% for GAD (9).

Categorical variables have been calculated and reported as frequencies and percentages while quantitative variables as means and standard deviations. Data was analyzed using Statistical Package for Social Sciences (SPSS)V.20. This study has been approved from King Abdullah International Medical Research Center (KAIMRC) ethical committee. Students' identity was not revealed and the data that has been collected remains confidential and protected from any access by third parties.

Results:

Among 232 paramedic students who are enrolled at all KSAU-HS branches, 181 (78%) of them completed the questionnaire. The response rate was 133 (79.2%) for male students and 48 (75%) for female students. While for academic year, the response rate was (73.2%) for third year and (82.5%) for fourth year (Table 1). Most of the participants 168 (92.8%) did not complain any a chronic disease, while 13 (7.2%) had one disease, and Asthma was the most reported chronic disease (76.9%) at 10 responses (Table 2).

The second part was the General Anxiety Disorder -7 (GAD-7) test at which 59 students (32.6%) had no anxiety, while the most had mild anxiety 78 (43.1%), and 27 (14.9%) had moderate anxiety, and the fewest number of students 17 (9.4%) had severe anxiety. Approximately 67.4% had some level of anxiety, and 24.3% had moderate to severe anxiety. Breaking up the answers itself, most of the participants 145 (80.1%) reported “Worrying too much” at least at “Several days” or more followed up by the answer “Feeling nervous, anxious or on edge” and 135 (74.6%) agreed to it (Table 3).

Associating the severity of anxiety with gender and comparing between male and female students, 85 male students (63.9%) had some level of anxiety with 28 students (21.1%) had moderate to severe anxiety. While, 77.1% of female students had some level of anxiety, and 16 (33.3%) had moderate to severe anxiety (Table 4). Also, associating the severity of anxiety with academic year and comparing between the third and fourth year it was showed that almost 60 (73.1%) of the students at the 3rd years, compared to 62 (62.7%) of the student at the 4th year had some level of anxiety. Also 27 (32.9%) and 17 (17.2%) had moderate to severe anxiety at the 3rd and 4th year, respectively (Table 5).

Finally, we found that the third year female students had the highest percentage of anxiety (82.2%), followed by the fourth year female students (70%), then the third year male students (68.5%) and finally the fourth year male students (60.8%) (Table 6).

Discussion:

Paramedics as member of emergency medical healthcare often encounter stressful situations during dealing with patients, that cause psychiatric disturbances (10). Recently, in 2018 studies published concerning stress among health care professionals found that 59% had moderate stress (11). Paramedic students had a stressful way of life, besides a high demand of studying and working made them prone to prolonged stress that might lead to pathological anxiety.

in the present study, the number of male paramedic students are almost triple than that of female students, 168 male and 64 females, but the response rate was almost equal 79.2% and 75%, respectively. The overall level of anxiety among females (77.1%) was higher than males (63.9%), and one third of female's students (33.3%) had moderate to severe anxiety versus 21.1% of male students, the cause of that difference didn't be identified as the academic curriculum was same for both. According to National Institute of Mental Health (NIMH) the prevalence of any anxiety disorder was higher for females (23.4%) than for males (14.3%) (12). Our study revealed a higher increase among paramedic female students at the 3rd and 4th year of study than male students at the same years of study (82.2% and 70%) versus (68.5% and 60.8%). Additionally, the overall level of anxiety at the 3rd yeas was higher than that at the fourth year (73.1% vs. 62.7%, respectively). Similarly, student with moderate to severe anxiety at the 3rd year was double of those at the 4th year (32.9% vs. 17.2%). This difference could be due to students at the 3rd year just beginning their paramedic studies and had less experience than fourth year students.

A previous study was conducted in the United States among nationally certified emergency medical services (EMS) professionals, and included DASS-21 (The Depression, Anxiety and Stress Scale - 21 Items). The results showed that 6% of those with worsened health, females and unmarried individuals had anxiety. It also showed that 5.9% were stressed and paramedics are more likely to be depressed, anxious and stressed due to their job responsibilities (13). Another study was carried on the prevalence of Post-Traumatic Stress Disorder (PTSD) and common mental disorder among ambulance personnel and it was reported that the prevalence of anxiety was (15%), general psychological distress was 27%, and PTSD was 11% (14). Another study used the Westside Test Anxiety Scale (WTAS) to measure anxiety and showed that 70% of the participants reported moderate to extremely anxiety, and 87% reported that they became anxious when facing an upcoming summative assessment, and it was concluded that there were high levels of anxiety among the students (15).

In Riyadh, Saudi Arabia a study was conducted among paramedic at Saudi Red Crescent Authority and reported that the prevalence of anxiety was high 40%, compared to stress and depression (30.5% and 26.7%, respectively). additionally, higher percentages of the paramedics (5.1%) had severe to extremely severe anxiety, compared to 1.3% had severe depression. The high prevalence of anxiety might be attributed to high number of mission calls which means higher exposure to patients, use of stimulant beverages, such as tea, coffee, and energy drinks, number of sleep hours/day, which were considered as predictors of anxiety (16). Other studies reported similar results as the prevalence of anxiety among paramedics was 6% in the United States, 23.7%, 20.7%, and 7.6% had moderate, mild, and severe anxiety, respectively in Riyadh, Saudi Arabia (10, 17). Additionally, in Riyadh, 44.4% of paramedics had mild to moderate levels of anxiety and 7.6% had severe anxiety, the study revealed that paramedics had anxiety level higher than those of physicians and nurses (10).

It was indicated that female gender and increasing work years are the most factors associated with paramedics' inactivity and work stress (18). Wills et al. (15) conducted a study to assess the prevalence of anxiety among paramedic students in New Zealand and reported that students with previous tertiary education to diploma had a significant higher anxiety level (36.72 ± 5.92) than those with prior degree education (31.42 ± 7.58), ($P=0.02$). The authors concluded that paramedic students' anxiety may be impacted by different course delivery methods and student backgrounds. Inadequate income are linked with work pressure while studying which was considered as a source of anxiety (19).

Limitations:

The current study used a single unidimensional survey that put it at the risk of bias. Furthermore, it is not feasible to identify the causes of stress and anxiety among the students and the cause of higher percentages of anxiety among some groups over the other, only suggesting plus predicting the causes and the differences that were present.

Conclusion:

Significant levels of anxiety were reported among the students and most of them showed excessive levels of worrying and nervousness, which affected their academically and occupationally. Hopefully, more researches are required to assess the prevalence of anxiety among paramedic practitioners. Addressing the problem at an earlier stage will positively affect the students who will become practitioners in the future.

Abbreviations

- KSAU-HS (King Saud bin Abdulaziz University for Health Sciences)
- GAD-7 (General Anxiety Disorder -7)
- WHO (World Health Organization)
- KAIMRC (King Abdullah International Medical Research Center)
- NIMH (National Institute of Mental Health)
- EMS (Emergency Medical Services)

- DASS-21 (The Depression, Anxiety and Stress Scale - 21 Items)

- WTAS (Westside Test Anxiety Scale)

Declarations

Ethics approval and consent to participate

This Study was approved by the Institutional Review Board of King Abdullah International Medical Research Center (reference number: JED-20-427780-59443).

Consent for publication

Not applicable.

Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on responsible request.

Conflict of Interest

The authors of this study declare they have no conflict of interest.

Funding

This research project received no funding.

Authors' contributions

Abdullah Alzahrani devised the main idea of this research. All authors provided feedback on the study design for improvement. Data collection was done by all authors. Alhussain Alzahrani and Abdulrahman Bayazeed analyzed the data. All authors drafted the manuscript. All authors read and approved the final manuscript.

Acknowledgements

Not applicable.

References

1. What Are Anxiety Disorders? Psychiatry.org. 2017. Available from: <https://www.psychiatry.org/patients-families/anxiety-disorders/what-are-anxiety-disorders>
2. Geddes J. Psychiatry. 4th ed. Oxford: Oxford University Press; 2012.P. 285, 287
3. Publishing H. Anxiety and physical illness - Harvard Health. Harvard Health. 2018. Available from: https://www.health.harvard.edu/staying-healthy/anxiety_and_physical_illness
4. Hales R, Yudofsky S, Gabbard G. The American Psychiatric Publishing Textbook of Psychiatry. 5th ed. Washington DC: American Psychiatric Publishing Incorporated; 2008.P. 505, 531
5. Generalised anxiety disorder in adults. <https://www.nhs.uk/>. 2018. Available from: <https://www.nhs.uk/conditions/generalised-anxiety-disorder/>

6. Kasper D, Fauci A, Hauser S, Longo D, Jameson J, Loscalzo J et al. Harrison's principles of internal medicine. 19th ed. New York: McGraw Hill Education; 2015.P. 2708
7. Understand the Facts | Anxiety and Depression Association of America, ADAA. Adaa.org. 2018. Available from: <https://adaa.org/understanding-anxiety>
8. Depression and Other Common Mental Disorders: Global Health Estimates. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO. Available from: <https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf>
9. Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder. Arch Intern Med. 2006;166:1092–1097.
10. Alharthy N, Alrajeh OA, Almutairi M, Alhajri A. Assessment of anxiety level of emergency healthcare workers by generalized anxiety disorder7 tool. Int J Appl Basic Med Res 2017;7:1504.
11. Mehta M, Singh M, Gupta S, Kushal A. Study of Stress among Health Care Professionals: A Systemic Review. International Journal of Research Foundation of Hospital and Healthcare Administration. 2018;6(1). Available from: https://www.researchgate.net/publication/327794465_Study_of_Stress_among_Health_Care_Professionals_A_Systemic_Review
12. NIMH » Any Anxiety Disorder [Internet]. Nih.gov. 2017. Available from: <https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder.shtml>
13. Bentley M, Crawford J, Wilkins J, Fernandez A, Studnek J. An Assessment of Depression, Anxiety, and Stress Among Nationally Certified EMS Professionals. Prehospital Emergency Care. 2013;17(3). Available from: <https://www.tandfonline.com/doi/full/10.3109/10903127.2012.761307>
14. Petrie K, Milligan-Saville J, Gayed A, Deady M, Phelps A, Dell L et al. Prevalence of PTSD and common mental disorders amongst ambulance personnel: a systematic review and meta-analysis. Social Psychiatry and Psychiatric Epidemiology. 2018;53(9):897-909. Available from: <https://link.springer.com/article/10.1007/s00127-018-1539-5>
15. Wills H, Asbury E. The incidence of anxiety among paramedic students. ajp.paramedics.org. 2019. Available from: <https://ajp.paramedics.org/index.php/ajp/article/view/649>.
16. Almutairi I, Al-Rashdi M, Almutairi A. Prevalence and Predictors of Depression, Anxiety and Stress Symptoms in Paramedics at Saudi Red Crescent Authority. Saudi J Med Med Sci. 2020 May-Aug;8(2):105–111. doi: 10.4103/sjmms.sjmms_227_18.
17. Bentley MA, Crawford JM, Wilkins JR, Fernandez AR, Studnek JR. An assessment of depression, anxiety, and stress among nationally certified EMS professionals. Prehosp Emerg Care 2013;17:3308.
18. Cash RE, WhiteMills K, Crowe RP, Rivard MK, Panchal AR. Workplace incivility among nationally certified EMS professionals and associations with workforcereducing factors and organizational culture. Prehosp Emerg Care 2019;23:34655.
19. Muirhead V, Locker D. Canadian dental students' perceptions of stress. J Can Dent Assoc (Toronto) 2007;73(4).

Tables

Table one				
Response rate				
	Total KSAU-HS Students n(%)		Total Participants n(%)	Response (%)
Gender	Male	168(72.4)	133(73.5)	(79.2)
	Female	64(27.6)	48(26.5)	(75.0)
Academic Year	Third	112(48.3)	82(45.3)	(73.2)
	Fourth	120(51.7)	99(54.7)	(82.5)

Table two
Demographics

		n	%
Gender	Male	133	73.5
	Female	48	26.5
Academic year	Third year	82	45.3
	Fourth year	99	54.7
Marital status	Unmarried	180	99.4
	Married	1	0.6
Chronic disease	No	168	92.8
	Yes	13	7.2
Total		181	100
If yes, please state it.	Asthma	10	76.9
	Migraine	1	7.7
	IBS	1	7.7
	Eczema	1	7.7
	Total	13	100

Table three
(GAD-7) students' responses

		n	%
Feeling nervous, anxious or on edge	Not at all	46	25.4
	Several days	95	52.5
	More than half days	26	14.4
	Nearly every day	14	7.7
Not being able to stop or control worrying	Not at all	61	33.7
	Several days	74	40.9
	More than half days	30	16.6
	Nearly every day	16	8.8
Worrying too much about different things	Not at all	36	19.9
	Several days	84	46.4
	More than half days	33	18.2
	Nearly every day	28	15.5
Trouble relaxing	Not at all	71	39.2
	Several days	77	42.5
	More than half days	20	11.0
	Nearly every day	13	7.2
Being so restless that it is hard to sit still	Not at all	96	53.0
	Several days	60	33.1
	More than half days	18	9.9
	Nearly every day	7	3.9
Becoming easily annoyed or irritable	Not at all	63	34.8
	Several days	69	38.1
	More than half days	19	10.5
	Nearly every day	30	16.6
Feeling afraid as if something awful might happen	Not at all	70	38.7
	Several days	58	32.0
	More than half days	29	16.0
	Nearly every day	24	13.3
Severity	None	59	32.6
	Mild	78	43.1
	Moderate	27	14.9
	Severe	17	9.4
Total		181	100

Table four

Association between severity of anxiety and gender

		Gender		
		Male	Female	Total
		n(%)	n(%)	
Severity of Anxiety	None	48(36.1)	11(22.9)	59
	Mild	57(42.9)	21(43.8)	78
	Moderate	15(11.3)	12(25.0)	27
	Severe	13(9.8)	4(8.3)	17
Total		133	48	181

Table five

Association between severity of anxiety and academic year

		Academic year		
		Third year	Fourth year	Total
		n(%)	n(%)	
Severity of Anxiety	None	22(26.8)	37(37.4)	59
	Mild	33(40.2)	45(45.5)	78
	Moderate	17(20.7)	10(10.1)	27
	Severe	10(12.2)	7(7.1)	17
Total		82	99	181

Table six

Association between severity of anxiety with gender and academic year

			Academic year		
			Third year n(%)	Fourth year n(%)	Total
Male	Severity of Anxiety	None	17(31.5)	31(39.2)	48(36.1)
		Mild	18(33.3)	39(49.4)	57(42.9)
		Moderate	10(18.5)	5(6.3)	15(11.3)
		Severe	9(16.7)	4(5.1)	13(9.8)
	Total		54	79	133
Female	Severity of Anxiety	None	5(17.9)	6(30.0)	11(22.9)
		Mild	15(53.6)	6(30.0)	21(43.8)
		Moderate	7(25.0)	5(25.0)	12(25.0)
		Severe	1(3.6)	3(15.0)	4(8.3)
	Total		28	20	48