Assessment of Anxiety Level of Emergency Health-care Workers by Generalized Anxiety Disorder-7 Tool

Abstract

Background: Dealing with emergency patients is considered to be a stressful situation to all health-care workers in the emergency department (ED). Prolonged stress predispose to physical and inconsequential psychiatric disturbances. Anxiety and depressive mode were found to be the most commonly experienced psychiatric manifestation among emergency health-care workers. The aim of this study is to screen and assess the severity of anxiety among health professionals working in ED. Methods: Cross-sectional study design was used. Generalized anxiety disorder (GAD)-7 screening tool was used to assess for anxiety symptoms. GAD-7 is a validated self-report tool that comprises seven questions where each question is rated on a 3-point scale. Demographic data were collected from the study sample. The study sample consists of emergency physician, nurses, and other emergency medical services workers. Data analysis was performed using SAS version 9.2 software. Descriptive statistics, nonparametric comparison, and correlation were performed as part of data analysis. Results: A total of 135 participants completed the questionnaire, of which, 66% of the participants were males. Occupational status of the respondents indicated that majority (35.6%) were physicians followed by 27.4% of emergency medical, and 27% of nurses. The results of this study indicated that 48% of the subjects were observed without an anxiety disorder. However, moderate to mild degrees of anxiety disorder was identified among 20.7% and 23.7% of the subjects, respectively. Severe anxiety disorder was found among 7.6% of the respondents. Emergency medical services workers were reported to have the highest GAD-7 score followed by physicians and nurses $P = 0.039$. Gender and older age group among health professionals were statistically significant correlated with higher GAD-7 score $P = 0.028$ and 0.048, respectively. There is no significant difference in GAD-7 score among health professional dealing with adult versus pediatrics patient. Conclusion: From this study, it was concluded that more than 52% of the health-care team members manifested with moderate to severe anxiety disorder that requires counseling and referral for support and treatment. Prolonged and unrecognized anxiety may predispose to major psychiatric morbidity, exhaustion, and resignations from the duties. Hospital administration needs to be aware of the level of anxiety and the most likely affected population to build preventive strategies.

Keywords: Anxiety, care workers, employee management service, generalized anxiety disorder-7

Introduction

The generalized anxiety disorder (GAD) defined as “an excessive and uncontrollable worry”[1,2] which often interferes with daily function and affects the mental ability to take an appropriate decision. GAD is long-term disorder and is difficult to diagnose. GAD is associated with a battery of symptoms including muscle tension, irritability, and relative infrequent somatic symptoms such as accelerated heart rate. It was believed that GAD is caused by a combination of genetic as well as environmental factors.[1,2] Major roles of the emergency department (ED) workers are to provide medical care for acutely ill and traumatic patients. Dealing with emergency patients is considered to be a stressful situation to all health-care workers in the ED. Emotional stress was identified as one of the occupational hazards of the worker in ED. As result prolonged stress predispose to psychosomatic disturbances[3] personality disorder, somatic manifestation, chronic fatigue and mild psychiatric disorder were reported.[4-6] Hence the quality of life will be affected leading to poor employee performance. Anxiety and depression were found to be the most commonly experienced psychiatric manifestation among emergency health-care workers.[7] Evidence showed the prevalence of psychosocial distress close to be 30% or higher among those who works

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in high demand area with low control like the emergency
room (ER). GAD-7 is a valid standardized self-report tool
used to screen and assess the severity of anxiety, even
though there were studies related to study the association
between emergency personnel’s stress level and the anxiety
disorder, posttraumatic stress disorder, and depression. There is paucity of data about the prevalence of GAD among emergency health workers. Hence, this study was conducted with a specific objective to screen and assess the severity of GAD among emergency health workers personnel.

Methods

A cross-sectional study design was used in this study. The prevalence of GAD was measured using screening tool among emergency medical professionals working in King Abdulaziz Medical City, Riyadh ED, Kingdom of Saudi Arabia. The ER is one of the biggest emergency units in the area and level I trauma center with average annual visits of 200,000 patients/year both adults and pediatrics.

The study target population consisted of consultant, associate consultant, assistant consultant, staff physicians, emergency nurses, and emergency medical services personnel who have an experience more than 1 year in an emergency. Participants were selected based on a convenient sample. Stratification was based on the job title. Questionnaires were handed directly to participants after verbal consent and the Institutional Review Board approval.

A questionnaire and the GAD-7 form were used to collect data. Variables collected are the demographic characteristics, years of emergency work experience, and nationality. We used GAD-7 for screen of GAD which is validated self-report tool. GAD-7 consisted of seven questions where each question is rated on a scale (0–3), three being the maximum. Each subject had a total summed score across all the seven dimensions which range between 0 and 21, a higher score indicates a higher level of anxiety. The primary outcome of the study is the anxiety score measured on continuous scale as the sum of scores on seven distinct domains.

All collected study variables were coded numerically. All row data were managed, processed, and compiled in Microsoft Office Excel. SAS version 9.2 (SAS Institute Inc., Cary, NC, USA) used to conduct the analyses. Descriptive statistics was used to summarize the study variables. Percentages and frequencies were used for categorical data. Median and interquartile range were used for numerical data. The univariate descriptive analysis was used to summarize the overall and the stratified anxiety score. Spearman’s correlation coefficient analysis was used to assess the relationship between anxiety score and demographic characteristics (gender, nationality, age groups, and years of experience). Ninety-five percent confidence interval and P value were used to report results. Ku...

Wallis H-test was used to compare anxiety score across health-care professionals (nurses, physicians, employee management service [EMS]). Results were reported in median, interquartile range, and P value. Mann-Whitney U-test will be used to compare anxiety score between health-care professionals dealing with pediatrics patients versus the ones dealing with adults patients. Statistical significance was assumed at α < 0.05.

Results

One hundred and thirty-five participants completed the questionnaire. The demographic characteristics are presented in Table 1. About 66% of the participants were males. Fifty percent study participants’ age ranged between 30 and 40 years. The majority of participants were nurses (37%) followed by physicians (35.6%), and EMS workers (19%). Years of experience in ER was more than 3 years in 80% in the study participants. The nationality of the participants was Saudi in 38% whereas other nationality

| Over the last 2 weeks, how often have you been bothered by the following problems? | Not all | Several days | More than half the days | Nearly every day |
|---|---|---|---|---|
| Feeling nervous, anxious or on edge | 0 | 1 | 2 | 3 |
| Not being able to stop or control worrying | 0 | 1 | 2 | 3 |
| Worrying too much about different things | 0 | 1 | 2 | 3 |
| Trouble relaxing | 0 | 1 | 2 | 3 |
| Being so restless that it is hard to sit still | 0 | 1 | 2 | 3 |
| Becoming easily annoyed or irritable | 0 | 1 | 2 | 3 |
| Feeling afraid as if something awful might happen | 0 | 1 | 2 | 3 |

Appendix 1: Replies on generalized anxiety disorder-7

| Total score | Symptom range | Description |
|---|---|---|
| 0-4 | Minimal (healthy) | This is the range of scores typical of people without an anxiety disorder |
| 5-9 | Mild | People with this range of scores have mild symptoms of anxiety. If these symptoms persist people may be at risk of developing an anxiety disorder. People in this range should practice self-help strategies to reduce their anxiety, and to help them to stay well |
| 10-14 | Moderate | People with this range of scores are likely to have a diagnosis of an anxiety disorder and should do things to overcome the symptoms, including seeking support or treatment |
| 15-21 | Severe | People with this range of scores are at high risk of having an anxiety disorder. We strongly recommend seeking treatment from a health professional |
Table 1: Demographic profile of participants

| Variables                     | n (%) |
|-------------------------------|-------|
| **Age group (years)**         |       |
| 20-30                         | 31 (23) |
| 31-40                         | 71 (52.6) |
| 41-50                         | 28 (20.7) |
| >51                           | 5 (3.7) |
| **Gender**                    |       |
| Male                          | 90 (66.7) |
| Female                        | 45 (33.3) |
| **Work title**                |       |
| Consultant                    | 16 (11.9) |
| Charge nurse                  | 3 (2.2) |
| Associate consultant          | 5 (3.7) |
| Assistant consultant          | 4 (3) |
| Staff physician               | 23 (17) |
| NS1                           | 13 (9.6) |
| NS2                           | 34 (25.2) |
| Paramedic                     | 11 (8.1) |
| EMT                           | 26 (19.3) |
| **Nationality**               |       |
| Saudi                         | 51 (37.8) |
| Philippines                   | 38 (28.1) |
| Other                         | 46 (34.1) |
| **Years of experience (years)** |     |
| 1                             | 10 (7.4) |
| 2                             | 14 (10.4) |
| 3                             | 111 (82.2) |
| **Marital status**            |       |
| Married                       | 100 (74.1) |
| Single                        | 33 (24.4) |
| Divorced                      | 2 (1.5) |
| Widowed                       | 46 (34.1) |
| **Having children**           |       |
| Yes                           | 88 (65.2) |
| No                            | 46 (34.1) |
| **Number of children, median (IQR)** | 2 (25th, 50th, 75th) |
| **Income (SR)**               |       |
| Under 10,000                  | 41 (30.4) |
| 10,000-15,000                 | 34 (25.2) |
| 15,001-20,000                 | 28 (20.7) |
| 20,001-25,000                 | 2 (1.5) |
| 25,001-30,000                 | 5 (3.7) |
| Above 30,001                  | 20 (14.8) |
| **Medical problems**          |       |
| Yes                           | 15 (11.1) |
| No                            | 120 (88.9) |
| **Adult pediatric**           |       |
| Yes                           | 115 (85.2) |
| No                            | 20 (14.8) |
| **Anxiety symptoms range**   |       |
| Minimal                       | 65 (48.1) |
| Mild                          | 32 (23.7) |
| Moderate                      | 28 (20.7) |
| Severe                        | 10 (7.4) |

IQR: Interquartile range; EMT: Emergency Medical Training

accounted for 62%. Social information of the participants indicated that majority were married with median of two children per participants. The income per month in Saudi currency showed wide variations based on the occupational rank however, up to 30% of the study participants were receiving <10,000 SR per month. After completing the GAD-7 questionnaire, 48% of participants were healthy, 23.7% had mild symptoms of anxiety. About 20.7% of participants with moderate score are likely to have a diagnosis of an anxiety. Nearly 7.4% participants with severe and are at high risk for having an anxiety disorder.

Spearman correlation showed a weak correlation between the gender and the anxiety score which was statistically significant at \( P = 0.024 \), which indicates gender difference. Older age group was found to be associated with higher GAD anxiety score of \( P = 0.048 \). Years of experience and nationality were not associated with high GAD anxiety score [Table 2].

The Kruskal–Wallis H-test showed the statistical significant difference in GAD score among the three emergency health professionals. Emergency medical services worker reported to have the highest GAD score followed by a physician then nurses [Table 3].

Health professional dealing with adult patients were not significantly different from health professional dealing with pediatrics patients, Mann–Whitney \( U \)-test = 943, \( P = 0.199 \).

Discussion

From the study, it was found that about 52% of emergency medical professionals have varying degrees of anxiety. Mild anxiety score was reported among 23% of the respondents. GAD during Emergency Medical Services may be attributed to on-going work-related stress.\[^{[11]}\] Participants with moderate to severe anxiety symptoms were reported in quarter of emergency health professionals. Unrecognized moderate to severe anxiety symptoms is a precursor of anxiety disorder and related psychological consequences.\[^{[13]}\]

Highest GAD score was observed among EMS and paramedics emergency health-care personnel followed by physicians and nurses. The EMS employees and paramedics are subjected to great stress while medically debriefing patients and while providing pre-hospital care. Earlier studies reported a strong relation between the occupational burnout and stress in EMS employee and paramedics with anxiety and depressive disorder.\[^{[14-16]}\] In this study, emergency physicians experienced higher GAD-7 score when compared to nurses. The stress on ER physicians was attributed to high patient flow, emergency crowding and severity of cases, and the workload schedules. In addition to the work stress, irregular social and family lives are important components of on-going stress process in these professions.

High level of burnout among emergency physicians is a well-described entity in literature as the end point of
prolonged stress. Unrecognized stress and burnout were found to be associated with loss of professional enthusiasm and job satisfaction and have a psychological impact.\cite{17,18}

Emergency nurses’ experience of anxiety was lower using GAD-7 when compared to EMS and ER physician which is contradictory to previous studies where anxiety symptoms exist among emergency nurses.\cite{10,11}

Gender was found to be correlated with higher anxiety score among emergency health workers. Women in our study were reported to have higher anxiety score compared to males. The finding is consistent with previously published reports where woman are at higher risk of anxiety compared to males in developing GAD.\cite{10,13}

Age of the emergency health worker was found to be a positive factor associated with high anxiety score. The more the age advances higher is the anxiety score. Anxiety disorder based on epidemiological studies is rare in the first two decades of life,\cite{19,20} which supports our observation. Years of emergency work experience, dealing with adult or pediatrics patients, and nationality were not identified as risk factors for high anxiety score.

The salient findings of this study calls for health promotion interventions specially designed for emergency health workers to regularly screen for stress and anxiety symptoms and to promote mediations to reduce occupational stress and anxiety. The main target of the screening is to prevent the progression of stress to GAD. In addition, early recognition will prevent GAD to develop into morbid psychological sequences such as depression and economic loss due to the burden of the disease and to improve the quality of affected individual’s life. Future studies are required to include sourcing the stressors, in addition, to include more markers and tools to evaluate for anxiety.

### Study limitations

The study has limited comparability due to the heterogeneity created by inclusion all emergency health-care workers which includes physicians, nurses, and EMS works, however, the aim of the study was to screen for anxiety symptoms. Studies report that GAD-7 had low specificity which leads to increase the number of participants with false anxiety diagnosis.\cite{9} The study included only emergency health-care worker in one center which may limit the study generalizability; however, the involvement of other emergency centers was beyond the scope of this study.

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### Conflicts of interest

There are no conflicts of interest.

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