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## Generalized anxiety disorder among emergency department patients



Mental illness is common among the US population with an overall estimated 8% prevalence. Previous studies have estimated undiagnosed mental illness in the ED at 41–42%, with only a minority identified by the treating physician [1,2].

Generalized anxiety disorder, or GAD, is defined using DSM-5 criteria as Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance) [3]. A brief screening tool has been studied for screening for anxiety, the Generalized Anxiety Disorder 7-item (GAD-7) scale [4–8]. This tool has demonstrated good reliability, as well as criterion, construct, factorial, and procedural validity. A score of 8 or greater suggests the diagnosis of generalized anxiety disorder.

Between 2009 and 2011, there were an estimated 1.2 million anxiety related ED visits in the US annually (approximately 1% of ED visits) [9]. The DSM-5 defines anxiety as: Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance) [3].

This study was undertaken to identify the prevalence of generalized anxiety disorder among participants, including diagnosed anxiety and positive screening for anxiety, and factors potentially associated with anxiety, including pain, gender, age, and ethnicity.

This prospective patient survey study was conducted at Miami Valley Hospital Emergency Department (ED), an urban hospital in Dayton, OH. The study received exempt status from the Wright State University Institutional Review Board. Trained research assistants administered the GAD-7 survey as a convenience sample from September 2017 to March 2018. Eligible participants included ED patients age 18 and over, with a triage pain score of 1 or higher.

Among 320 participants, a significant minority of participants (30%; N = 97) had a previous diagnosis of anxiety on their medical record. The median GAD-7 score was 8. A majority (55%; N = 175) of participants had a GAD score  $\geq 8$ , meeting criteria for generalized anxiety disorder (Fig. 1). Table 1 illustrates responses to items on the GAD-7.

Factors associated with GAD-7 score of 8 or more included younger age ( $p = 0.02$ , Mann-Whitney-Wilcoxon), previous diagnosis of anxiety ( $p = 0.05$ , Mann-Whitney-Wilcoxon), and ED disposition of hospital admission ( $p = 0.04$ , Kruskal-Wallis). Gender, ethnicity, and triage pain scores were not significantly associated with GAD-7 criterion for anxiety.

In conclusion, a majority of ED patients in this study met screening criteria for generalized anxiety disorder. A minority of those screened had a previous diagnosis of anxiety. Younger age, previous diagnosis of anxiety, and hospital admission were associated with generalized anxiety disorder. These results highlight the importance of recognition and treatment of generalized anxiety disorder among ED patients.

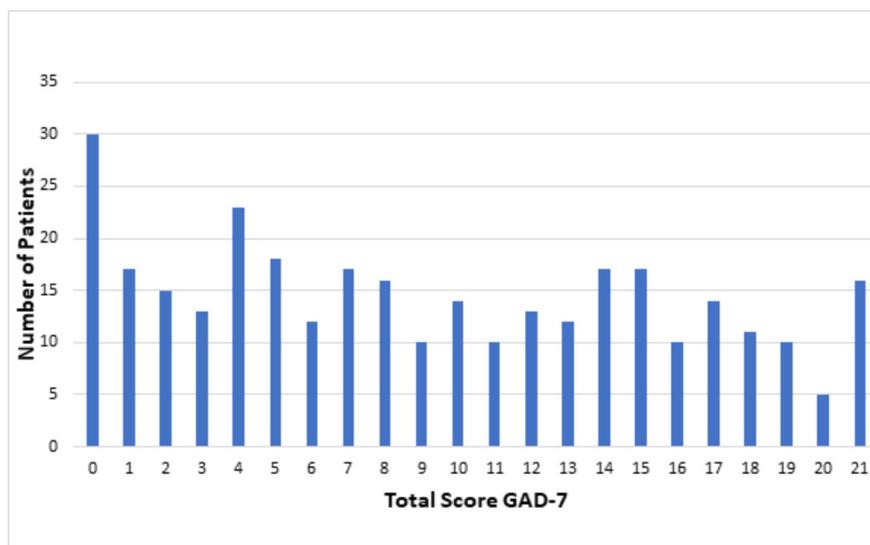


Fig. 1. Distribution of GAD-7 scores among 320 ED patients.

**Table 1**  
Generalized Anxiety Disorder 7-item (GAD-7 scale).

Over the last 2 weeks, how often have you been bothered by the following problems?	0 (not at all)	1 (several days)	2 (over half the days)	3 (nearly every day)
1. Feeling nervous, anxious, or on edge	118 (36.9%)	58 (18.1%)	49 (15.3%)	95 (29.7%)
2. Not being able to stop or control worrying	130 (40.6%)	57 (17.8%)	40 (12.5%)	93 (29.1%)
3. Worrying too much about different things	101 (31.6%)	54 (16.9%)	55 (17.2%)	110 (34.4%)
4. Trouble relaxing	93 (29.1%)	62 (19.4%)	49 (15.3%)	116 (36.3%)
5. Being so restless that it's hard to sit still	153 (47.8%)	47 (14.7%)	48 (15.0%)	72 (22.5%)
6. Becoming easily annoyed or irritable	97 (30.3%)	74 (23.1%)	57 (17.8%)	92 (28.8%)
7. Feeling afraid as if something awful might happen	186 (58.1%)	54 (16.9%)	22 (6.9%)	58 (18.1%)
If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people? – n (%)				
Not difficult at all				123 (42.4%)
Somewhat difficult				98 (33.8%)
Very difficult				38 (13.1%)
Extremely difficult				31 (10.7%)
Not applicable				30

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## Emergency physician empathy does not explain variation in admission rates



Inpatient hospital care comprises the largest proportion of healthcare costs and the emergency department (ED) serves as the primary portal to inpatient hospitalization [1]. Previous research demonstrates profound variation in admission rates between ED physicians seemingly unrelated to severity of illness or associated patient factors [2].

Less attention has focused on the human factors contributing to an emergency physician's decision to admit or discharge a patient. Previous qualitative work outside the ED setting suggests physician empathy may play a role in medical decision-making and a positive physician-patient relationship has been linked to improved patient outcomes and satisfaction [3–5].

Physician empathy is also associated with some improvement in practice and health service use including reduced physician burnout and medical malpractice risk [6,7]. However, few studies have studied the relationship between emergency physician empathy and resource use decisions of high visibility and importance, namely hospital admission. Based on popular anecdote, we hypothesized that physicians with higher empathy would be more liberal in resource use and in turn admit more patients to the hospital.

We conducted a cross-sectional sampling of ED attending physicians in a single healthcare system across 2 EDs, one a tertiary, urban academic medical center and the other an urban, community ED. All eligible participants were board certified emergency physicians practicing in either site. Institutional Review Board approval was obtained for this study.

We used the Jefferson Scale of Empathy (JSE), a validated psychometric instrument that yields a quantitative measurement of empathy specifically validated for use with attending physicians, resident physicians, and medical students [8–10]. We utilized the attending physician version (HP-Version). Each of 20 items are rated on a Likert scale ranging from 1 to 7, with total scores range from 20 to 140 and higher scores indicating greater levels of empathy [11].

Annual hospital admission rate of each physician was calculated as the physician specific proportion of ED visits admitted to the hospital. Admissions were attributed to the attending physician assigned to the clinical care team at time of admission order. Both admissions to observation and inpatient status were included as admissions.

All analyses were performed using SAS 9.4 (SAS Institute, Inc., Cary, NC, USA) and R Version 3.5.0. We report descriptive statistics including Pearson correlations between physician empathy and hospital admission rate.