

**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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## References

- [1] Downey VA, Zun LS. Identifying undiagnosed pediatric mental illness in the emergency department. *Pediatr Emerg Care* 2018;34(2):e21–3.
- [2] Downey LV, Zun LS, Burke T. Undiagnosed mental illness in the emergency department. *J Emerg Med* 2012;43(5):876–82.
- [3] American Psychiatric Association: Diagnostic and statistical manual of mental disorders (5th Ed.). WDSM-5™ diagnostic criteria 2013. Washington DC. Generalized anxiety disorder [300.02 (F41.1)].
- [4] Spitzer RL, Kroenke K, JBW Williams, Lowe B. A brief measure for assessing generalized anxiety disorder. *Arch Intern Med* 2006;166:1092–7.
- [5] Kertz S, Bigda-Peyton J, Bjorgvinsson T. Validity of the Generalized Anxiety Disorder-7 scale in an acute psychiatric sample. *Clin Psychol Psychother* 2013;20(5):456–64.
- [6] Löwe B, Decker O, Müller S, Brähler E, Schellberg D, Herzog W, et al. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Med Care* 2008;46(3):266–74.
- [7] Plummer F, Manea L, Trepel D, Mcmillan D. Screening for anxiety disorders with the GAD-7 and GAD-2: a systematic review and diagnostic metaanalysis. *Gen Hosp Psychiatry* 2016;39:24–31.
- [8] Seo J, Park S. Validation of the Generalized Anxiety Disorder-7 (GAD-7) and GAD-2 in patients with migraine. *J Headache Pain* 2015;16:97.
- [9] Dark T, Flynn HA, Rust G, Kinsell H, Harman JS. Epidemiology of emergency department visits for anxiety in the United States: 2009–2011. *Psychiatr Serv* 2017;68(3):238–44.

## 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.

Of 91 approached attending physicians, a total of 44 (48%) completed the survey. 25 (38.6%) were female. The mean Jefferson Scale of Physician Empathy (JSE) score was 113.34 ( $\pm 12.5$ ), with a range of 91 to 136. There was no significant difference in level of empathy by sex ( $p = 0.39$ ) (see Fig. 1). Level of empathy was not significantly correlated with annual hospital admission rate ( $r = -0.11$ ,  $p = 0.47$ ) (see Fig. 2). Cronbach's alpha was 0.87 in our sample, but must be interpreted with caution due to sample size.

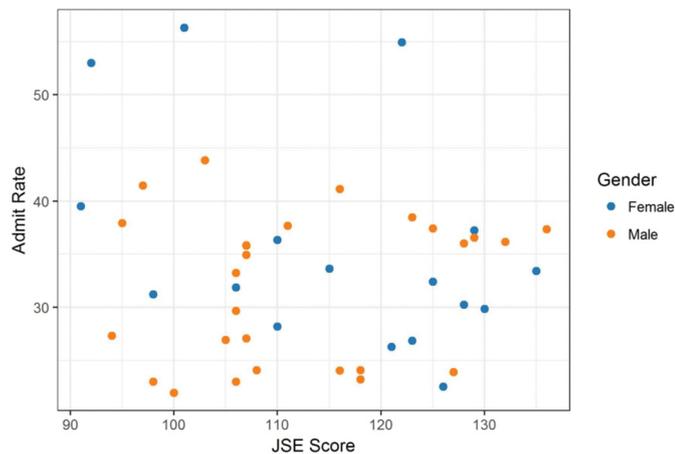


Fig. 1. JSE score by gender.

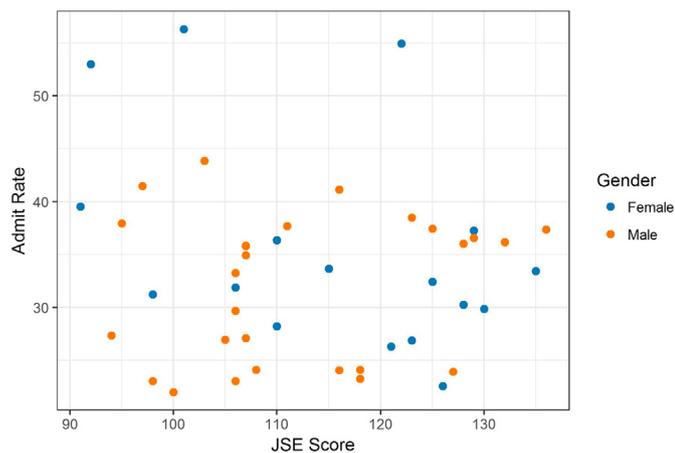


Fig. 2. Association between admit rate and JSE score.

Despite evidence suggesting that increased expressed physician empathy results in better patient outcomes as well as increased provider satisfaction in non-ED settings [12], our work did not identify a relationship between a validated measure of physician empathy and hospital admission rates. Our findings are consistent with prior work that utilized the same survey data and found no relationship between physician JSE scores and Computerized Tomography (CT) utilization [13]. These findings contradict labels of conventionally “empathic” physicians as “too nice” or “pushovers” resulting in higher resource utilization to explain the positive affective relationships with patients. Instead, we find little to no relationship between physician empathy and costly hospital admission decisions, the most resource sensitive consideration in emergency medicine.

Despite the negative findings of this work, several considerations warrant mention. While no clear relationship to empathy was noted,

other human factors, such as overall stress level and risk aversion, may mediate the relationship between level of empathy and hospital admission rate. Additionally, it is possible that the self-reported JSE which has been validated in numerous clinical settings is not applicable to the real-time or episodic nature of decision making and relationships in the ED [9,15]. Finally, we utilized observed admission rates within a single healthcare system that are not risk adjusted and may not be generalizable—however, prior work has demonstrated that patient and hospital factors do not entirely explain variation between physicians suggesting these findings still warrant mention.

While physician empathy is likely an important mediator of patient reported outcomes, it does not appear to explain physician decision-making regarding hospitalization. Future work should seek to better explain the complex cognitive and interpersonal factors that drive both patient satisfaction and healthcare resource utilization.

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## References

- [1] Schuur JD, Venkatesh AK. The growing role of emergency departments in hospital admissions. *N Engl J Med* 2012;367(5):391–3.
- [2] Abualenain J, Frohna WJ, Shesser R, Ding R, Smith M, Pines JM. Emergency department physician-level and hospital-level variation in admission rates. *Ann Emerg Med* 2013;61(6):638–43.
- [3] Hojat M, Louis DZ, Markham FW, Wender R, Rabinowitz C, Gonnella JS. Physicians' empathy and clinical outcomes for diabetic patients. *Acad Med* 2011;86(3):359–64.
- [4] Kim SS, Kaplowitz S, Johnston MV. The effects of physician empathy on patient satisfaction and compliance. *Eval Health Prof* 2004;27(3):237–51.
- [5] Stewart M, Meredith L, Brown JB, Galajda J. The influence of older patient-physician communication on health and health-related outcomes. *Clin Geriatr Med* 2000;16(1):25–36.
- [6] Beckman HB. The doctor-patient relationship and malpractice. *Arch Intern Med* 1994;154(12):1365.
- [7] Levinson W. Physician-patient communication. The relationship with malpractice claims among primary care physicians and surgeons. *JAMA* 1997;277(7):553–9.
- [8] Hojat M, Gonnella JS, Mangione S, Nasca TJ, Magee M. Physician empathy in medical education and practice: experience with the Jefferson scale of physician empathy. *Semin Integr Med* 2003;1(1):25–41.
- [9] Hojat M, Mangione S, Nasca TJ, et al. The Jefferson scale of physician empathy: development and preliminary psychometric data. *Educ Psychol Meas* 2001;61(2):349–65.
- [10] Hojat M. Empathy in patient care: antecedents, development, measurement, and outcomes. Springer Publications; 2007.
- [11] Di Lillo M, Cicchetti A, Scalzo AL, Taroni F, Hojat M. The Jefferson scale of physician empathy: preliminary psychometrics and group comparisons in Italian physicians. *Acad Med* 2009;84(9):1198–202.
- [12] Canale SD, Louis DZ, Maio V, et al. The relationship between physician empathy and disease complications. *Acad Med* 2012;87(9):1243–9.
- [13] Melnick ER, O'Brien EGJ, Kovalerchik O, Fleischman W, Venkatesh AK, Taylor RA. The association between physician empathy and variation in imaging use. *Acad Emerg Med* 2016;23(8):895–904.
- [15] Pedersen R. Empirical research on empathy in medicine—a critical review. *Patient Educ Couns* 2009;76(3):307–22.