Emotional Intelligence and Delivering Bad News: The Jury is Still Out

Gi Lim, BSA,* and Aimee K. Gardner, PhD†,[1]

*Baylor College of Medicine, Houston, Texas; and †School of Health Professions, Department of Surgery, Baylor College of Medicine, Houston, Texas

BACKGROUND: Emotional intelligence (EQ) has been proposed to be a critical competency necessary for complex and interpersonal interactions for healthcare providers.

OBJECTIVE: The goal of this study was to examine how EQ impacts surgical residents' ability to deliver bad news.

METHOD: Residents participated in a patient death simulation, and instructed to disclose the news to the patient's sister. The encounter was recorded and graded according to a 10-point delivering bad news checklist (1%-100%). Residents also completed an EQ assessment (100 = average).

RESULTS: Nineteen PGY-1 general surgery residents participated. Overall average performance on delivering bad news was 62% ± 22% and resident scores ranged from 20% to 90%. There was no correlation between EQ and delivering bad news.

CONCLUSIONS: This study failed to find evidence to support the notion that EQ is associated with trainee ability to deliver bad news, suggesting that more evidence is needed to support EQ's role in curricular and assessment endeavors. (J Surg Ed 76:779–784. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: emotional intelligence, EQ, bad news, communication, adverse events

COMPETENCIES: Interpersonal and Communication Skills, Professionalism

INTRODUCTION

It has been mentioned time and time again that a good physician treats the illness, while the great physician treats the patient. Great healthcare providers have the ability to predict, understand, and relieve patients' emotional needs. Emotional intelligence (EQ) is how a person understands and manages the emotions of his/her own self and others,[1,2] and has been proposed to be a critical competency of healthcare providers.[3] Studies outside of medicine have shown that EQ can help individuals excel in teamwork, stress management, and adjusting to social situations.[4-8] This work has led to a boom of research evaluating its application to medicine. For example, thus far, research within medical education has been able to demonstrate an empirical relationship between EQ and teamwork, communication, empathy, doctor patient relationships, stress management, organizational commitment, leadership, patient trust, patient follow up, and presurgery patient satisfaction.[9–12]

Many are considering EQ in medical education in the context of communication, leadership, emotional understanding, and curriculum.[13] However, research has been mixed with some studies showing EQ could aid in academics, while others show it hinders administrative performance.[14,15] A few studies failed to find a relationship between EQ and delivering bad news (DBN) or overall professionalism, key components of interpersonal communication.[16,17] While it is likely that EQ has the potential to be an important attribute to considered in recruitment, assessment, and curricular endeavors,[7,18] its scope of influence must first be thoroughly examined.

The goal of this study was to examine how EQ impacts surgical residents' ability to deliver bad news. A simulation-based assessment was specifically developed to allow residents to deliver bad news to standardized patient actors after an avoidable complication.

METHODS

Preliminary and categorical surgery residents were invited to participate in the session in the last 2 months of their intern year. Participants received pretraining materials 1 week before attending the simulation

Correspondence: Inquiries to Aimee K. Gardner, PhD, School of Health Professions, Baylor College of Medicine, MS: BCM115, DeBakey Building, M108K, One Baylor Plaza, Houston, TX; fax: 713-798-7694; e-mail: aimee.gardner@bcm.edu

[1] @AimeeGthePHD

session. Pretraining materials consisted of the SPIKES Delivering Bad News protocol,[19] a surgical safety checklist from the World Health Organization,[20] and the Society of American Gastroenterologists and Endoscopic Surgeons laparoscopic troubleshooting guide.[21]

On the day of training, participants were provided with an overview of the goals of the training session. The training session took place in a high-fidelity operating room (OR) suite. Team members consisted of a confederate anesthesiologist, scrub tech, and circulating nurse. Upon entering the OR, the confederate nurse instructed the surgeon that the patient was ready and prompted the surgeon to lead the time out using the safety checklist displayed on the wall. The scenario then progressed as a modified version of Laparoscopic Troubleshooting Module included in the American College of Surgeons/Association of Program Directors in Surgery (ACS/APDS) National Skills Curriculum,[22] in which trainees must lead the team in systematic troubleshooting of laparoscopic equipment and identify and treat a physiologic disturbance. Specifically, trainees had to troubleshoot the laparoscopic tower to remedy loss of visualization before the procedure started and also lead the team to perform Advanced Cardiac Life Support, when the patient became bradycardic during insufflation. After 3 rounds of Advanced Cardiac Life Support, regardless of trainee actions, the participant was informed that the patient was unable to be resuscitated. The trainee then left the OR and was provided information on specifics of the physiological problem (a CO_2 embolism) such that all trainees had a similar understanding regarding why the patient died. The trainee was also instructed that they needed to discuss the death with the sister of the family member (also an Standardized Patient (SP)). Trainees were allowed as much time as they needed to gather their thoughts and prepare for the conversation. When ready, the trainee was shown to the room, where the sister of the patient was awaiting updates from the surgeon. The SP followed a scripted set of behaviors and responses, so that all trainees had to respond to similar prompts during the conversation.

At the completion of the training, all trainees were debriefed by a simulation faculty member using the debrief with good judgment approach.[23] After the debriefing, trainees were provided a copy of their video-recorded performance for further reflection and review.

All phases of the training session were video recorded for performance assessment. Performance for DBN was evaluated using a 10-item checklist tool (achieved/did not achieve) internally developed based on best practice suggestions by Baile et al.,[19] and used elsewhere.[24] The checklist for DBN was completed at the completion of all simulation sessions via video review by 2 simulation faculty members (surgeon and PhD). Score comparisons were made after each review and any discrepancies were discussed in real time until consensus was achieved. DBN scores are presented as percentage of overall score (out of 10 points) and percentage within each subscale (Setting up the Conversation, Giving Knowledge and Information, and Addressing Recipient Emotions).

EQ was assessed with the Mayer-Salovey-Caruso Emotional Intelligence Test Version 2.0. (Multi-Health Systems; Toronto, Ontario, Canada) used and described elsewhere within surgical education.[17,25] The EQ assessment was administered approximately 1 month after the simulation session as part of unrelated organizational initiatives. This widely investigated tool (Appendix A) consists of 141 items and measures each of the 4 branches of EQ—the ability to accurately perceive emotions, use emotions to facilitate thought, understand one's own emotions and those of others, and manage emotions to promote adaptive behavior and personal growth. Scores are calculated similar to intelligence quotient assessments, in that average is 100 with standard deviations of 15.

Descriptive statistics were examined using SPSS version 23 (Chicago, Illionis). Comparisons between EQ and DBNscores were assessed with Pearson correlation coefficients. Gender differences were examined with independent sample *t* tests.

RESULTS

Means

Nineteen first-year general surgery residents (58% men) participated in the 1-hour training program. Average total performance on the DBN checklist was 62% ± 22%, with resident scores ranging from 20% to 90%. Subscale averages were 54% ± 28% for Setting up the Conversation, 61% ± 24% for Giving Knowledge and Information, and 76% ± 39% for Addressing Recipient Emotions. Items that were least frequently achieved were involving significant others (11%), using phrases to warn recipient that bad news is coming (16%), and giving information in small chunks and checks periodically to assess understanding (26%). Items most frequently achieved include avoiding excessive bluntness (95%), providing an introduction (90%), and making connecting statements (84%). These data are displayed in Table 1.

Average overall EQ was 102 ± 13, with a range of 85 to 129. EQ dimension means were 103 ± 12 (89-126) for Perceiving Emotions, 97 ± 9 (85-113) for Facilitating Thought, 101 ± 9 (90-113) for Understanding Emotions, and 103 ± 16 (88-136) for Managing Emotions to Promote Adaptive Behavior and Growth.

Relationships Among Variables

Correlations among EQ and DBN performance are displayed in Table 2. As shown, EQ scores did not correlate with either

TABLE 1. Delivering Bad News Performance Scores

Subscale	Item	% Achieved	Subscale Mean %
Setting up the Interview	Provides introduction	90%	54%
	Involves significant others	11%	
	Makes connection with family member	63%	
Giving Knowledge and Information	Uses phrases to warn recipient that bad news is coming	16%	61%
	Avoids technical jargon; used vocabulary recipient would understand	37%	
	Avoids excessive bluntness (e.g., "he was really messed up and died")	95%	
	Waits at least 10 seconds after giving bad news	63%	
	Gives information in small chunks and checks periodically to assess understanding	26%	
Addressing Recipient Emotions	Observes and responds empathetically to family member emotions (e.g., moves closer, offers tissue)	68%	76%
	Makes connecting statements (e.g., "This is very difficult for me as well," "I know this is the last thing you were expecting."	84%	

Note: "Achieved" indicates percentage of trainees who successfully completed that item during the simulation.

DBN overall scores or subscale scores. However, correlation analyses at the item level revealed that individuals with higher Perceiving Emotions and Facilitating Thought scores were more likely to avoid technical jargon ($r = 0.82$, $p < 0.01$ and $r = 0.75$, $p < 0.05$, respectively) and give information in small chunks and check periodically to assess understanding ($r = 0.80$, $p < 0.01$ and $r = 0.68$, $p < .0.05$, respectively). Individuals who had higher Managing Emotions to Promote Adaptive Behavior and Growth and overall EQ were also more likely to give information in small chunks and check periodically to assess understanding ($r = 0.90$, $p < 0.001$ and $r = 0.69$, $p < 0.05$, respectively).

Differences by Sex

No differences between women and men emerged across total scores or subscales for DBN performance. However, item level analyses indicated that women had significantly higher frequencies of achieving "Giving information in small chunks and periodically assessing understanding" compared to men (50% versus 9%, $p < 0.05$). No other differences at the item level emerged between women and men.

Women and men had similar average scores on total EQ and in the areas of Perceiving Emotions, Facilitating Thought, and Understanding Emotions. However, women had higher scores on Managing Emotions to Promote Adaptive Behavior and Growth compared to men (117 ± 20 versus 95 ± 7, $p < 0.05$).

DISCUSSION

This study failed to find evidence to support the notion that EQ is associated with trainee ability to deliver bad news. Only 3out of the 4 dimensions of EQ, "perceiving emotion," "facilitating thought," "managing emotions to promote adaptive behaviors," and overall EQ, had correlations to 1 item on the DBN checklist (giving information in small pieces and periodically checking for understanding). Only one of those dimensions, "perceiving emotion," had a strong correlation to another item on the DNB checklist (avoiding technical jargon). Also, women had a significantly higher score in the EQ dimension of "managing emotions to promote adaptive behaviors." This dimension of EQ significantly correlated to achieving "giving information in small pieces and periodically checking for understanding" more often on the DBN checklist than men, but there were no overall differences in EQ or DBN scores between the 2 sexes.

Despite the increased interest in EQ and proposed linkages between EQ and interpersonal and communication skills,[9,10,13] our null findings align with empirical evidence from the current medical literature. For example, a study from Reed et al. showed that there is no linear correlation between EQ and giving bad news in medical residents in pediatrics.[16] Other works studying the role of EQ among surgery residents have similarly been unable to find a strong relationship between EQ and professionalism, interpersonal skills, clinical performance, or competency.[15,26,27,28]

Our findings have a number of implications for surgical educators. First, our data, along with other aforementioned studies,[16,17,26–30] suggest that EQ may not be ready for prime time. Despite its palatable nature as a potential solution to training and assessing critical physician competencies, EQ's lack of direct correlations to outcomes of interest must be noted.

TABLE 2. Correlations Between Emotional Intelligence Facets and Delivering Bad News Subscale Scores

	Emotional Intelligence					Delivering Bad News		
	Perceiving	**Facilitating**	**Understanding**	**Managing**	**EQ Total**	**Setting Up the Conversation**	**Giving Information**	**Addressing Emotions**
Perceiving								
Facilitating	0.82**							
Understanding	0.21	0.44						
Managing	0.85**	0.61	−0.10					
EQ total	0.94**	0.88	0.49	0.78*				
Setting up the conversation	−0.09	−0.03	0.07	−0.11	−0.06			
Giving information	0.61	0.45	−0.28	0.56	0.43	0.25		
Addressing emotions	0.30	−0.06	−0.27	0.27	0.14	0.58**	0.52*	
Delivering bad news total	0.43	0.23	−0.23	0.39	0.28	0.71**	0.81*	0.85*

*$p < 0.05$.
**$p < 0.01$.

Personality and psychology researchers have argued that EQ is not a unique construct for over 20 years,[30] noting its inability to predict outcomes of interest above and beyond other intelligence and personality measures. Educators would be wise to consider these arguments and lack of empirical data before implementing activities intended to foster or assess EQ. Implementation of more evidence-based interventions and assessment tools may be more valuable.

There are a number of limitations to this study. First, this study was based on one cohort of residents from a single institution. The in-depth and comprehensive nature of the simulation and assessment allowed for granular exploration, but replication with other residents across institutions would help inform these findings, if other programs had the bandwidth and resources for replication. Additionally, the level of training among participants may limit the generalizability of these findings. It is possible that EQ may play a role for more advanced trainees or practitioners, and finally, these data reflect just 1 snapshot for assessing DBN skills. Use of more frequent assessments across case scenarios would allow for more comprehensive review of these relationships. We did not measure the relationship between EQ and other portions of the simulation exercise (crisis management, leadership, standardized patient metrics, etc.), but it is possible that EQ may influence these other performance indicators. However, other work has been unable to demonstrate a relationship between EQ and more broad resident performance metrics.[17] Finally, it is unclear if pretraining might eliminate any EQ-based differences in performance. Although, we do not have any quantitative data on the amount of time spent on the pretraining SPIKES materials, it is possible that training or education could "level the playing field" between residents with different EQ profiles. For example, Gorgas et al.[31] demonstrated that a short educational intervention could significantly improve EQ scores in medical residents with long-term benefit. However, as with personality variables, it is unclear if EQ is a "state" (temporary and malleable) or a "trait" (innate and resistant to substantial change), and thus requires more construct clarity. Future research should explore these areas and explore if residency training itself naturally enhances EQ over time.

CONCLUSIONS

In summation, our study was unable to find evidence to support claims that EQ correlates with overall ability to deliver bad news. EQ impacted only a very narrow range of delivering-bad-news metrics, limiting its ability to be a

significant predictor. EQ has shown attributes of aiding in academics and being an acquirable long-term skill in residents,[31,14] but future research is needed on the viability of EQ before widespread adoption and integration of EQ training and assessments.

REFERENCES

1. Mayer J, Salovey P. What is emotional intelligence? In: Salovey P, Sluyter DJ, eds. Emotional Development and Emotional Intelligence: Educational Implications, New York: Basic Books; 1997. p. 3–31.
2. Salovey P., Mayer J. Emotional intelligence. *Imagination, cognition, and personality*. 9;1990;185-211.
3. Harris DA, Ashley SW, Irani JL. Choosing successful residents. *JAMA Surg*. 2017. https://doi.org/10.1001/jamasurg.2017.5022.
4. Mayer JD, Caruso DR, Salovey P. Emotional intelligence meets traditional standards for an intelligence. *Intelligence*. 1999;27:267–298.
5. Lopes PN, Brackett MA, Nezlek JB, Schütz A, Sellin I, Salovey P. Emotional intelligence and social interaction. *Pers Soc Psychol Bull*. 2004;30:1018–1034.
6. Mikolajczak M, Menil C, Luminet O. Explaining the protective effect of trait emotional intelligence regarding occupational stress: exploration of emotional labour processes. *J Res Personality*. 2007;41:1107–1117.
7. Johnson DR. Emotional intelligence as a crucial component to medical education. *Int J Med Educ*. 2015;6:179–183. https://doi.org/10.5116/ijme.5654.3044.
8. McKinley SK, Phitayakorn R. Emotional Intelligence and Simulation. *Surg Clin North Am*. 2015;95(4):855–867 https://doi.org/10.1016/j.suc.2015.03.003.
9. Arora S, Ashrafian H, Davis R, et al. Emotional intelligence in medicine: a systematic review through the context of the ACGME competencies. *Med Educ*. 2010;44:749–764.
10. Lindeman B, Petrusa E, McKinley S, et al. Association of Burnout With Emotional Intelligence and Personality in Surgical Residents: Can We Predict Who Is Most at Risk? *J Sur Educ*. 2017;74(6):e22–e30 http://doi.org/10.1016/j.jsurg.2017.11.001.
11. Weng HC. Does the physician's emotional intelligence matter? Impacts of the physician's emotional intelligence on trust, patient-physician relationship, and satisfaction. *Health Care Manage Rev*. 2008;33:280–288.
12. Weng HC, Steed JF, Yu SW, et al. The effect of surgeon empathy and emotional intelligence on patient satisfaction. *Adv Health Sci Educ*. 2011;16:591–600. https://doi.org/10.1007/s10459-011-9278-3.
13. Erdman MK, Bonaroti A, Provenzano G, Appelbaum R, Browne M. Street smarts and a scalpel: emotional intelligence in surgical education. *J Surg Educ*. 2017;74:277–285 http://doi.org/10.1016/j.jsurg.2016.09.004.
14. Chew BH, Zain AM, Hassan F. Emotional intelligence and academic performance in first and final year medical students: a cross-sectional study. *BMC Med Educ*. 2013;13:44 https://doi.org/10.1186/1472-6920-13-44.
15. Sadeghi T, Kiani MA, Saeidi M, Moghaddam HT, Ghodsi MJ, Hoseini R. The relationship between emotional intelligence with administrators' performance at Mashhad University of Medical Sciences. *Electron Physician*. 2018;10(3):6487–6493 https://doi.org/10.19082/6487.
16. Reed S, Kassis K, Nagel R, Verbeck N, Mahan JD, Shell R. Does emotional intelligence predict breaking bad news skills in pediatric interns? A pilot study. *Med Educ Online*. 2015;20. https://doi.org/10.3402/meo.v20.24245. 10.3402/meo.v20.24245.
17. Gardner AK, Dunkin BJ. Evaluation of validity evidence for personality, emotional intelligence, and situational judgment tests to identify successful residents. *JAMA Surg*. 2018;153:409–416.
18. Lin DT, Kannappan A, Lau JN. The assessment of emotional intelligence among candidates interviewing for general surgery residency. *J Surg Educ*. 2013;70:514–521.
19. Baile WF, Buckman R, Lenzi R, et al. SPIKES-a six-step protocol for delivering bad news: application to the patient with cancer. *Oncologist*. 2000;5:302–311.
20. Patterson P. WHO surgical safety checklist linked to fewer deaths, complications. *OR Manager*. 2009;25:1–8.
21. SAGES laparoscopic equipment troubleshooting chart. Society of American Gastrointestinal and Endoscopic Surgeons Troubleshooting Guides. https://www.sages.org/wp-content/uploads/troubleshootingchart.pdf. Accessed January 24.

22. ACS/APDS. Surgery Resident Skills Curriculum. https://www.facs.org/education/program/apds-resident. Accessed January 24.

23. Rudolph JW, Simon R, Dufresne RL, Raemer DB. There's no such thing as "nonjudgmental" debriefing: a theory and method for debriefing with good judgment. *Simul Healthc*. 2006;1:49–55.

24. Gardner AK, Abdelfattah K. Comparison of simulation-based assessments and faculty ratings for general surgery resident milestone evaluation. Are they telling the same story? *Am J Surg*. 2017;214:547–553.

25. Chan K, Petrisor B, Bhandari M. Emotional intelligence in orthopedic surgery residents. *Can J Surg*. 2014;57:89–93.

26. McKinley SK, Petrusa ER, Fiedeldey-Van Dijk C, et al. A multi-institutional study of the emotional intelligence of resident physicians. *Am J Surg*. 2015;209:26–33 http://doi.org/https://doi.org/10.1016/j.amjsurg.2014.09.015.

27. Jensen AR, Wright AS, Lance AR, et al. The emotional intelligence of surgical residents: a descriptive study. *Am J Surg*. 2008;195:5–10.

28. McKinley SK, Phitayakorn R. Emotional intelligence and simulation. Paige J, Brown KM, editors. Emotional intelligence and simulation. *Surg Clin N Am*. 2015: 855–867.

29. Hollis RH, Theiss LM, Gullick AA, et al. Emotional intelligence in surgery is associated with resident job satisfaction. *J Surg Res*. 2017;209:178–183.

30. Davies M, Stankov L, Roberts RD. Emotional intelligence: in search of an elusive construct. *J Pers Soc Psychol*. 1998;75:989–1015.

31. Gorgas DL, Greenberger S, Bahner DP, Way DP. Teaching Emotional Intelligence: a Control Group Study of a Brief Educational Intervention for Emergency Medicine Residents. *West J Emerg Med*. 2015;16:899–906 https://doi.org/10.5811/westjem.2015.8.27304.