Analysis of Skill Comfortability Versus Experience in Collegiate EMS Responders

Alana Lodin[1], EMT-B; Aanika Patel[1], EMR

[1]Gator Emergency Medical Response Unit, University of Florida

Abstract

Collegiate Emergency Medical Service (EMS) units provide time-sensitive care to individuals experiencing a medical emergency on a university campus while working in conjunction with local emergency services. This project seeks to determine if there is a relationship between overall comfort among responders with performing interventions on scene and time spent active within the Gator Emergency Medical Response Unit (GEMRU) and to identify which skills responders reported an overall lower comfortability score in. In order to evaluate responder comfort with performing medical interventions, an anonymous Likert-inspired 6-point survey assessing responders' perceived comfort with EMS skills was designed and distributed. Using Pearson's r and Spearman's Rank correlation, data revealed a positive correlation between composite comfort scores (for all skills combined) and time active within the unit for both First Responder and EMT-B skills. Further analysis of individual skill comfortability medians shows decreased comfort in skills such as occlusive dressing application and emergency delivery. This analysis can be used within GEMRU to develop continued education for the improvement of responder skill comfortability in unpracticed skills. Methods used in this study may also be adapted by other collegiate EMS units to survey their own responding body for skills that warrant refreshment after initial training.

Methods

- 6-point Likert-type survey asking about responders' demographics and self-perceived comfort with performing skills from GEMRU's medical protocols on an active call

- Options ranged from "Extremely Uncomfortable" (1) to "Extremely Comfortable" (6) with thorough category explanations provided

- Total active month count was calculated by subtracting any inactive semester months

- Overall comfort score was generated for each responder based on the mean of every score for every skill

- Median values of the combined comfort scores of every responder were calculated for each individual skill

Results

**Figure 1A:** Composite Scores for All First Responder Skills vs Active Months
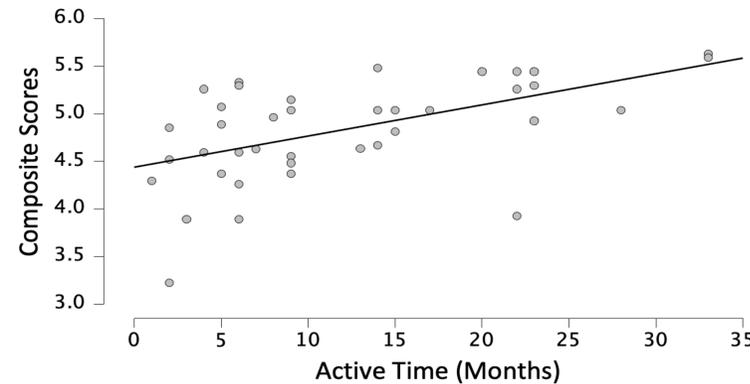
**Figure 1B:** Composite Scores for EMT-B Specific Skills vs Active Months
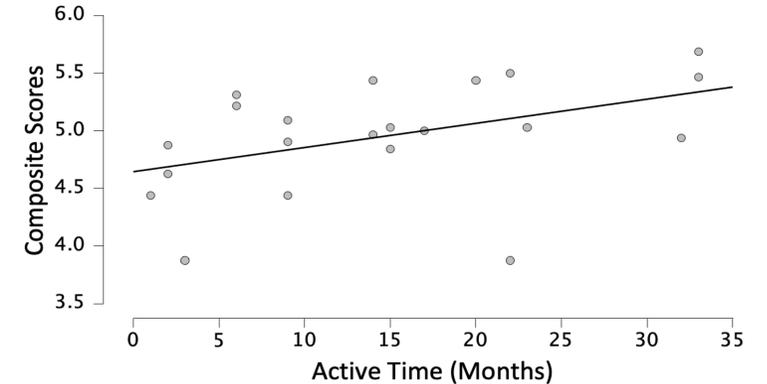
Figures 1A-1B: Using Pearson's R and Spearman's Rank correlation, survey data revealed a positive correlation between composite comfort scores for all skills combined and time active within the unit for both First Responder and EMT-B skills (r=0.554, ρ=0.550 for First Responder skills and r=0.436, ρ=0.496 for EMT-specific skills). n=42 for First Responder skills and n=21 for EMT-B specific skills.

Figure 2A: Median Comfort Scores for All First Responder Skills
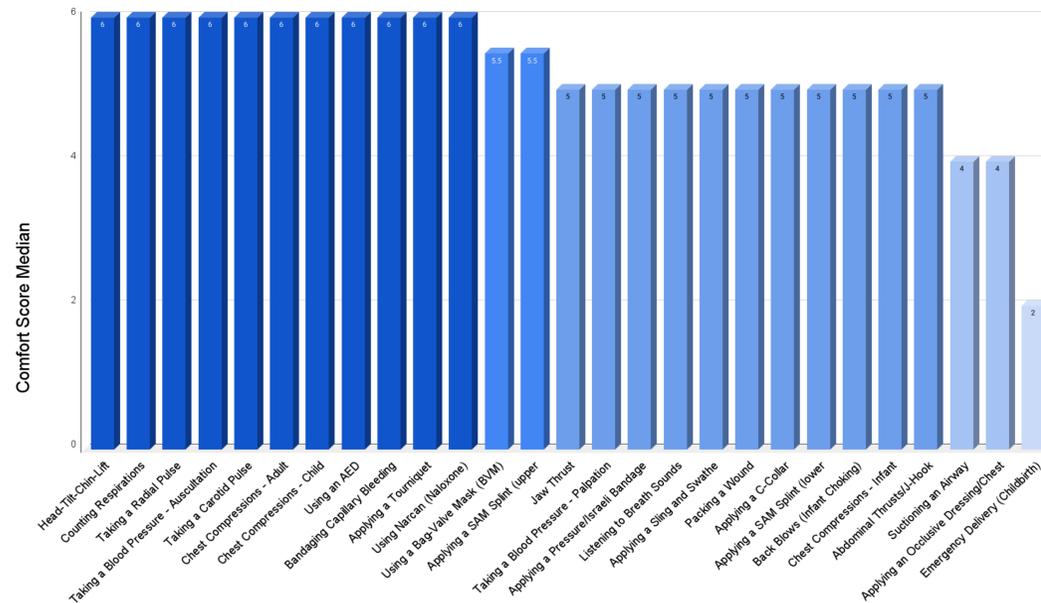
Figure 2B: Median Comfort Scores for EMT-B Specific Skills
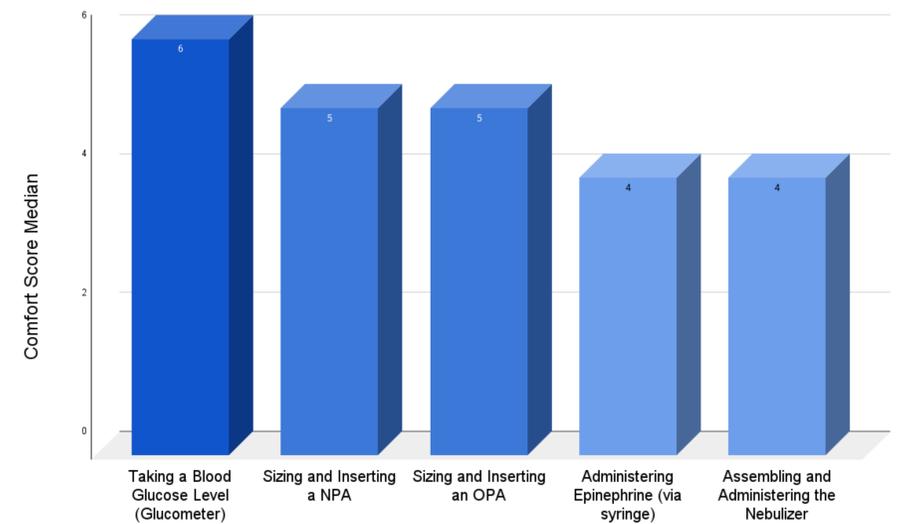
Figures 2A-2B: Individual skill comfortability medians show notably decreased comfort — determined by having a median comfort score ≤4 on the 6-point scale — in occlusive dressing application, suctioning, emergency delivery, epinephrine delivery, and nebulizer use. n=42 for First Responder skills and n=21 for EMT-B specific skills.

Discussion and Future Directions

This study is limited by the sample size (n=42, n=21) and variation in survey responses due to natural differences in interpretation of "comfortability" ratings. Because the data is ordinal, median values were used to determine overall comfort scores for each skill, which limits viable statistical analyses. This analysis can be used within GEMRU to develop targeted training models for the improvement of responder skill comfortability in skills with lower confidence ratings. It additionally affirms that current GEMRU protocols are effective in developing confident responders, as the most comfortable responders surveyed were, on average, those with the most active time in the unit. While this project did not assess GEMRU medical records for frequency of specific medical emergencies on campus, the skills with high confidence medians understandably were those that are used frequently for typical calls on a university campus. Methods may be adapted by other EMS units to survey their own responding body for skills in their specific protocols that would benefit from refreshment.

References

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality progress, 40*(7), 64-65.

van Doorn, J., van den Bergh, D., Böhm, U., Dablander, F., Derks, K., Draws, T., Etz, A., Evans, N. J., Gronau, Q. F., Haaf, J. M., Hinne, M., Kucharský, Š., Ly, A., Marsman, M., Matzke, D., Gupta, A. R. K. N., Sarafoglou, A., Stefan, A., Voelkel, J. G., & Wagenmakers, E. J. (2021). The JASP guidelines for conducting and reporting a Bayesian analysis. Psychonomic bulletin & review, 28(3), 813–826. https://doi.org/10.3758/s13423-020-01798-5

Contact

Aanika Patel, EMR
aanikapatel@ufl.edu | (561) 568-0020

Alana Lodin, EMT-B
a.lodin@ufl.edu | (305) 389-6675