The Impact of Personality on Teamwork-Based Simulations in Medical School Emergency Medicine Simulations

Jefferson
Thomas Jefferson University
HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

Allison Doermann, Kathleen Finn, Chaiya Laoteppitaks, MD, Shruti Chandra, MD
Department of Emergency Medicine, Thomas Jefferson University Hospital

Introduction

As Medical Education evolves with the rise of team-based problem-solving and medical simulations, the importance of forming effective student teams has become imperative. Many studies have related personality via the Myers Briggs Typology Index (MBTI) profiles to team effectiveness and communication.

Some investigators have advocated for diversity in team composition to maximize job performance for team-based work. However, other studies show that more diverse or heterogeneous teams are not necessarily more successful or efficient. Moreover, there is little literature documenting the impact of personality on teams in the medical field, specifically in regard to medical student education. This ambiguity in the literature thereby indicates the need for further studies regarding this topic.

We hypothesize that personality makeup will not have a significant impact on teamwork in Emergency Medicine simulations for third- and fourth-year medical students. More specifically, we predict that groups with a mix of introverts and extroverts will perform better than more homogeneous groups and that the dominant and auxiliary functions as represented by the second and third letters in an individual's MBTI will not be significant in simulation performance.

Group success in educational settings is determined by multiple interpersonal interactions which are challenging to assess; however, understanding what types of groups can maximize educational outcomes for medical students could hopefully lead to better training and improved patient outcomes in hospitals with team-based approaches and multi-disciplinary care.

Methods

All third- and fourth-year medical students at Sidney Kimmel Medical College at Thomas Jefferson rotating through their Emergency Medicine Clerkship were enrolled into the study. The following data were collected over 8 months during the 2019-20 academic year:

- De-identified MBTI personality types reported by students
- Jefferson Teamwork Observation Guide (JTOG) scores
- Third- or Fourth-Year Designation

100 student teams made up of approximately 200 medical students were observed and assigned a JTOG score to assess their teamwork. The data were analyzed with paired t-test and one-way ANOVA.

Figures

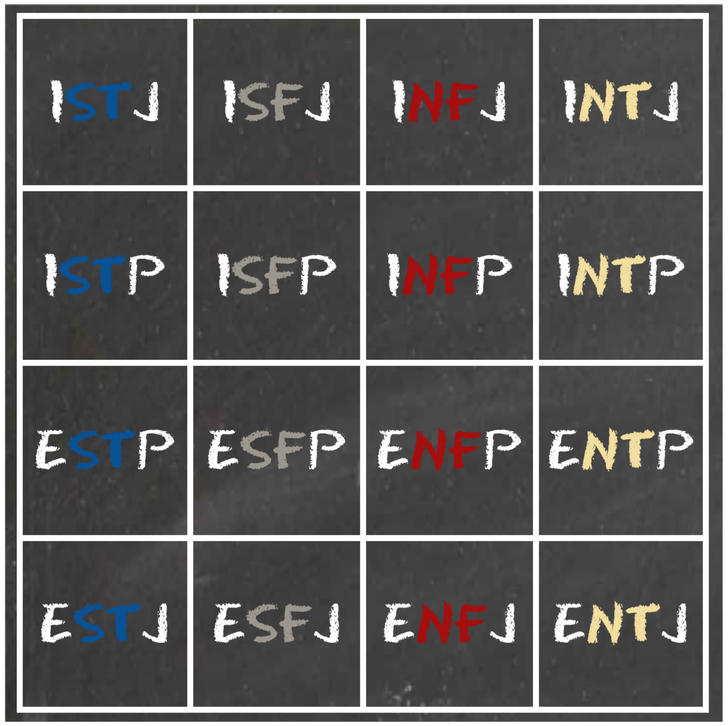

Figure 1. Myers Briggs Personality types. This figure shows all 16 MBTI personality types with the function pairs highlighted in color. The function pairs are made up of the dichotomies S (Sensing) vs. N (Intuition) and T (Thinking) vs. F (Feeling). E signifies preference for extroversion and I introversion.

Rate your level of agreement with each of the following statements:

Team Characteristic	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
1. There appeared to be a team leader that coordinated the discussion (L)	☐	☐	☐	☐	☐
2. The team leader facilitated the discussion rather than dominated it (L)	☐	☐	☐	☐	☐
3. Members of the team came prepared to discuss the case/situation from their profession specific perspective (R)	☐	☐	☐	☐	☐
4. Members of the team who were involved in the case/situation contributed to the discussion (C)	☐	☐	☐	☐	☐
5. Discussion was distributed among all team members (C)	☐	☐	☐	☐	☐

Figure 2. Jefferson Teamwork Observation Guide Sample Questions. Shown are 5 of 14 questions on the JTOG, which was used to assess the teamwork of teams in 100 simulations.

Results

Fourth-Year teams obtained significantly higher JTOG scores than their Third-Year team counterparts, with scores of 3.15 and 2.91, respectively, with $p<0.001$. Conversely, the data demonstrated no significant differences in teamwork scores between teams with a majority extroverts versus majority introverts. The average JTOG scores for teams with more than half extroverts, half extroverts and half introverts, and more than half introverts were 3.02, 3.06, and 2.92, respectively. There was also no significant difference in performance of teams based on which function pair was dominant in the personality composition of the team (ST, SF, NT, NF). The averages of these four function pair teams were 3.05, 3.10, 2.96, and 2.94, respectively, with $p=0.31$.

Discussion

While personality type may affect inherent preferences, the results of this study suggest that this predilection may not hinder the teamwork capabilities of a group in a medical school simulation. Further, the data may suggest that clinical rotations completed in medical school may improve teamwork skills as Fourth-Year students made more successful teams in their Emergency Medicine simulations. Given the importance of teamwork in communicating with patients and colleagues to optimize patient care, it is imperative that medical educators can teach students how to work in teams in a clinical context, and these results suggest that this goal is possible and not deterred by individuals' personalities. This is certainly an exciting prospect in a field moving towards team-directed patient care.

References

1. Bradley, J. H., & Hebert, F. J. (1997). The effect of personality type on team performance. *Journal of Management Development, 16*(5), 337–353. doi: 10.1108/02621719710174525.

2. Boyd, Russell, and Terry Brown. "Pilot Study of Myers Briggs Type Indicator Personality Profiling in Emergency Department Senior Medical Staff." Emergency Medicine Australasia, vol. 17, no. 3, 2005, pp. 200–203., doi:10.1111/j.1742-6723.2005.00723.x.

3. Choi, Kyungsub Steve, et al. "Pair Dynamics in Team Collaboration." Computers in Human Behavior, vol. 25, no. 4, 2009, pp. 844–852., doi:10.1016/j.chb.2008.09.005.

4. Clack GB[1], Allen J, Cooper D, Head JO. "Personality differences between doctors and their patients: implications for the teaching of communication skills." *Med Educ.* (2004): 38(2):177-86.

5. Johnson Vickburg, Suzanne M, and Kim Christfort. "Pioneers, Drivers, Integrators, and Guardians." The New Science of Team Chemistry, Harvard Business Review, 25 July 2017, hbr.org/2017/03/the-new-science-of-team-chemistry.

6. Olson, Joel D., et al. "Forming Student Online Teams For Maximum Performance." American Journal of Business Education (AJBE), vol. 8, no. 2, 2015, p. 139., doi:10.19030/ajbe.v8i2.9136.

7. Young, Sadie. "The Four Function Pairs." *Personality Playbook*, 10 Nov. 2013, personalityplaybook.com/2013/11/10/the-four-function-pairs/.

axd300@students.Jefferson.edu