Interprofessional Attitude and Perception Differences in a Simulation-Based Crisis Team Training Program

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INTRODUCTION

- During crisis team training (CTT), concepts from aviation industry crew resource management (CRM) are used to improve team performance.
- CTT differs from CRM in several ways:
  1. The hierarchy is flat.
  2. There are assigned roles and each role has pre-assigned tasks.
  3. Organizational and therapeutic tasks must be completed within a pre-determined time frame.
  4. Patient care skills are emphasized over professional background.
- These concepts may be challenging to the team members who have different professional backgrounds and cultures, which include values, beliefs, attitudes, and behaviors.
- The purpose of this study is to evaluate differences in the attitude and perception of trainees of multiple disciplines, and whether any perceptions changed after participation in a simulation-based multidisciplinary crisis team training program.
- The CTT course is comprised of:
  1. Web-based pre-course curriculum
  2. Brief didactic lecture reviewing key concepts of team performance
  3. Simulation scenarios for skills performance with Laerdal SimMan UPS with video-recording
  4. Facilitated team de-briefing using web-based interactive debriefing tool

METHODS

- We analyzed the data obtained from a web-based course evaluation instrument for a simulation-based multidisciplinary medical emergency team training program (CTT course) conducted in WISER at University of Pittsburgh from Jan 2008 to Dec 2009.
- Grouping for analysis: 4 groups by the trainees’ discipline
  1. Group I: Physicians
  2. Group II: Nurses
  3. Group III: Respiratory Therapists
  4. Group IV: Others
- We compared the data of a pre-class survey (12 questions), pre-test knowledge score (26 questions), during-class performance evaluation (4 questions during each simulation session), and post-class evaluation questionnaire (51 questions) of each group.
- Statistical analysis:
  - SPSS version 13.0 for Windows
  - Fisher’s exact test with Monte Carlo method for categorical variables
  - ANOVA test and subsequent post hoc analysis with Tukey method for numerical variables
- Significant level: p-value < 0.05

RESULTS

- 631 trainees participated in one of 51 courses. 576 (94%) completed the pre-class survey and post-class evaluation. Responses of 150 doctors (26.2%), 348 nurses (60.6%), 48 (8.4%), and 27 others (4.7%) were compared.
- Disciplines of responders
  - Group I: 190 (82%)
  - Group II: 18 (10%)
  - Group III: 8 (4.4%)
  - Group IV: 11 (4.7%)

- Pre-course attitude toward full-scale patient simulation (5-point Likert scale: 1=strongly disagree, 5=strongly agree)

<table>
<thead>
<tr>
<th>Q1: My performance was chaotic (1=strongly agree, 5=strongly disagree)</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.07±0.94</td>
<td>2.29±0.77</td>
<td>1.98±0.81</td>
<td>1.98±0.81</td>
<td>0.001</td>
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- During-class performance evaluation of four groups

<table>
<thead>
<tr>
<th>Q2: Team’s performance was chaotic (1=strongly disagree, 5=strongly agree)</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.48±0.92</td>
<td>2.51±0.97</td>
<td>2.51±0.97</td>
<td>2.04±0.85</td>
<td>0.000</td>
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<thead>
<tr>
<th>Q3: The respondents worked well as a team (1=Strongly disagree, 5=Strongly agree)</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.14±0.98</td>
<td>3.15±0.96</td>
<td>3.77±0.66</td>
<td>1.95±0.81</td>
<td>0.012</td>
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</table>

- Post-class evaluation of four groups

<table>
<thead>
<tr>
<th>Q4: Class evaluation questionnaire (51 questions) of each group.</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>Group IV</th>
</tr>
</thead>
</table>
| I. General | Group I vs. Group II, p<0.05
| II. Simulation | Group II vs. Group III, p<0.05
| III. Curriculum | Group III vs. Group IV, p<0.05

- All values are presented as mean ± SD. p<0.05, Group I vs. Group II; p<0.05, Group II vs. Group III; *p<0.05, Group I vs. Group IV;

CONCLUSIONS

- In a simulation-based multidisciplinary medical emergency team training program, trainees in various disciplines may have slightly different attitudes toward simulation-based training and perception of their performance and teamwork at the beginning of a sequential multiple simulation based curriculum.
- However, by the end of the program, differences were not detectable, reflecting improved perceptions of their performance and teamwork.

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