



Impact of Interprofessional Simulation-Based Training on Enhancing Non-Technical Skills and Team Readiness in Pediatric Resuscitation

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ABSTRACT

BACKGROUND

Effective pediatric resuscitation relies on both technical proficiency and non-technical skills, including leadership, communication, and teamwork [1]. These skills enhance role clarity, situational awareness, and coordinated interprofessional responses under pressure [2]. Combined with technical performance, they improve outcomes, build confidence, and foster collaboration. Simulation-based training provides a structured environment to strengthen decision-making, task delegation, and closed-loop communication [3]. This study assessed the impact of interprofessional simulation-based pediatric resuscitation training on non-technical skills and team readiness.

METHODS

A pre/post interventional study was conducted at Al Wakra Hospital over 10 months starting December 2024, included 75 participants, comprising physicians and pediatric nurses, who were randomized into 12 teams with a designated leader for each team. 2.5-3 hours program following Advanced Life Support Group (ALSG) Guidelines, included a 1-hour interactive presentation and 1.5-2 hours of simulation scenarios, with 2-3 leaders trained per session with their teams. Each leader led a 10-15-minute pediatric resuscitation scenario with structured debriefing and faculty feedback. Pre-training scores were collected immediately before, and post-training scores after completion of entire mass training. Outcomes were measured using a validated 30-item non-technical skills checklist scored by independent observers with each item rated as 1 if demonstrated and 0 if not demonstrated (maximum possible score = 30), covering leadership, teamwork, and communication. Team readiness was assessed by post-training self-reported survey. Pre-post differences were analyzed with Wilcoxon signed-rank test.

RESULTS

Descriptive and inferential data analysis of normalized mean scores (0-1 scale, with 1 representing the maximum possible score: leadership = 10, teamwork = 14, communication = 6) demonstrated significant improvements in leadership (0.32 0.90, $p < 0.01$), teamwork (0.71 0.92, $p = 0.02$), and communication (0.20 0.88, $p < 0.01$) (Table 1). Participants likewise reported enhanced team readiness (Figure 1).

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CONCLUSION

Interprofessional simulation-based training markedly improved non-technical skills and team readiness in pediatric resuscitation.

KEYWORDS

PEDIATRIC RESUSCITATION, INTERPROFESSIONAL SIMULATION, SIMULATION-BASED TRAINING NON-TECHNICAL SKILLS, TEAMWORK AND COMMUNICATION

TABLE 1 - Pre- and post-training mean scores in non-technical skill domains among designated leaders (n=12)

Domain	n	Pre-training Mean Score	Post-training Mean Score	Mean Difference in Score	95% CI (Diff)	p-value
<i>Leadership Skills</i>	12	0.32	0.9	0.58	[0.19, 0.96]	<0.01*
<i>Collaborative Teamwork</i>	12	0.71	0.92	0.21	[0.02, 0.4]	0.02*
<i>Effective Communication</i>	12	0.2	0.88	0.68	[0.35, 1.01]	<0.01*

(*) denotes significant if $p < 0.05$

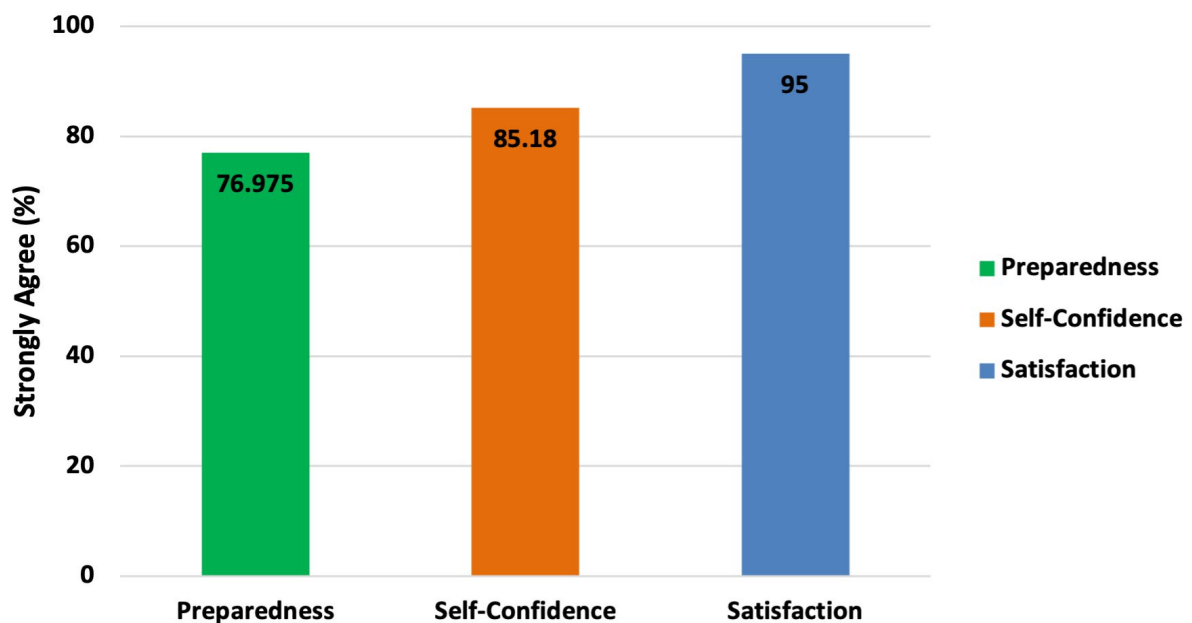


FIGURE 1 - Impact of Interprofessional Simulation Based Training on team readiness – Post-Training Outcomes.

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AUTHOR CONTRIBUTIONS

All authors contributed equally and validated the final version of record.

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DECLARATIONS

CONFLICTS OF INTERESTS

The Authors declare that there is no conflict of interest.

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REGISTRATION

No registration applicable.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL APPROVAL

The study was approved as Quality improvement project by Director of HITC and was exempted from ethical approval.

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