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EVALUATING THE IMPACT OF INTERPROFESSIONAL EDUCATION ON STUDENT COLLABORATION IN CLINICAL SETTINGS: A RANDOMIZED CONTROLLED TRIAL

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Abstract

Interprofessional education (IPE) is increasingly recognized as a critical component in preparing healthcare students for collaborative practice. This randomized controlled trial (RCT) aimed to evaluate the impact of an IPE intervention on student collaboration within clinical settings. A total of 120 students from medicine, nursing, pharmacy, and physiotherapy disciplines were randomly assigned to either an intervention group, which participated in a structured IPE program, or a control group, which received standard uniprofessional education. The intervention comprised joint workshops, simulation exercises, and collaborative clinical rotations over 12 weeks. Outcomes were measured using the Readiness for Interprofessional Learning Scale (RIPLS) and the Interprofessional Collaborative Competency Attainment Survey (ICCAS) at baseline and post-intervention. Statistical analysis revealed significant improvements in the intervention group compared to the control group in both RIPLS and ICCAS scores ($p < 0.001$), indicating enhanced readiness and competency for interprofessional collaboration. These findings suggest that structured IPE interventions can effectively foster collaborative skills among healthcare students, potentially leading to improved patient care outcomes.

Keywords: Interprofessional Education, Student Collaboration, Clinical Training

Introduction

The complexity of modern healthcare necessitates a collaborative approach among various health professionals to ensure comprehensive patient care. Interprofessional education (IPE), defined as occasions when two or more professions learn with, from, and about each other to improve collaboration and the quality of care, has been advocated as a means to prepare students for such collaborative practice. The World Health Organization emphasizes the importance of IPE in fostering interprofessional collaboration (IPC) to enhance health outcomes. [1- 3 Despite] the recognized importance of IPE, its integration into health professions education varies widely, and evidence regarding its effectiveness, particularly in clinical settings, remains limited. Previous studies have primarily focused on classroom-based IPE, with less attention to its impact during clinical training, where collaborative skills are crucial. Furthermore, methodological limitations, such as small sample sizes and lack of control groups, have hindered the ability to draw definitive conclusions about the effectiveness of IPE interventions. [4-7]

Recent systematic reviews have highlighted the need for high-quality research to assess the outcomes of IPE, particularly using robust study designs like randomized controlled trials (RCTs). Such studies can provide stronger evidence on the impact of IPE on student collaboration and subsequent patient care. Moreover, the use of validated assessment tools, such as the Readiness for Interprofessional Learning Scale (RIPLS) and the Interprofessional Collaborative Competency Attainment Survey (ICCAS), can enhance the reliability of outcome measurements [8-12]

In this context, the present study aims to evaluate the impact of a structured IPE intervention on student collaboration within clinical settings using an RCT design. By focusing on clinical training environments, this study seeks to address the gap in the literature regarding the effectiveness of IPE during the crucial phase of professional socialization. The findings are expected to inform curriculum development and educational policies aimed at enhancing interprofessional collaboration among future healthcare professionals.

Methodology

This randomized controlled trial was conducted at the Department of Psychiatry, Gajju Khan Medical College, Swabi, KPK, over six months. A total of 120 final-year students from medicine, nursing, pharmacy, and physiotherapy programs were recruited. Sample size calculation was performed using Epi Info software, considering an expected effect size of 0.5, a power of 80%, and a significance level of 0.05, resulting in 60 participants per group. Participants were randomly assigned to either the intervention group, which received the IPE program, or the control group, which continued with standard uniprofessional education.

The IPE intervention comprised joint workshops focusing on communication, teamwork, and role clarification; simulation exercises involving interprofessional scenarios; and collaborative clinical rotations where students worked together in patient care under supervision. The program spanned 12 weeks, with sessions held weekly. The control group participated in traditional clinical rotations without structured interprofessional activities.

Inclusion criteria encompassed final-year students from the specified disciplines who provided informed consent. Exclusion criteria included prior participation in formal IPE programs and inability to commit to the study schedule. Verbal informed consent was obtained from all participants, and the study was approved by the institutional ethics committee.

Outcome measures included the Readiness for Interprofessional Learning Scale (RIPLS) and the Interprofessional Collaborative Competency Attainment Survey (ICCAS), administered at baseline and after the intervention. Data were analyzed using SPSS version 25.0. Descriptive statistics summarized demographic data, while paired and independent t-tests assessed within-group and between-group differences, respectively. A p-value of less than 0.05 was considered statistically significant.

Results

Table 1: Demographic Characteristics of Participants

Variable	Intervention Group (n=60)	Control Group (n=60)	p-value
Mean Age (years)	23.4 ± 1.2	23.6 ± 1.3	0.45
Gender (Male/Female)	28/32	30/30	0.68
Discipline			
- Medicine	15	15	-
- Nursing	15	15	-
- Pharmacy	15	15	-
- Physiotherapy	15	15	-

Note: No significant differences in demographic variables between groups.

Table 2: RIPLS Scores Pre- --- and Post-Intervention

Group	Pre-Intervention Mean ± SD	Post-Intervention Mean ± SD	p-value
Intervention	65.2 ± 5.1	78.4 ± 4.3	<0.001
Control	64.8 ± 5.3	66.1 ± 5.0	0.12

Note: Significant improvement in RIPLS scores observed in the intervention group.

*Table

Table 3: ICCAS Scores Pre- and Post-Intervention

Competency Domain	Intervention Group (Pre) Mean ± SD	Intervention Group (Post) Mean ± SD	Control Group (Pre) Mean ± SD	Control Group (Post) Mean ± SD	p-value (Between Groups Post)
Communication	3.4 ± 0.5	4.5 ± 0.3	3.5 ± 0.4	3.6 ± 0.4	<0.001
Collaboration	3.3 ± 0.6	4.6 ± 0.3	3.4 ± 0.5	3.5 ± 0.5	<0.001
Role Clarification	3.2 ± 0.4	4.4 ± 0.3	3.3 ± 0.4	3.4 ± 0.4	<0.001
Conflict Management	3.1 ± 0.5	4.2 ± 0.4	3.2 ± 0.5	3.3 ± 0.4	<0.001

Note: Statistically significant improvements were observed across all ICCAS domains in the intervention group compared to the control group post-intervention.

Discussion

The findings of this randomized controlled trial strongly support the efficacy of structured interprofessional education (IPE) interventions in enhancing collaborative competencies among healthcare students. The statistically significant improvements in both RIPLS and ICCAS scores post-intervention reflect heightened readiness and skills for interprofessional collaboration. These outcomes align with current global educational priorities emphasizing team-based care and collaborative practice models.[13-16]

The marked improvement in the communication and collaboration domains among the intervention group highlights the centrality of interactive learning modalities, such as simulation and shared clinical rotations, in fostering interprofessional trust and team synergy. Simulation-based IPE, in particular, has been increasingly validated for its role in bridging professional silos and cultivating real-time decision-making abilities among diverse healthcare students.[17]

Moreover, the data demonstrate that structured IPE contributes substantially to role clarification and conflict management—two core competencies identified by the Interprofessional Education Collaborative framework.[18] The integration of real-case scenarios in clinical settings helped students internalize each profession's contributions to patient care, a factor critical to reducing hierarchical biases and fostering mutual respect.[19]

Our results mirror recent evidence indicating that early and longitudinal exposure to IPE produces sustained improvements in collaborative behaviors, which are linked to patient safety and improved outcomes.[20] These educational interventions, when implemented during clinical years, maximize authenticity and relevance, enhancing learner engagement and knowledge retention.[21]

Another noteworthy aspect is the sustained improvement in RIPLS scores, particularly in attitudes toward shared learning, which suggests that the intervention may positively shape long-term professional identity formation and reduce interprofessional tension in future practice.[22] This is crucial, as attitudes formed during pre-licensure years often influence interprofessional dynamics in real-world healthcare teams.[23]

While our trial demonstrated robust improvements, it also revealed the limitations of traditional, uniprofessional curricula in cultivating essential teamwork competencies. Students in the control group showed negligible gains, reinforcing the argument that collaborative abilities do not automatically emerge from parallel training but must be deliberately taught and reinforced.[24]

In summary, the present study contributes strong empirical support for embedding IPE into healthcare curricula using immersive and clinically integrated models. This aligns with recent reforms in educational accreditation standards globally, which now require demonstrable interprofessional competence at graduation.[25] These findings advocate for scaling up such interventions to institutional and national levels to prepare a collaborative-ready health workforce.[26]

Conclusion

Structured interprofessional education significantly enhances students' readiness and competency for collaborative clinical practice. This study fills critical gaps in empirical evidence supporting clinically integrated IPE and reinforces the call for systemic inclusion of interprofessional models in health education. Future research should focus on long-term behavioral changes and patient-centered outcomes linked to IPE.

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