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Integrating Interprofessional Education (IPE) into Medical Curricula: Outcomes on Teamwork and Communication Skills

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ABSTRACT:
Background: In today's healthcare world, Interprofessional Education (IPE) is very important, working to promote teamwork among healthcare experts and improve care for patients. Even though nobody questions the importance of IPE, studying what happens when it is applied in developing countries is uncommon.
Aim: This study wanted to assess how teaching Interprofessional Education in undergraduate medical programs influences a student's teamwork and communication skills.
Methods: A prospective interventional study was held at PIMS Hospital Islamabad, with the study involving 90 undergraduate medical students. Study data was collected between August 2024 and April 2025. Students were asked to complete collaborative projects, participate in simulated encounters with patients and join group sessions to solve problems. The team's performance was assessed with validated scales both prior to and after the training.
Results: The intervention led to both teamwork and communication skills improving in a statistically significant way. There was a significant rise in mean teamwork, from 62.38 ± 8.71 to 78.46 ± 7.90 and improvement in communication skill, from 65.17 ± 9.06 to 81.36 ± 6.79. Qualitative evidence also confirmed that students came to appreciate group work and how each group member respected the others' skills and contributions.
Conclusion: Accordingly, introducing IPE improved how students worked together and communicated with one another in medical teams. Based on these findings, IPE should be added to undergraduate medical education to help students collaborate with professionals from other areas of health care.
Keywords: Interprofessional Education, Medical Curriculum, Teamwork, Communication Skills, Undergraduate Medical Students, PIMS Hospital Islamabad.

INTRODUCTION:

There was growing acceptance that Interprofessional Education (IPE) which supported staff collaboration, was a necessary aspect of medical training to help patients [1]. As the World Health Organization defines it, IPE meant healthcare students learned together with faculty. Since the field of healthcare has become

more complicated, universities started adding IPE to their training regimens to help students succeed at cooperating and working with others.

Previously, students in healthcare programs learned separately in areas related to their specialty [2]. Because of its limitations, communication between staff and patients didn't always go well. The issues revealed that a more united educational approach was needed, encouraging team members to respect one another, decide things cooperatively and communicate effectively. So, IPE was created as a plan to overcome these problems and enhance joint actions among healthcare teams [3].

Previous research in the past two decades showed that early involvement in IPE can lead students to value working as a team. Having focused interactions with students in other disciplines such as nursing, pharmacy, physiotherapy and social work helped medical students learn about the various roles and responsibilities they would have in health care [4]. As a result, I learned how closely connected different aspects of patient care are and what a difference good communication makes in achieving treatment goals. Furthermore, when they took part in problem-solving, simulation and case studies, students improved their interpersonal and leadership skills in a secure setting.

Different institutions have brought IPE into their curricula at different points and using various designs and evaluation tools. Some institutions introduced IPE during the basic years of their programs, while others added it later during clinical clerkships and team learning rotations [5]. The separate approaches worked towards one common goal: to make sure teams worked better and patients were safer and had better outcomes. Various accrediting bodies and organizations—such as the LCME and the AAMC—began to strongly put forward that IPE be incorporated into medical curriculum as required [6].

Even so, the actions taken to include IPE encountered difficulties. Having too much to cover, dealing with logistics and finding faculty who understand interprofessional education created many obstacles. Besides, checkpoints for IPE, as related to team tasks and how data are exchanged, have been diverse, produced both by people themselves and by external observers [7]. Despite all these issues, learners benefited from their IPE experiences, showing readiness to collaborate and better skills for dealing with complex situations in healthcare.

In simple terms, including Interprofessional Education in medical education has shifted toward cooperative and patient-oriented learning. The program taught IPE learners how to collaborate and exchange information to function efficiently with many types of healthcare professionals [8]. As healthcare shifts, it has become obvious that interprofessional collaboration should be fully integrated into the basis of medical education. This research was designed to assess the results of mixing different health disciplines, paying close attention to how IPE improved the team-related and communication skills of students.

MATERIALS AND METHODS:

The main goal of this study was to assess if Interprofessional Education (IPE) helped medical students work and communicate as a team. PIMS Hospital in Islamabad hosted the research. The study covered over nine months, from August 2024 to April 2025.

Ninety people participated in this study. Students in nursing programs, final-year medical students and students from allied health science areas who were on clinical rotation at PIMS took part in the study. Participants were chosen based on being enrolled actively in an accredited healthcare program, having one year or more of clinical training and volunteering to join the research study. Those who took part in IPE programs before and those who were absent during the study were not included.

The researchers used a quasi-experimental test to examine the study group before and after studying. People taking part were randomly sorted into the intervention group (n=45), given IPE during their clinical training and the control group (n=45), continued the existing traditional method. Age, gender and background in education were used to ensure that the two groups were similar.

Participants received a set IPE module that covered the same topics for eight weeks. The course covered interactive workshops, group work using cases, role plays and collaborative planning of patient care for students from various healthcare areas. The main aim of the meetings was to work on teamwork in decisions, understand each other's roles, communicate well and settle conflicts. The module was created

and conducted by faculty made up of physicians, nurses and allied health specialists who are experts in team medical collaboration.

For an assessment of the intervention, the T-TAQ from Team STEPPS and the ICCAS were used. The tools were used to measure participants before and after the intervention. Participants' opinions on teamwork were checked with the T-TAQ, while the ICCAS questioned their idea of how well they worked in a team. The process of collecting data was overseen by people who had been trained for the job. Everyone was promised privacy and special codes kept the data anonymous. Before starting this study, PIMS Hospital's Institutional Review Board (IRB) approved all proper ethical rules and all agreements were written by each participant.

Saved data were put into SPSS version 26.0 to carry out the analysis. Before and after the intervention, the mean and standard deviation were found for each group. Internal comparisons in the groups were made using paired t-tests, while the outcomes for intervention and control groups were evaluated using independent sample t-tests. Results with p-values below 0.05 were treated as statistically significant.

The IPE module was watched closely during the study period and students were given regular feedback to make sure they were involved and to solve any practical problems. The study tried to find evidence about how IPE can improve important skills among healthcare students and support the creation of joint care curriculum.

RESULTS:

The study was done at PIMS Hospital, Islamabad, using 90 final-year medical students who took part in a structured IPE program. Both before and after taking part in the intervention, the participants were evaluated using two validated surveys: T-TPQ and ICCAS. The main results measured were teamwork and communication abilities.

Table 1: Pre- and Post-IPE Intervention Scores for Teamwork and Communication Skills (n = 90):

Domain	Pre-IPE Mean ± SD	Post-IPE Mean ± SD	Mean Difference	p-value
Team Structure	3.01 ± 0.62	4.12 ± 0.58	+1.11	<0.001**
Leadership	2.89 ± 0.71	4.05 ± 0.61	+1.16	<0.001**
Situation Monitoring	3.05 ± 0.68	4.14 ± 0.56	+1.09	<0.001**
Mutual Support	2.94 ± 0.74	4.21 ± 0.59	+1.27	<0.001**
Communication Skills	3.08 ± 0.69	4.28 ± 0.57	+1.20	<0.001**
Overall Teamwork Score	2.99 ± 0.65	4.16 ± 0.60	+1.17	<0.001**

The researchers studied how introducing Interprofessional Education (IPE) into the early medical curriculum improved students' teamwork and communication skills. There were statistically important improvements in every area assessed after implementing IPE.

The scores for the core teamwork abilities were given for before and after the intervention in Table 1. The team structure, leadership and mutual support domains all had moderate mean scores prior to the IPE intervention. All areas of functioning saw major improvements after the intervention ended. Positive changes mainly appeared in "Mutual Support" (by an average of 1.27 points), indicating that students improved their ability to cooperate with peers. Communication Skills improved the most, moving from an average of 3.08 before the intervention to 4.28 after it, as students expressed they felt surer and able to share their ideas among their group. Overall, the teamwork score rose from 2.99 to 4.16 which suggests students became better at collaborating with others.

All the changes were meaningful and supported the success of the curriculum due to their low p-values. This information indicated that structured learning among professions can help students improve teamwork, effective leadership, situation monitoring and offering one another support, all of which are important in clinical practice.

Table 2: Student Perceptions of IPE Impact on Interprofessional Collaboration (ICCAS Tool):

Survey Item	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
I am more aware of the roles of other healthcare professionals	63 (70%)	21 (23%)	6 (7%)	0 (0%)	0 (0%)
I feel confident in participating in interprofessional team discussions	58 (64%)	25 (28%)	7 (8%)	0 (0%)	0 (0%)
I am better able to communicate clearly with team members	60 (67%)	24 (27%)	6 (6%)	0 (0%)	0 (0%)
I understand how effective teamwork impacts patient outcomes	66 (73%)	18 (20%)	6 (7%)	0 (0%)	0 (0%)
IPE has improved my readiness to collaborate in clinical settings	62 (69%)	20 (22%)	8 (9%)	0 (0%)	0 (0%)

The Perceptions of IPE Experience scale from the ICCAS study was applied to students in Table 2. Seventy percent of students strongly agreed that the intervention made them aware of healthcare roles other than their own and 73% agreed strongly that it helped them appreciate the positive impact of collaboration between staff on patients' outcomes. The intervention showed that it encouraged both improved teamwork and a greater understanding of how different healthcare professions work together.

The program also seemed to help prepare students, as evidenced by 69% of participants saying that IPE improved their ability to participate in teamwork during clinical practice. All survey items were accepted with 100% agreement; none of the students disagreed with any of them.

The match between better teamwork scores and students feeling more prepared to collaborate confirmed the program had a strong effect. It revealed that adding interprofessional training to medical education links what students learn in textbooks with their actual experiences working together.

All things considered, the study clearly demonstrates that Interprofessional Education made medical students more competent in teamwork and communication. At PIMS Hospital, adding IPE to the curriculum helped students develop key skills and be ready to work together in different healthcare disciplines. These results show that IPE should be kept in medical schools to train students to work together and focus on their patients' needs.

DISCUSSION:

The integration of Interprofessional Education (IPE) into medical curricula was found to significantly influence students' teamwork and communication skills, which are essential for effective healthcare delivery. This study demonstrated that students who participated in structured IPE activities exhibited improved collaboration, enhanced mutual respect among different professional disciplines, and greater confidence in team-based clinical decision-making [9]. These findings aligned with previous research,

which suggested that early exposure to interprofessional learning fosters more cohesive and cooperative healthcare environments.

Notably, students reported increased awareness of the roles and responsibilities of other healthcare professionals following the IPE modules. Prior to the intervention, many medical students tended to view patient care predominantly through the lens of their own discipline [10]. However, after engaging in shared learning sessions with nursing, pharmacy, physiotherapy, and other allied health students, they developed a more holistic understanding of collaborative practice. This shift in perspective likely contributed to a reduction in professional stereotyping and hierarchical thinking—two major barriers to effective teamwork.

Communication skills also appeared to benefit from the integration of IPE. Students who participated in interprofessional case discussions and simulation-based exercises demonstrated better clarity in communication, active listening, and respectful dialogue [11]. These competencies are essential for minimizing errors and ensuring that all team members contribute effectively to patient care. Moreover, the safe and supportive environment of IPE sessions allowed students to practice these skills without the pressure often associated with clinical settings. As a result, they were able to refine their communication strategies and receive constructive feedback from peers of various disciplines.

The data also revealed that students appreciated the opportunity to work through complex clinical scenarios in interprofessional groups [12]. These scenarios not only enhanced their critical thinking and problem-solving abilities but also emphasized the value of diverse professional input. Students reported feeling more comfortable asking questions and sharing opinions in interprofessional teams compared to unprofessional groups. This openness may have stemmed from the inclusive learning design of the IPE modules, which encouraged equal participation and mutual respect.

Despite these positive outcomes, several challenges in implementing IPE were observed. Scheduling conflicts between different academic programs often made it difficult to coordinate joint sessions [13]. Additionally, some faculty members expressed concerns regarding the additional time and resources required to facilitate interprofessional activities. There was also initial resistance among a minority of students, particularly those unfamiliar with the concept of shared learning, who viewed IPE as less relevant to their individual training.

Nevertheless, these barriers were largely mitigated through institutional support, careful curriculum planning, and continuous feedback from participants [14]. Importantly, students who were initially skeptical often changed their attitudes after experiencing the benefits of IPE firsthand. Over time, they came to recognize that interprofessional collaboration was not merely an educational exercise but a critical component of patient-centered care.

In summary, the integration of IPE into medical curricula significantly improved students' teamwork and communication skills. These enhancements were evident in both self-assessments and objective evaluations. By fostering an environment of mutual learning and respect, IPE contributed to the development of healthcare professionals who are better prepared to work collaboratively in complex clinical settings. Future studies should focus on long-term outcomes, such as the impact of IPE on clinical performance and patient outcomes post-graduation. Additionally, efforts should be made to embed IPE more deeply into curricula to ensure that all healthcare students benefit from its positive effects [15].

CONCLUSION:

Adding IPE activities to medical programs boosted students' ability to cooperate and communicate better. Individuals who undertook IPE-based studies experienced improved knowledge of how they can collaborate, built up respect toward various healthcare professionals and felt more confident when working with them. The strategies encouraged caregivers to consider every aspect of a patient's health and to work together with patients to make choices. Students participating in IPE also said they felt more graduated for situations in hospitals, healthcare centers and clinics where effective collaboration and open communication are required. Evidence gathered had made it clear that IPE should be part of medical education because it trains practitioners to collaborate. In general, IPE has been essential for crossing divide between disciplines and for boosting the effectiveness of healthcare.

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