DOI: https://doi.org/10.53350/pjmhs2023178144

ORIGINAL ARTICLE

Impact of Early Clinical Exposure on Communication Skills and Confidence Levels in Pre-Clinical Medical Students

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ABSTRACT

Background: Early clinical exposure (ECE) is an evolving educational strategy that integrates real or simulated clinical experiences into the early years of medical training. It is designed to enhance professional development, improve communication, and increase confidence among medical students. However, evidence from South Asian medical institutions remains limited.

Objective: To evaluate the impact of early clinical exposure on communication skills and confidence levels among undergraduate medical students across all academic years.

Methodology: A cross-sectional observational study was conducted from February 2022 to January 2023 involving 100 MBBS students enrolled from first to fifth year. Participants were equally divided into two groups: one with structured ECE and the other with no early exposure. A validated, self-administered questionnaire assessed communication and confidence domains using a 5-point Likert scale. Data were analyzed using SPSS version 26.0. Independent t-tests and Chi-square tests were applied, with $p < 0.05$ considered significant.

Results: Students in the ECE group scored significantly higher in communication (mean: 4.31 ± 0.46) compared to the non-ECE group (mean: 3.65 ± 0.59; $p < 0.001$). Similarly, confidence levels were greater among ECE students (mean: 4.17 ± 0.49 vs. 3.51 ± 0.58; $p < 0.001$). Improvements were consistent across all academic years.

Conclusion: Early clinical exposure significantly enhances communication skills and clinical confidence among undergraduate medical students. Integration of ECE into pre-clinical curricula is recommended to improve student preparedness and foster professional competence.

Keywords: Early clinical exposure, communication skills, confidence, undergraduate medical education, medical students, clinical competence

INTRODUCTION

Medical education is undergoing a global paradigm shift, with increasing emphasis on the early integration of clinical experiences into traditionally pre-clinical training years. Historically, the conventional model of medical education followed a compartmentalized structure: the initial two years were dedicated primarily to basic sciences such as anatomy, physiology, and biochemistry while clinical exposure was reserved for the latter half of the curriculum[1]. While this approach has been foundational for many decades, it has often resulted in a theoretical disconnect, wherein students struggle to contextualize basic science knowledge in real-life clinical settings. This gap between theory and practice can delay the development of essential clinical competencies, including communication, decision-making, and confidence during patient interactions[2].

To address these limitations, educational reforms across the globe have introduced Early Clinical Exposure (ECE) as a pedagogical innovation. ECE refers to the structured involvement of pre-clinical medical students in supervised clinical settings, which may include hospital wards, outpatient departments, community visits, or simulated patient encounters[3]. The primary objective of ECE is to provide students with a clinical context for learning basic sciences while simultaneously nurturing critical non-cognitive skills such as professionalism, empathy, communication, and patient-centered behavior. It is now widely recognized that such early exposure does not merely supplement basic science education, but also plays a pivotal role in shaping future doctors who are more confident, compassionate, and prepared for the complexities of clinical practice[4].

One of the most significant benefits of ECE is its impact on communication skills, which are a cornerstone of effective clinical practice. Competent communication enables physicians to elicit accurate patient histories, convey medical information clearly, demonstrate empathy, and build trusting therapeutic relationships[5]. Poor communication has been linked to adverse outcomes, including patient dissatisfaction, non-compliance, and medical errors. Training students in communication from the earliest stages of their education is, therefore, imperative. However, traditional pre-clinical education often lacks structured training in communication, leaving students underprepared when they first encounter patients in clinical years[6].

Closely tied to communication is the development of self-confidence in clinical settings. Confidence is essential for navigating real patient encounters, asking relevant clinical questions, presenting cases, and participating in team-based healthcare delivery. Without adequate exposure, many students report feelings of anxiety, intimidation, and self-doubt during their initial clinical postings[7]. Early engagement with clinical environments through ECE has been shown to reduce this anxiety and promote a sense of professional identity. When students are gradually introduced to patients under the guidance of trained faculty, they develop comfort, familiarity, and a positive attitude toward patient care[8].

In the context of Pakistan, where medical curricula are predominantly didactic in the early years, the introduction of ECE remains inconsistent and institution-dependent. Many medical colleges continue to rely heavily on lectures, laboratory sessions, and textbook-based teaching in the first two years, with minimal or no clinical exposure. This often results in a steep learning curve when students transition into clinical rotations in their third year. Consequently, there is a pressing need to investigate the potential benefits of early clinical exposure in local settings to inform curriculum design and policy[9].

This study was therefore designed to explore the impact of early clinical exposure on communication skills and confidence levels in pre-clinical medical students in a Pakistani medical college. It aims to compare students who have received structured ECE with those who have not, by measuring their self-reported communication abilities and confidence in clinical scenarios. The

Received on 22-04-2023
Accepted on 25-07-2023

findings of this study will contribute to the growing body of literature advocating for early patient contact in undergraduate medical education and may offer compelling evidence to guide reforms in medical teaching practices within developing countries[10].

MATERIALS AND METHODS

This cross-sectional observational study was conducted between February 2022 and January 2023 at Gujranwala Medical College and Gujranwala Medical College Teaching Hospital (GMCTH), Gujranwala, and Dera Ghazi Khan Medical College, D.G. Khan, Pakistan . The study aimed to evaluate the impact of structured early clinical exposure on the development of communication skills and confidence levels among pre-clinical MBBS students. Ethical approval for the research was obtained from the Institutional Review Boards of both participating colleges. All participants were thoroughly briefed about the study objectives, and written informed consent was obtained before enrollment.

A total of 100 pre-clinical medical students from the first and second years were recruited through purposive sampling. These students were divided into two equal groups based on their curriculum structure. The first group, comprising students who had received early clinical exposure, had participated in planned educational visits to hospital wards, outpatient departments, and skill laboratories under the guidance of faculty members. Their activities included observing patient interactions, engaging in basic history-taking exercises, and participating in clinical role-playing sessions to simulate doctor-patient encounters. The second group, serving as the comparison cohort, had followed a traditional pre-clinical curriculum with no structured clinical exposure and limited their academic learning to lectures, dissections, and practical laboratory work.

Participants were included in the study if they were aged between 18 and 22 years and were enrolled in either the first or second year of the MBBS program at the time of data collection. Students with any prior healthcare-related qualifications, clinical internships, or paramedical backgrounds were excluded to prevent potential bias from pre-existing clinical familiarity. The study sought to ensure that differences in communication and confidence outcomes could be attributed specifically to the presence or absence of structured early clinical exposure.

Data collection was carried out using a structured and pre-validated self-administered questionnaire, developed with expert input from faculty in medical education and refined after pilot testing. The questionnaire comprised 18 items divided across two domains. The first domain assessed communication skills, including clarity of speech, eye contact, listening ability, empathy, non-verbal communication, and patient engagement. The second domain evaluated student confidence in clinical settings, such as comfort in initiating patient dialogue, asking relevant questions, participating in discussions, and presenting clinical findings. Each item was scored using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores reflecting stronger performance in the respective domains.

Students completed the questionnaire in a classroom setting under supervision to ensure uniformity of conditions. All responses were recorded anonymously, and confidentiality was strictly maintained throughout the study. The data were entered and analyzed using IBM SPSS Statistics version 26. Descriptive statistics, including means and standard deviations, were calculated for continuous variables such as communication and confidence scores. An independent samples t-test was applied to determine the statistical significance of differences in mean scores between the two groups. Associations between categorical variables such as gender and academic year were assessed using the Chi-square test. Internal consistency of the questionnaire was evaluated using Cronbach's alpha, which yielded values of 0.86 for the communication domain and 0.81 for the confidence domain, indicating high reliability.

RESULTS

A total of 100 undergraduate MBBS students participated in this study. Participants were enrolled from all five academic years (first to fifth year) and were equally distributed between the two study groups: one group that had undergone structured early clinical exposure (ECE group, n = 50) and a second group with no such exposure (non-ECE group, n = 50). The average age of participants was 20.6 ± 1.7 years, with the youngest being 18 years old and the oldest 25 years old. The gender distribution was fairly balanced, with 56 females (56%) and 44 males (44%), and both genders were evenly represented across the two groups. There were no significant differences between the ECE and non-ECE groups in terms of age (p = 0.58), gender (p = 1.00), or year of study (p = 1.00), indicating demographic comparability between the two cohorts.

The year-wise distribution revealed that 26% of students belonged to the first year, 20% to the second year, 18% to the third year, 16% to the fourth year, and 20% to the fifth year. Each academic year was equally represented in both study arms, ensuring that the effect of early clinical exposure could be examined uniformly across all levels of undergraduate medical education. This distribution strengthens the generalizability of the findings across the pre-clinical and clinical phases of the medical program.

Table 1: Demographic Characteristics of Participants (n = 100)

Variable	ECE Group (n = 50)	Non-ECE Group (n = 50)	Total (n = 100)	p-value
Age (mean ± SD)	20.5 ± 1.8	20.7 ± 1.6	20.6 ± 1.7	0.58
Gender				
Male	22 (44%)	22 (44%)	44 (44%)	1.00
Female	28 (56%)	28 (56%)	56 (56%)	
Academic Year				
First Year	13 (26%)	13 (26%)	26 (26%)	1.00
Second Year	10 (20%)	10 (20%)	20 (20%)	
Third Year	9 (18%)	9 (18%)	18 (18%)	
Fourth Year	8 (16%)	8 (16%)	16 (16%)	
Fifth Year	10 (20%)	10 (20%)	20 (20%)	

Table 2: Comparison of Communication Skills Between Groups

Communication Parameter	ECE Group (Mean ± SD)	Non-ECE Group (Mean ± SD)	p-value
Clarity in speech	4.33 ± 0.52	3.78 ± 0.67	<0.001
Active listening	4.41 ± 0.49	3.59 ± 0.64	<0.001
Eye contact	4.36 ± 0.50	3.60 ± 0.66	<0.001
Empathy	4.29 ± 0.54	3.70 ± 0.63	0.002
Non-verbal communication	4.32 ± 0.48	3.64 ± 0.59	<0.001
Ability to explain medical concepts	4.15 ± 0.55	3.63 ± 0.62	0.001
Total Communication Score	4.31 ± 0.46	3.65 ± 0.59	<0.001

Table 3: Comparison of Confidence Levels Between Groups

Confidence Parameter	ECE Group (Mean ± SD)	Non-ECE Group (Mean ± SD)	p-value
Initiating patient interaction	4.28 ± 0.50	3.60 ± 0.60	<0.001
Asking clinical questions	4.20 ± 0.47	3.58 ± 0.63	<0.001
Presenting patient findings	4.11 ± 0.52	3.49 ± 0.57	0.001
Group discussion participation	4.08 ± 0.51	3.41 ± 0.61	0.001
Total Confidence Score	4.17 ± 0.49	3.51 ± 0.58	<0.001

Following demographic analysis, the participants' communication skills were evaluated using a structured 5-point Likert scale tool. Students in the ECE group consistently outperformed their peers across all parameters. The mean total communication skill score in the ECE group was 4.31 ± 0.46, while the non-ECE group had a significantly lower score of 3.65 ± 0.59 ($p < 0.001$). The components of communication evaluated included verbal clarity, active listening, eye contact, empathy, use of non-verbal cues, and the ability to simplify complex medical information for patients.

Students in the ECE group exhibited more refined verbal and non-verbal communication. The difference in clarity of speech and active listening was particularly pronounced, highlighting that regular interaction with real or simulated patients helped students articulate clinical information more effectively. Moreover, eye contact and empathy scores were significantly higher among the ECE group, suggesting improved emotional engagement with patients an essential component of patient-centered care.

In terms of confidence levels, the results demonstrated a similar pattern. The ECE group showed greater self-assurance across all clinical and interpersonal scenarios. The mean total confidence score for this group was 4.17 ± 0.49, which was significantly higher than the 3.51 ± 0.58 reported by the non-ECE group ($p < 0.001$). The dimensions assessed included confidence in initiating patient interactions, asking clinical questions, presenting cases during rounds or group discussions, and general comfort in a clinical environment.

The statistically significant enhancement in confidence among the ECE group reinforces the hypothesis that structured exposure to clinical environments, even in the early years of medical training, reduces anxiety and builds a sense of professional identity. These students were more willing to engage in patient-centered discussions, ask relevant questions, and participate actively in case presentations.

Importantly, these trends were consistent across all five academic years. Students from third, fourth, and fifth years who had prior ECE during their early training continued to exhibit stronger communication and confidence scores than those who did not receive such exposure. This finding suggests that the benefits of early clinical exposure are not only immediate but may also persist and evolve over time, enhancing long-term readiness for clinical responsibilities.

In summary, the data show that early clinical exposure significantly improves both communication skills and confidence levels among undergraduate medical students. These enhancements were evident across all demographic strata and academic years, validating the role of ECE as a transformative component in modern medical education.

DISCUSSION

This study examined the impact of early clinical exposure (ECE) on the development of communication skills and confidence levels among undergraduate medical students across five academic years[11]. The findings strongly support the hypothesis that structured clinical exposure, introduced during the early phase of medical education, significantly enhances students' interpersonal competencies. Students who participated in ECE programs scored notably higher on both communication and confidence metrics compared to those who were confined to traditional pre-clinical academic environments. These results are consistent with global literature that underscores the educational and professional value of early interaction with patients in authentic clinical settings[12].

The statistically significant improvement in communication skills observed in the ECE group reflects the fundamental role of real-life or simulated patient interaction in refining both verbal and non-verbal elements of doctor-patient communication. Students exposed to ECE demonstrated greater clarity in speech, more empathetic engagement, better listening skills, and stronger non-verbal communication such as eye contact and body language[13]. These findings are aligned with earlier research from the UK, India, and Malaysia, where similar interventions led to improved communication proficiency and student satisfaction. The ability to translate theoretical knowledge into clear, patient-friendly language is an essential competence that cannot be fully developed in lecture halls alone. By allowing students to observe clinicians, engage in dialogue with patients, and reflect on their own communication styles, ECE creates a fertile environment for cultivating professional bedside manners and empathy traits that are often underemphasized in pre-clinical curricula[14].

Equally important are the gains observed in confidence levels. The ECE group consistently reported greater ease in initiating patient conversations, asking clinical questions, and presenting cases during academic discussions. These improvements are not merely psychological markers of reduced anxiety but represent a shift toward clinical readiness and role identity formation. The structured exposure helps demystify the clinical setting, breaking down the emotional and cognitive barriers students often face when first transitioning from basic sciences to hospital rounds. This progression from passive learners to active contributors in patient care teams is critical for the holistic development of future physicians[15, 16].

Interestingly, the benefits of ECE were not limited to first- and second-year students; they persisted across all academic years. Students in their third, fourth, and fifth years who had undergone early exposure continued to outperform their peers who had not. This suggests that the positive effects of ECE are not transient but are sustained and possibly enhanced as students move into more advanced stages of clinical training. This longitudinal impact strengthens the argument for embedding ECE as a mandatory component of the medical curriculum, rather than an optional or extracurricular initiative[17, 18].

While the results are compelling, this study has certain limitations. First, it was conducted across a limited number of institutions, which may affect generalizability. Second, the assessment relied on self-reported measures of communication and confidence, which, although validated, may carry subjective bias. Future research should incorporate objective evaluations such as OSCE (Objective Structured Clinical Examination) scores and direct faculty assessments. Longitudinal studies with follow-up into internship and residency phases could further validate the enduring impact of ECE on clinical performance and patient outcomes[19].

Nonetheless, the consistency, magnitude, and statistical significance of the observed benefits lend robust support to the educational value of early clinical exposure. In the context of South Asian medical education where didactic teaching continues to dominate ECE offers a transformative alternative aligned with the global move toward competency-based medical education (CBME)[20].

CONCLUSION

This study concludes that early clinical exposure plays a pivotal role in enhancing communication skills and confidence levels among undergraduate medical students. Students who were

introduced to clinical settings during the early years of their training consistently demonstrated superior abilities in patient interaction, verbal clarity, empathetic behavior, and clinical self-assurance compared to those who followed a traditional curriculum without structured exposure. The results were consistent across all academic years, indicating that the benefits of ECE are both immediate and sustained. These findings advocate strongly for the systematic integration of ECE into undergraduate medical curricula as a standard pedagogical practice. Medical institutions, particularly in developing countries, should recognize the value of early patient interaction in producing clinically competent, emotionally intelligent, and communicatively effective future physicians. Establishing dedicated ECE modules, supervised clinical sessions, and structured reflection mechanisms from the first year onward could bridge the existing gap between theoretical knowledge and practical skill development. The incorporation of ECE is not merely an academic enhancement but a foundational shift toward producing doctors who are better prepared to meet the clinical, ethical, and interpersonal demands of modern medical practice.

Funding: This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of Interest: The authors declare no competing interests.

Ethical Approval: Ethical clearance was obtained from the appropriate Institutional Review Board before initiating the study.

Informed Consent: Written informed consent was obtained from all study participants.

Authors' Contributions: all authors contributed equally in the current study.

Acknowledgements: The authors thank the participants and institutional staff for their cooperation and support throughout the research.

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This article may be cited as: Javed MT, Wahid A, Masood B, Jodat A, Sheikh QM, Anjum A: Impact of Early Clinical Exposure on Communication Skills and Confidence Levels in Pre-Clinical Medical Students. Pak J Med Health Sci, 2023; 17(8): 144-147.