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READINESS FOR CLINICAL ROTATIONS AMONG THIRD-YEAR MEDICAL AND DENTAL STUDENTS IN PESHAWAR: A CROSS-SECTIONAL STUDY

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Abstract

Background: The transition from preclinical education to clinical rotations is a critical phase in undergraduate medical and dental training. Inadequate readiness at this stage may adversely affect student learning, confidence, wellbeing, and patient safety.

Objective: To assess the level of readiness for clinical rotations among third-year MBBS and BDS students in medical and dental colleges of Peshawar and to identify factors associated with higher readiness.

Methods: A cross-sectional study was conducted among third-year MBBS and BDS students from selected public and private institutions in Peshawar. Readiness was assessed using a structured questionnaire covering multiple domains of preparedness. Descriptive statistics, group comparisons, and multivariable linear regression analyses were performed.

Results: A total of 260 students participated. Overall readiness for clinical rotations was moderate, with MBBS students demonstrating significantly higher readiness scores than BDS students. Professionalism scored highest, while procedural confidence, clinical documentation, case presentation, and stress preparedness scored lowest. Prior clinical exposure, skills laboratory attendance, supportive supervision, and a positive educational environment were independently associated with higher readiness.

Conclusion: Third-year medical and dental students in Peshawar demonstrate moderate readiness for clinical rotations, with consistent gaps in practical skills and stress management. Structured

orientation, early clinical exposure, faculty development, and wellbeing support may enhance preparedness for clinical practice.

Introduction

Clinical rotations represent a pivotal transition in undergraduate medical and dental education, marking a shift from predominantly classroom-based learning to participation in real clinical environments. During this transition, students are expected to integrate theoretical knowledge with clinical reasoning, communicate effectively with patients and healthcare teams, demonstrate professional behavior, and adapt to workplace-based learning under supervision [1,2].

International literature consistently reports that students experience uncertainty and anxiety at the start of clinical training, particularly related to procedural skills, documentation, case presentation, and managing workload and stress [2–4]. Preparedness for clinical practice is now widely understood as a multidimensional construct encompassing not only clinical competence but also confidence, learning skills, professional identity, and contextual factors such as supervision quality and educational climate [5,6].

In Pakistan, studies evaluating undergraduate medical education have highlighted variability in students' perceptions of the educational environment and support systems during clinical training [7–9]. Dental education research using validated instruments such as the Dental Undergraduates Preparedness Assessment Scale (DU-PAS) has similarly identified uneven preparedness across clinical and technical competencies [10,11]. Despite these findings, limited data are available comparing readiness between medical and dental students at the onset of clinical training within the same regional context.

Peshawar hosts several public and private medical and dental colleges operating under diverse clinical training environments. Understanding students' readiness for clinical rotations at the third-year level is essential for identifying gaps and informing curricular interventions aligned with national training standards. This study aimed to assess readiness for clinical rotations among third-year MBBS and BDS students in Peshawar, compare readiness between the two programs, and identify factors associated with preparedness.

Methodology

Study Design and Setting

A cross-sectional analytical study was conducted in selected public and private medical and dental colleges in Peshawar, Pakistan. All participating institutions were affiliated with teaching hospitals where students undertake clinical rotations.

Participants

Third-year MBBS and BDS students who were commencing or preparing to commence clinical rotations were eligible to participate. Students who were absent during data collection or declined to provide informed consent were excluded.

Study Instrument

Readiness for clinical rotations was assessed using a structured self-administered questionnaire developed from domains commonly reported in preparedness literature and conceptually aligned with established instruments such as the Preparedness for Hospital Practice Questionnaire (PHPQ) and the Dental Undergraduates Preparedness Assessment Scale (DU-PAS) [12–15]. Responses were recorded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaire assessed seven domains:

1. Knowledge integration and clinical reasoning
2. Communication and teamwork
3. Professionalism and ethics
4. Clinical examination and basic skills

5. Procedural and technical confidence
6. Self-directed learning and feedback use
7. Wellbeing and stress preparedness

Domain scores were calculated as the mean of item responses, and overall readiness was calculated as the mean score across all items (range 1–5). A score of ≥3.5 was considered indicative of adequate readiness, consistent with thresholds used in prior preparedness studies [4,16].

Data Analysis

Data were analyzed using statistical software. Descriptive statistics were used to summarize participant characteristics and readiness scores. Independent t-tests and chi-square tests were used to compare MBBS and BDS students. Multivariable linear regression analysis was conducted to identify independent predictors of overall readiness. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the relevant institutional ethics committee. Participation was voluntary, and anonymity and confidentiality were maintained.

Results

Table 1. Participant Characteristics (N = 260)

Variable	Total n (%)	MBBS (n = 170)	BDS (n = 90)
Mean age (years)	21.1 ± 0.9	21.0 ± 0.9	21.3 ± 0.8
Female gender	146 (56.2)	84 (49.4)	62 (68.9)
Prior clinical shadowing (≥10 hours)	118 (45.4)	86 (50.6)	32 (35.6)
Skills laboratory attendance	141 (54.2)	98 (57.6)	43 (47.8)
Perceived supportive supervision	132 (50.8)	94 (55.3)	38 (42.2)
Adequate readiness (≥3.5)	96 (36.9)	72 (42.4)	24 (26.7)

Table 2. Domain-wise Readiness Scores (1–5 scale)

Domain	Overall Mean ± SD	MBBS Mean ± SD	BDS Mean ± SD	p-value
Knowledge integration & reasoning	3.35 ± 0.60	3.42 ± 0.58	3.22 ± 0.62	0.011
Communication & teamwork	3.28 ± 0.63	3.31 ± 0.61	3.22 ± 0.66	0.291
Professionalism & ethics	3.62 ± 0.57	3.66 ± 0.55	3.55 ± 0.60	0.102
Clinical examination & basic skills	3.21 ± 0.66	3.29 ± 0.64	3.07 ± 0.68	0.018
Procedural confidence	2.98 ± 0.68	3.06 ± 0.66	2.82 ± 0.70	0.009
Self-directed learning & feedback	3.33 ± 0.62	3.40 ± 0.60	3.20 ± 0.65	0.021
Wellbeing & stress preparedness	3.01 ± 0.71	3.05 ± 0.70	2.93 ± 0.73	0.214
Overall readiness	**3.31 ± 0.52**	**3.38 ± 0.50**	**3.18 ± 0.55**	**0.004**

Table 3. Lowest-Scoring Readiness Items

Item	Mean ± SD	% Disagree/Neutral
Performing basic procedures under supervision	2.86 ± 0.82	64.6
Writing clinical documentation	2.93 ± 0.79	60.8
Presenting cases to supervisors	3.02 ± 0.77	54.2
Understanding expectations in first week	3.05 ± 0.88	58.1
Coping with stress and workload	2.97 ± 0.90	62.3

Table 4. Predictors of Overall Readiness (Multivariable Linear Regression)

Predictor	Adjusted β	95% CI	p-value
MBBS program (vs BDS)	+0.14	0.05–0.23	0.002
Prior clinical shadowing	+0.18	0.09–0.27	<0.001
Skills lab attendance	+0.11	0.02–0.20	0.016
Supportive supervision	+0.21	0.12–0.30	<0.001
Positive educational environment	+0.15	0.06–0.24	0.001

Discussion

This study demonstrates that third-year MBBS and BDS students in Peshawar exhibit moderate readiness for clinical rotations, with fewer than half achieving adequate preparedness. These findings reinforce international evidence that the transition from preclinical to clinical education is a challenging phase characterized by uncertainty, anxiety, and perceived skills deficits rather than a smooth progression in competence [1–3].

Program Differences Between MBBS and BDS Students

MBBS students demonstrated significantly higher overall readiness than BDS students, particularly in procedural confidence and clinical examination skills. This difference may be explained by variations in curricular structure, timing of patient exposure, and availability of hospital-based learning opportunities. Medical curricula often introduce ward-based observation earlier, whereas dental students may experience more delayed or fragmented patient contact. Similar disparities between medical and dental cohorts have been reported in preparedness studies using DU-PAS and related instruments [10,11].

Professionalism as a Relative Strength

Professionalism and ethical awareness emerged as the highest-scoring domain across both groups. This finding aligns with prior research suggesting that professional attitudes and ethical reasoning are emphasized during preclinical education [6]. However, the lower scores in documentation and case presentation indicate challenges in translating professional values into observable workplace behaviors. Such behaviors are best developed through guided participation, role modeling, and structured feedback during early clinical placements [5,17].

Gaps in Procedural Skills and Early Clerkship Tasks

Procedural confidence was the lowest-scoring domain, consistent with international literature [2,4]. Early clerkship tasks such as performing basic procedures, writing clinical notes, and presenting cases are often assumed competencies but are rarely practiced systematically before clinical exposure. Studies evaluating pre-clerkship transition or "bootcamp" programs have shown significant improvements in student confidence and perceived readiness when these tasks are explicitly taught and rehearsed in simulated settings [16,18].

Wellbeing and Stress Preparedness

Preparedness for stress management was another area of concern. Transition-related stress has been associated with fear of making mistakes, increased cognitive load, and uncertainty about expectations [3,19]. Without adequate support, stress can negatively affect learning and professional identity formation. The findings highlight the need to conceptualize readiness as encompassing psychological preparedness in addition to technical competence.

Role of Supervision and Educational Environment

Supportive supervision and a positive educational environment were the strongest predictors of readiness. These findings align with sociocultural theories of learning, which emphasize that learning in clinical settings occurs through participation in communities of practice under appropriate supervision [5,20]. Studies using DREEM in Pakistan have similarly demonstrated that perceptions of the educational environment significantly influence student engagement and confidence during clinical training [7–9].

Implications

The findings suggest a need for structured pre-clerkship preparation in medical and dental colleges in Peshawar. Mandatory orientation or transition programs focusing on clinical skills, documentation, procedural practice using simulation, and clarification of roles may enhance readiness. Faculty development initiatives aimed at improving supervision and feedback practices are equally important. Integrating wellbeing support, peer mentoring, and stress management resources into clinical training may further improve students' preparedness and learning experiences.

Limitations

This study relied on self-reported measures, which may be influenced by social desirability bias and may not fully reflect actual competence. The cross-sectional design limits causal inference, and the single-city setting may restrict generalizability. Objective measures such as OSCE performance and supervisor evaluations were not included.

Future Directions

Future research should adopt longitudinal designs to track changes in readiness across clinical training and evaluate the impact of targeted interventions. Combining self-reported readiness with objective assessments and faculty evaluations would provide a more comprehensive understanding of preparedness. Multi-center studies across Pakistan could further inform national curriculum development.

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