



From hidden to highlighted: students' perceptions of the PERLs module in undergraduate medical education in Pakistan

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ABSTRACT

BACKGROUND & OBJECTIVE: In the context of Pakistan's undergraduate medical education, the PERLs (Professionalism, Ethics, Research, and Leadership) module has been introduced to align with modern integrated curricula. This study aimed to explore students' perceptions of the PERLs module and its influence on professional development and clinical practice within a private medical college in Pakistan.

METHODOLOGY: A mixed-method sequential explanatory study comprised a cross-sectional survey of 78 medical students, followed by in-depth interviews of 8 participants to gain richer insights. Survey data were analyzed using descriptive statistics, while interview transcripts underwent thematic analysis.

RESULTS: Survey findings demonstrated strong student agreement on the relevance and applicability of the PERLs module to medical practice, with mean ratings ranging from 4.077 to 4.462 (out of 5). Students acknowledged the module's role in preparing them for ethical challenges, enhancing clinical practice skills, and advancing professional development. Qualitative themes reinforced these outcomes, highlighting the module's practical utility in addressing real-world ethical dilemmas, strengthening research and clinical reasoning, and cultivating teamwork, communication, and leadership. Suggestions for improvement emphasized the need for more accessible resources, expanded practical exposure, and improved time allocation within the module.

CONCLUSION: Students viewed the PERLs module as an effective bridge between theory and practice, supporting their growth as competent and ethical future physicians. With targeted enhancements in resources, practical engagement, and time management, the module has strong potential to advance professional identity formation in medical education.

KEYWORDS: Education, Medical, Curriculum, Professionalism, Ethics, Medical, Socialization, Role Models.

INTRODUCTION

Promoting holistic professional development among undergraduate students is crucial in the ever-evolving landscape of medical education^[1]. Recognizing the imperative of instilling professionalism, ethics, research skills, and leadership qualities, educational institutions worldwide are increasingly integrating dedicated modules to address these essential facets of medical practice. One such initiative is the implementing of the Professionalism, Ethics, Research, and Leadership (PERLs) Module in undergraduate medical curricula at the University of Health Sciences, Lahore^[2].

In Pakistan, where medical education is undergoing transformative changes to meet the evolving needs of the healthcare sector, the introduction of the PERLs Module represents a significant stride toward nurturing well-rounded physicians^[3]. Embedded within the newly implemented integrated MBBS curriculum, the PERLs module is designed to operate longitudinally, providing students with a structured framework to cultivate essential competencies beyond traditional medical knowledge.

Central to the PERLs module is its emphasis on the hidden curriculum—the implicit, often unspoken aspects of education that shape students' professional identity and behaviour^[4]. By integrating professionalism, ethics,

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research, and leadership themes into the fabric of medical education, the PERLs module seeks to illuminate and address these hidden curricular elements. This approach fosters a culture of accountability, integrity, and continuous learning among future physicians.

The PERLs module within the UHS 2023 curriculum underscores its commitment to comprehensive professional development through structured learning experiences and mentorship across disciplines such as Family Medicine, Community Medicine & Public Health, Forensic Sciences, Behavioral Sciences, and Medical Education. This holistic framework prepares students not only to meet the challenges of modern healthcare but also to sustain a lifelong commitment to ethical practice and societal advocacy. The PERLs module facilitates students' transition into competent and compassionate healthcare professionals, supported by mentoring platforms, that promote continuous learning and professional growth^[5].

Integral to the PERLs module is the concept of maintaining a portfolio. Through portfolio development, students engage in reflective practice, documenting their learning journey and demonstrating competency acquisition in professionalism, ethics, research, and leadership skills^[6]. This process enhances self-awareness and critical thinking, and serves as a tangible record of their growth and achievements throughout their medical education^[7].

Despite the conceptualization and integration of the PERLs module into the undergraduate medical curriculum, its impact on students' perceptions, attitudes, and professional development remains a subject of inquiry^[8]. Understanding how students perceive and engage with the PERLs module is essential for evaluating its effectiveness in achieving educational objectives and informing ongoing curriculum refinement efforts.

Therefore, this study aims to explore students' perceptions of the PERLs module in the context of undergraduate medical education in Pakistan. Employing a mixed-method sequential explanatory design, this research endeavors to elucidate the nuances of students' experiences with the PERLs module, from its inception as a hidden curriculum element to its role in shaping their professional identities and practices.

METHODOLOGY

A sequential explanatory mixed-methods study was conducted from August to January 2023, following ethical approval from the Institutional Ethics Committee of the Medical School under study (Ref. No. MC/826/23). In the cross-sectional survey, a census sampling approach was used, where all eligible first-year MBBS students of ABWA Medical College, Faisalabad, enrolled in the PERLs module during the study period (n=100) were invited to participate. This approach ensured maximum representation of the cohort exposed to the intervention. Inclusion criteria included undergraduate medical students enrolled in the 1st year of the MBBS program with an integrated curriculum who had completed all three blocks of the PERLs module. New admissions or transfer students from other institutions were excluded from the study.

The study proforma included a section inquiring about the participants' demographic data, followed by self-designed, piloted questions related to the importance and relevance of the PERLs module in the medical profession, along with an evaluation of implementation. The structured questionnaire was developed by the research team based on existing literature on professionalism, ethics, research, and leadership competencies in undergraduate medical education, including previously published evaluation frameworks and competency-based curriculum models^[9-11]. The items were designed to assess students' perceptions regarding relevance, applicability, engagement, and professional development related to the PERLs module. The questionnaire underwent content validation by two medical education experts to ensure relevance and clarity. A pilot test was conducted with five students to assess comprehension and usability. Minor revisions were made based on feedback to improve clarity and alignment with study objectives.

After debriefing and obtaining informed consent, the participants were asked to complete the form online through Google Forms (link: <https://forms.gle/c7xBEDDZu9yuWrMs9>). All data was kept anonymous and confidential.

Following the survey, we conducted eight individual interviews using semi-structured questions to explore participants' perceptions of the newly implemented PERLs Module and complement the cross-sectional survey findings. Before the interviews, initial questions were piloted with two participants and refined based on their feedback to develop the final interview protocol. The number of participants was determined by the data saturation obtained while conducting interviews and ongoing analysis. The individual semi-structured interviews took place via Zoom, a platform conducive to open discussion, allowing interviewees to express their views on the curriculum freely. To minimize bias, the interviews were conducted by an independent researcher who was not involved in teaching the participants, ensuring neutrality and encouraging candid responses. The interviews were conducted in English, our institution's instruction medium, ensuring clarity and consistency in communication. Interviews were audio-recorded with permission and transcribed verbatim to accurately capture participants' responses and reflections. These methodological considerations aimed to enhance the reliability and validity of the collected qualitative data.

All data was analyzed through a Microsoft Excel sheet for descriptive analysis. Missing values were identified and imputed using the median of the corresponding variable. All continuous data are presented as the mean \pm SD, whereas categorical data are presented as proportions and percentages.

Thematic analysis using Atlas. ti version 7.5.7, following Braun and Clarke's approach with open coding, involved a systematic process^[9]. Initial codes were generated and discussed among two independent coders, providing a structured foundation. The two independent researchers

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collated codes into potential themes, considering predefined components and emergent patterns. This iterative process ensured an accurate representation of participants' perspectives.

Data from the cross-sectional survey and individual interviews were reviewed and combined to comprehensively understand the participants' perceptions of the newly implemented PERLs module in their medical school. The interview findings also explained the cross-sectional survey results, describing the participants' perspectives.

RESULTS

Out of 100 students, 78 medical students participated in the cross-sectional survey (response rate = 78%). The demographic profile of the participants is summarised in Table-I. Most participants were male (58%) compared to female (42%). Regarding age distribution, the most prominent groups were 19 years old (32%) and 20 years old (38.5%), with smaller percentages across other age categories (Table-I).

Table-I: Demographic profile of the participants in cross-sectional survey.

Demographic Characteristic	Categories	Number of participants (n=78).
Gender	Male	45(58)
	Female	33(42)
Age	18 years	33(42)
	19 years	25(32)
	20 years	30(38.5)
	21 years	14(18)
	22 years	4(5)
	23 years	2(2.5)

Table-II: Participants' mean rating on module evaluation.

Demographic Characteristic	Mean	Standard Deviation
I can see clear applications of what I learned in the PERLs module in my future medical career.	4.205	0.853
The content of the PERLs module was directly relevant to the future practice of medicine.	4.167	0.992
The examples and case studies used in the module applied to real-world medical scenarios.	4.154	0.935
The skills taught in the PERLs module will be useful in my future clinical practice.	4.256	0.883
This module makes me more prepared to face ethical challenges in medicine.	4.282	0.876
The PERLs module has changed how I think about a medical professional's role.	4.077	0.997
The PERLs module is essential for a well-rounded medical education.	4.103	0.914
Learning about professionalism, ethics, research, and leadership should be a priority in medical training.	4.462	0.827
The instructors were effective in conveying the subject matter.	4.269	0.915
The teaching methods used in the PERLs module actively engaged me in learning.	4.192	0.878
Overall, I am satisfied with my experience with the PERLs module.	4.205	0.966

Table-III: Gender Comparison for Student Perceptions of PERLs (Mann-Whitney U Test).

Measure	Female Mean	Male Mean	P-value
Relevance to practice	4.222	4.091	0.58
Real-world applicability	4.267	4.000	0.232
Priority of PERLs	4.533	4.364	0.382
Engagement	4.222	4.152	0.731
Instructor effectiveness	4.333	4.182	0.505
Ethical preparedness	4.333	4.212	0.557
Overall satisfaction	4.222	4.182	0.856

Table-IV: Demographic profile of the interviewees.

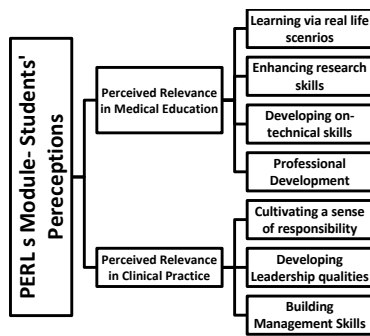
Variables	Demographic Characteristics	Number of Participants (n=8) n(%)
Gender	Female	4(50)
	Male	4(50)
Age	19 years	4(50)
	20 years	3(37.5)
	21 years	1(12.5)

Explanatory Study:

Eight volunteering medical students participated in interviews as part of this study. The demographic breakdown of the interviewees shows an equal distribution between genders, with half of the participants identifying as male and the other half as female. In terms of age, the majority of interviewees were 19 years old, comprising 50% of the sample. Additionally, 37.5% were 20 years old, and one participant, constituting 12.5%, was 21 years old (Table-IV).

The thematic analysis led to identifying two main themes and 6 subthemes highlighting the relevance of the PERLs module as perceived by medical students (See Figure-I).

Figure-I: Themes and subthemes identified in the study.



A. Relevance of PERL Module in Medical Education:

1. Learning via real life scenarios

The findings from participants in this study underscored the perceived practical relevance and clinical application of the PERLs module in undergraduate medical education. Notably, respondents expressed appreciation for the Module's integration of real-world scenarios, which they perceived as instrumental in bridging the gap between theoretical knowledge and practical medical practice.

One participant remarked, "It presents real-world scenarios, which are quite helpful for understanding."

Another participant stated, "Because PERLs contains a lot of things regarding our everyday topics... so it is very useful to understand this and develop our interest."

2. Enhancing Research Skills

The study revealed that the participants recognised the potential of PERLs to facilitate medical research and data analysis, acknowledging its ability to train students to process large datasets and support informed decision-making in healthcare.

One respondent commented, "We are taught about the basics of research in the Module, which I like the best. This can help researchers and healthcare professionals gain insights and make informed decisions. It's pretty cool how technology can support medical advancements."

Another participant added, "PERL module can be beneficial for medical research. It can help us learn research from the beginning of our MBBS year."

3. Developing Non-Technical Skills

The respondents emphasized the importance of non-technical skills such as teamwork, communication, and ethics, which are integral to effective medical practice and patient care. They attributed these skills to the professionalism and ethics component of the PERLs module, recognising its direct applicability in everyday medical scenarios.

As one participant articulated, "Medical practice requires teamwork and is not the job of just one person; understanding and respecting your colleagues and your patients is something that PERLs teaches us best."

Another participant highlighted, "The professionalism and ethics portion of PERLs is directly applicable in everyday medical practice because it teaches us how to interact with patients respectfully and professionally and make the patients feel comfortable. I think that is very important."

4. Professional Development:

The study participants discussed the PERLs module's significant role in fostering professional development among medical students. Specifically, the focus on ethics and professionalism within the PERLs curriculum is highlighted as instrumental in cultivating a sense of responsibility and moral integrity among future healthcare providers.

One participant noted, "PERLs teaches us ethics and development of characters of a good doctor."

Another participant emphasised the importance of ethics in medical practice: "It teaches us about ethics, so I think a doctor should be aware of ethics and responsibilities."

Moreover, PERLs was recognised for developing leadership qualities and fostering a lifelong learning attitude among students. Participants identified the Module as a platform for self-improvement and cultivating leadership skills necessary for success in healthcare settings.

One respondent articulated, "We learn to become self-directed and lifelong learners," while another highlighted the importance of leadership development, stating, "We work on leadership skills."

B. Perceived Relevance in Clinical Practice:

1. Building Sense of Responsibility:

The study participants highlighted the PERLs Module's significant role in fostering professional development among medical students. Specifically, the focus on ethics and professionalism within the PERLs curriculum was highlighted as instrumental in cultivating a sense of responsibility and moral integrity among future healthcare providers.

One participant noted, "PERLs teaches us ethics and sense of responsibility.....the characters of a good doctor."

Another participant emphasised the importance of ethics in medical practice: "It teaches us about ethics, so I think a doctor should be aware of ethics and responsibilities."

Another critical area where the PERLs module could significantly impact medical professionalism is reinforcing ethical considerations, such as patient privacy and trust.

A participant highlighted this by saying, "Well, a patient deposits all his or her full trust to the doctor...a doctor will respect the patient's privacy and become a trustworthy custodian of their information."

2. Developing Leadership qualities

Moreover, the PERLs module was recognised for developing leadership qualities and fostering a lifelong learning attitude among students. Participants identified the Module as a platform for self-improvement and cultivating leadership skills necessary for success in healthcare settings.

One respondent articulated, "We learn to become self-directed and lifelong learners," while another highlighted the importance of leadership development, stating, "We work on developing our leadership skills."

Skills developed through the PERLs module were discussed as instrumental in enhancing patient care, communication, and ethical practice within clinical settings. One of the key aspects emphasised by participants is the enhancement of patient communication, which is crucial for building

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trust and understanding between patients and healthcare providers.

One participant pointed out, "It can be used in a patient-doctor setting... to communicate effectively with each other." In addition, the participants discussed that the PERLs module prepares practitioners to handle emergencies with composure and decisiveness, ensuring patient safety and care.

One participant explained, "It will greatly help me in an emergency. It will also help me make decisions."

3. Building Management Skills

Additionally, the PERLs module contributes to the holistic development of healthcare professionals by honing essential skills such as time management, teamwork, and leadership. Effective time management is critical for medical professionals, impacting patient care and personal well-being.

A participant said, "I have learned time management skills from the PERLs module."

The PERLs curriculum's emphasis on teamwork and leadership prepares learners to navigate the complexities of healthcare delivery collaboratively and effectively.

One respondent emphasized the comprehensive skill set developed through the Module, noting, ".....Teamwork, communication, time management, leadership, decision making....."

C. Student Perception of PERL Module

1. Positive Impact and Effectiveness

Many respondents find the PERLs module beneficial in fostering professional growth and applying theoretical knowledge in practical scenarios. It is seen as crucial in training future doctors to meet international standards and making students more professional and confident.

One participant remarked, "Overall, it's a good way of training future doctors regarding international standards."

Another added, "It is beneficial and interesting for us."

Additionally, many students enjoyed and appreciated the Module, highlighting its role in their learning journey and its contribution to their personal and professional development.

One student stated, "I thoroughly enjoyed the PERLs Module and learned a lot."

Another noted, "This module is very effective for future use."

2. Suggestions for Improvement

Despite the positive feedback, there were several suggestions for improving the PERLs module. Some feedback called for improvements in the Module's resources and documentation, suggesting that making learning materials more user-friendly and updating the Module to incorporate modern features could enhance the learning experience.

One participant suggested, "It would be helpful to have more user-friendly resources and documentation to make learning and using the module easier."

Another mentioned, "Module is good enough. Just time distribution among subjects should be improved."

Additionally, respondents suggested increasing practical exposure and hands-on experiences, including more hospital rounds and real-world applications of the skills learned, to

better prepare students for medical practice.

One participant recommended, "Students should have rounds of hospital where they can use the skills and knowledge they have learned during PERLs." At the same time, another noted, "More field exposure of related topics would be great."

Lastly, time management and evaluation were identified as areas needing improvement. Participants pointed to concerns over time management within the Module and the desire for more effective evaluation methods.

One participant shared, "No, just a little bit of shortage of time; I cannot understand how to manage it, but inshallah, we will ace it," while another suggested, "It was good, but it needs more evaluation in more productive activities."

DISCUSSION

The findings of this study underscore the significant impact of the PERLs (Professionalism, Ethics, Research, and Leadership) module on the professional development of medical students in Pakistan. The students' strong positive perceptions, evidenced by high mean ratings in the survey, indicate that the module is well-received and considered relevant and beneficial to their future medical practice. However, while these findings are promising, a more critical examination reveals areas requiring the module's attention to achieve its full potential. For the same reason, a follow-up focus group discussion was held with medical students volunteering.

The survey results demonstrate that students find the PERLs module highly relevant and applicable to their medical education and practice. This aligns with the module's objectives of integrating critical aspects such as professionalism, ethics, research, and leadership into the medical curriculum^[12,13]. The high ratings across various aspects of the module suggest that it successfully addresses orienting the students about these components from their first year, preparing them to handle ethical challenges and enhancing their clinical practice skills. These findings resonate with global educational standards that emphasize the importance of professionalism and ethics in medical education^[14]. However, the reliance on student self-reporting can introduce bias, as students may overestimate the applicability of the module content due to limited real-world experience.

Students reported that the PERLs module significantly contributes to their professional growth, including the development of essential skills such as ethical decision-making, teamwork, communication, and leadership. These competencies are crucial for medical professionals who must navigate complex clinical environments and collaborate with multidisciplinary teams^[15]. The thematic analysis of interview data supports these findings, with students appreciating the module's practical relevance and its role in real-world medical scenarios. Prior research has established the importance of these skills in medical training, noting that such competencies are essential for effective patient care and professional conduct^[16].

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Noor-i-Kiran Naeem : Substantial contributions to the conception and design of the work.

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Zartashia Arooj : Drafting the work.

Husnain Danish : Reviewing it critically for important intellectual content.

Adeen Akram : The acquisition data for the work.

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