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Universiti Kebangsaan Malaysia Undergraduate Medical Students' Perception of Lecturer's Characteristics for Effective Bedside Teaching

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ABSTRACT

Bedside teaching is crucial for developing competent physicians, and its effectiveness hinges on the lecturer's conduct. This study investigated the perceptions of year 4 and year 5 clinical students at Universiti Kebangsaan Malaysia (UKM) regarding lecturers' characteristics in bedside teaching. This cross-sectional study employed purposive sampling with 85 year 4 and year 5 UKM medical undergraduates from the 2022/2023 session. Participants completed a self-administered, Brown-adapted questionnaire, which included demographic data and a 20-item Likert-type scale assessing clinical teacher characteristics. These characteristics were categorised into professional competence, lecturer-student relationships, and personal attributes. A one-way ANOVA test assessed perceptive changes between year 4 and year 5 students, with $p < 0.05$ indicating significance. All three categories of lecturer characteristics were perceived as important by the students. While professional competence and personal attributes remained consistently important across clinical years, the lecturer-student relationship showed a significant increase in perceived importance during the later stages of clinical training ($F(1,168) = 5.35$, $p = 0.022$, partial $\eta^2 = 0.031$; mean difference = +0.42, 95% CI [0.06, 0.78]). This study highlights the evolving significance of the lecturer-student relationship as students progress through their clinical years.

Keywords: *Clinical teachers, Lecturer-student relationship, Personal attributes, Professional competence, Bedside teaching*

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INTRODUCTION

Bedside teaching was first introduced by world-renowned physician Sir William Osler in 1892. His timeless assertion that "Medicine is learned by the bedside and not in the classroom" encapsulates the profound importance of bedside teaching in the practical education of medical students. Bedside teaching in the Faculty of Medicine, Universiti

Kebangsaan Malaysia (UKM) is conducted by a lecturer, focusing on an individual student or a small group of up to eight medical students. These students are brought to a patient's bedside, and the patient's case is discussed. Bedside teaching serves as a vital link between theoretical knowledge and its clinical application, fostering the development of problem-solving skills and enhancing diagnostic reasoning (1). It also facilitates the simultaneous acquisition of essential clinical competencies, enabling medical students to practise and integrate history-taking, physical examination, clinical reasoning, and decision-making skills within authentic clinical environments (2). This teaching method helps students practice their history-taking and physical examination skills under a lecturer's supervision. Subsequently, the student will present the summary of their findings to the lecturer. This will be followed by a discussion of the provisional and differential diagnoses of the case, relevant investigations, and management planning among the lecturer and student(s).

Several strategies have been proposed to enhance the effectiveness of bedside teaching. This includes fostering a learning culture through role modelling by senior physicians who exhibit humility, acknowledge limitations, seek assistance, self-correct, and admit errors. Another important approach is scaffolding, in which trainees receive structured support that is gradually withdrawn as their competence increases (3).

Bedside teaching is a triad involving the student, the lecturer, and the patient. The lecturer plays a pivotal role in ensuring the success of bedside teaching. Bedside teaching is an effective way for students to apply their knowledge in a clinical setting and receive feedback from their supervisors on areas for improvement. In this study, the characteristics of lecturers have been categorised into professional competence, lecturer-student relationship and personal attributes.

Professional competence in a clinical setting is defined as the "habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served" (4). A professionally competent lecturer can effectively communicate their well-informed knowledge, act as a role model, and consistently exemplify the skills, attitudes, and values expected in the clinical area (5). A professionally competent lecturer is also capable of seamlessly linking theory to medical practice, skilfully supervising new experiences without taking over, offering valuable feedback, and maintaining objectivity in evaluations, all while facilitating students' awareness of their professional responsibilities, ultimately stimulating students' desire to learn in the category of professional competence (6). Competence development in medicine typically occurs through supervised (coached) experiences in patient care and later continues through unsupervised, self-directed experiential learning (7).

A lecturer-student relationship is defined as "a formalised interpersonal association between an authority figure and a subordinate who interacts on nearly a day-to-day basis" in which a positive student-lecturer relationship is characterised by mutual acceptance, understanding, warmth, closeness, trust, respect, care and cooperation (8). A student-teacher relationship in the classroom should be positive, fostering trust and respect between the teacher and the student (9). This relationship may involve getting to know students better, providing opportunities for discussion, and encouraging them to ask questions to become stronger learners daily. Through facilitated discussions, teachers can foster deeper learning, enhance students' clinical reasoning, and maintain positive learning environments (10).

Personal attributes encompass a lecturer's personality characteristics and distinct ability features (11). Within the classroom, qualities such as self-control, cooperation, and patience are essential to student learning. Lecturers who cultivate positive relationships with their

students are more likely to influence students' drive to learn (12). Furthermore, energetic and enthusiastic lecturers often instil positive feelings and a sense of significance in their teaching approach (13). Consequently, a lecturer who embodies professional competence, fosters strong lecturer-student relationships, and possesses positive personal attributes can significantly impact students' lives, from classroom learning to long-term success. A study among final-year medical students reported that 95.2% identified good interpersonal skills as the most important attribute of effective clinical teachers, along with evaluation skills, clinical competence, personality traits, and teaching abilities. Students report preferring approachable and communicative teachers, highlighting the importance of interpersonal relationships in clinical education (14).

Numerous studies have investigated the preferred characteristics of lecturers for effective bedside teaching. While individual studies may assign varying levels of importance to specific traits, a consensus emerges. All lecturer characteristics play crucial roles, underscoring the necessity for lecturers to possess a comprehensive set of these attributes for successful bedside teaching. Previous research has highlighted several positive aspects of teaching rounds, including the ability to provide clear expectations, promote goal setting and engagement, and instil confidence (15). Additionally, students value traits such as humour, recognising cognitive overload, displaying humility, strong listening skills, and mentorship (15).

Each lecturer's characteristics will influence the effectiveness of bedside teaching. Being a proficient physician does not always translate into being an effective teacher (16). Since written guidelines for bedside teaching are difficult to develop, each lecturer needs a specific reference to guide their teaching. In addition, students have preferences for particular characteristics in a lecturer that make the learning experience more fruitful. Hence, a lack of specific lecturer characteristics reduces the effectiveness of a bedside teaching session.

This study aims to investigate UKM clinical medical undergraduates' perceptions of lecturers' characteristics in the context of bedside teaching. It hopes to determine the importance of professional competence, lecturer-student relationships, and personal attributes in bedside teaching. This study also aims to identify perceptual changes in the importance of lecturer characteristics among year 4 and year 5 UKM medical students.

METHODS

Study Design

A cross-sectional study was conducted among year 4 and year 5 medical students at UKM during the 2022/2023 academic year.

Study Population

This study has employed Yamane's formula to calculate the sample size under the finite-population-size assumption. The required sample size was 85 participants from each year of study, totalling 170 students from the cohorts above. Participants were selected through purposive sampling, in accordance with predetermined inclusion and exclusion criteria. Only students who had completed at least six clinical postings and consented to participate were included.

Study Instrument

The study utilised a self-administered questionnaire adapted from Brown (17), consisting of 20 items rated on a five-point Likert-type scale (1 = not at all important to 5 = extremely important). The items were grouped into three domains: professional competence, lecturer–student relationship, and personal attributes. For each domain, scores were calculated as the mean score per item (range 1 to 5), with higher scores indicating greater perceived importance of that domain in bedside teaching. No predefined cutoff scores were applied. The results were interpreted descriptively using mean scores and response distributions, consistent with common practice in educational research with Likert-type scales. Descriptive statistics (mean ± SD) were computed for each domain, and frequency distributions were also analysed to report the proportion of students who rated a given characteristic as (1 = not at all important to 5 = extremely important). The 20 characteristics assessed in this study are displayed in Table 1.

Table 1: Categorisation of the 20 characteristics assessed (17)

Professional competence	Personal attribute	Lecturer-student relationship
Facilitate awareness of their professional responsibilities.	Conveys confidence in and respect for students.	Is realistic in expectations of students.
Shows genuine interest in patients and their care.	Admits limitations and mistakes honestly.	Is honest and direct with students.
Relates underlying theory to medical practice.	Is self-controlled, cooperative and patient.	Encourage students to feel free to ask.
Is well-informed and able to communicate knowledge to students.	Show enthusiasm for teaching. Questions or to ask help.	Permits freedom of discussion and venting of feeling.
Supervises and helps in new experiences without taking over.	Is flexible when the occasion calls for it.	Available to work with students as situation arises in clinical setting.
Provides useful feedback on student.		
Is objective and fair in the evaluation of the students.		
Demonstrate skills, attitude and values that are to be developed by the students in the clinical area.		
Possesses the ability to stimulate the student to want to learn in the category of professional competence.		

Although originally developed in 1981, this questionnaire remains a relevant and justifiable instrument for the present study, as it continues to capture core pedagogical competencies that are fundamental to effective clinical education. These competencies align closely with the objectives of this research, which focus on lecturer professional competence, personal attributes, and lecturer–student relationships. The enduring relevance of the instrument lies in its emphasis on key dimensions of teaching, including: (a) Clear communication, essential for conveying complex medical information and expectations; (b) Constructive feedback, critical for guiding student improvement and objective evaluation; (c) Promotion of critical thinking, by stimulating inquiry and supporting clinical reasoning; (d) Creation

of a supportive learning environment, supported through positive lecturer and student interactions that will encourage openness and dialogue; and (e) Modelling of professionalism, whereby lecturers exemplify the attitudes, behaviours, and values expected in healthcare practice.

While Brown's (17) questionnaire established content validity through expert review and has since been applied in multiple educational studies, internal consistency indices such as Cronbach's alpha were not reported in the original development. In this study, a pilot test was not conducted because the target population of medical students shares considerable similarities with the nursing students for whom the instrument was originally designed. Both groups undergo comparable clinical training in bedside teaching environments, including wards, clinics, and operating theatres, within a shared healthcare context. Accordingly, the instrument was deemed appropriate for direct application in this study. Nevertheless, we acknowledge the absence of reported reliability coefficients in the original validation as a methodological limitation.

Data Entry and Analysis

Students completed the questionnaire after providing consent via Google Forms. The data were analysed using SPSS version 29. Descriptive statistics were used to summarise demographic characteristics and the perceived importance of each domain. The mean score per item was calculated for each domain (professional competence, lecturer-student relationship, and personal attributes). A one-way ANOVA was performed to compare perceived importance between year 4 and year 5 students. Effect sizes were calculated using partial eta squared (η^2), while 95% confidence intervals were reported for mean differences to enhance statistical robustness. Statistical significance was set at $p < 0.05$.

RESULTS

A total of 170 medical students participated, in the year 4 (n = 85) and year 5 (n = 85) cohorts. The students were typically aged 22 to 24 years in year 4 and 23 to 24 years in year 5. Consistent with the usual gender distribution in our institution, approximately 70% to 75% of respondents were female. The cohorts also reflected the national ethnic composition, including Malay, Chinese, Indian, and Sabah/Sarawakian students. Given the homogeneity of the cohorts, detailed demographic characteristics were not the primary focus of this study.

Figure 1 shows that more than 95% (n = 170) of year 4 and year 5 UKM medical students agreed that professional competence, personal attributes, and lecturer-student relationships were important in effective bedside teaching. Both year 4 and year 5 medical students rated all three domains highly, with mean scores above 4.0 on a 5-point Likert-type scale, indicating that these lecturer characteristics were perceived as important to effective bedside teaching.

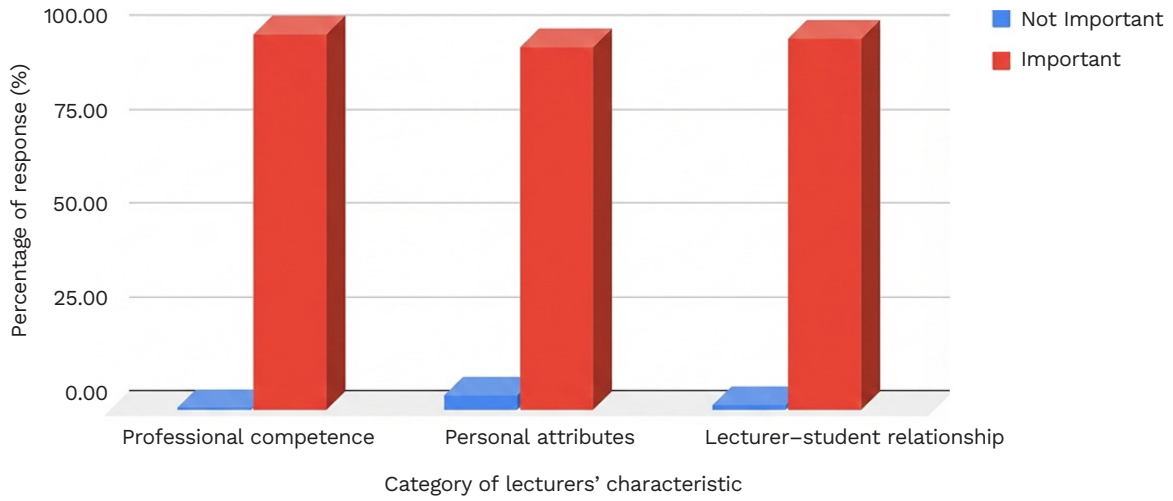

Figure 1: Percentage distribution of year 4 and year 5 medical students' responses regarding the importance of professional competence, personal attributes, and lecturer–student relationships in effective bedside teaching.

Professional competence received the highest overall mean rating (Year 4: 4.60±0.35; Year 5: 4.78±0.30), followed by lecturer–student relationship (Year 4: 4.20±0.42; Year 5: 4.62±0.39) and personal attributes (Year 4: 4.38±0.40; Year 5: 4.58±0.35). Across all domains, year 5 students consistently rated lecturer characteristics slightly higher than year 4 students, with the largest observed difference in the lecturer–student relationship domain (Table 2).

Table 2: Mean scores (±SD) of lecturer characteristics domains among different clinical years

Lecturers' characteristics	Mean±SD		
	Year 4 (n = 85)	Year 5 (n = 85)	Total (n = 170)
Professional competence	4.60±0.35	4.78±0.30	4.69±0.32
Personal attribute	4.38±0.40	4.58±0.35	4.48±0.38
Lecturer-student relationship	4.20±0.42	4.62±0.39	4.41±0.41

Notes: Scores were measured on a 5-point Likert-type scale ranging from (1 = not at all important to 5 = extremely important), adapted from Brown (17).

A significant perceptive difference was found in the lecturer–student relationship between year 4 and year 5 students, $F(1,168) = 5.35$, $p = 0.022$, partial $\eta^2 = 0.031$, with year 5 students rating this characteristic more highly (mean difference = +0.42, 95% CI [0.06, 0.78]). No significant differences were observed in terms of professional competence ($F(1,168) = 2.46$, $p = 0.119$, partial $\eta^2 = 0.015$; mean difference = +0.18, 95% CI [−0.04, 0.40]) or personal attributes ($F(1,168) = 2.86$, $p = 0.093$, partial $\eta^2 = 0.017$; mean difference = +0.20, 95% CI [−0.02, 0.42]) (Table 3).

Table 3: Perceptive changes in the importance of lecturers' characteristics in different clinical years

Lecturers' characteristics	F	Sig	Partial η^2	Estimated mean difference (95% CI)
Professional competence	2.455	0.119	0.015	+0.18 (95% CI [−0.04, +0.40])
Personal attribute	2.861	0.093	0.017	+0.20 (95% CI [−0.02, +0.42])
Lecturer-student relationship	5.348	0.022*	0.031	+0.42 (95% CI [+0.06, +0.78])

Notes: F is the ratio of two mean square values; Sig. is the significant value; *Indicate significant perceptive change ($p < 0.05$).

DISCUSSION

This study examined three core characteristics of effective bedside teaching: professional competence, the lecturer–student relationship, and personal attributes. Being a proficient clinician does not necessarily translate into being an effective teacher (16), and effective teaching can profoundly shape students' learning experiences and professional development.

Professional competence emerged as the most consistently valued attribute, with both year 4 and year 5 students rating it highly. This aligns with prior studies among undergraduate nursing students (18) and at Cairo University (5), which similarly identified professional competence as a primary characteristic of effective instructors. Although these studies involved different cohorts, they share the common context of bedside teaching within healthcare. Professional competence equips lecturers to provide accurate, up-to-date knowledge and hands-on experience, bridging theory and practice while instilling confidence in students (6, 19). Similar findings from Oman Medical College highlight the importance of communication and teamwork as elements of professionalism (20), and research from a Malaysian private university shows that lecturer competence directly predicts student satisfaction (21). Competent lecturers also serve as role models, shaping students' professional identities (22, 23). Collectively, these findings affirm that professional competence is fundamental to students' perceptions of effective bedside teaching.

The lecturer–student relationship was rated second in importance, yet still received very high agreement (> 95%). This corroborates studies involving lecturers, former students, and nursing undergraduates which have emphasised strong lecturer–student relationships as central to effective clinical teaching (24, 25). Positive relationships have been shown to enhance student engagement, social behaviours, and academic performance (24). However, some evidence suggests that high-achieving students may describe these relationships as more distant or even conflicting, indicating that close relationships are not always essential for strong performance (26). A systematic review similarly reported that poor communication, lack of respect, and psychological stress can undermine relationships and impede learning (27). Practical barriers such as limited faculty time, noisy ward environments, difficulty recruiting suitable patients, student under-preparedness, and lecturers' lack of confidence can further weaken these interactions (28). These findings suggest that the quality and context of the lecturer–student relationship, rather than its mere presence, determine educational impact.

Personal attributes were rated lowest among the three domains, yet most students still considered them important for effective bedside teaching. This parallels findings from year 2 and year 3 nursing students, who also ranked personal attributes below other qualities (29). Personal attributes can encourage a positive learning climate, sustain attention, reduce anxiety, and promote critical thinking (30). Students are more motivated when lecturers are enthusiastic and engaging (31). In contrast, other studies have reported personal qualities such as empathy, patience, and approachability as the most critical characteristics of effective instructors (5), while medical students in another study identified enthusiasm and communication skills as among the most desirable qualities of good teachers (32). Similarly, a study on ultrasound tutors highlighted empathy and the creation of a supportive atmosphere as central to effective teaching (33). Such discrepancies may reflect differences in students' clinical seniority—junior students may rely more on lecturers' interpersonal qualities, whereas senior students may prioritise competence and structured feedback. As our sample included only senior students, the relatively lower relative rating of personal attributes may reflect their more advanced stage of training, yet their acknowledged importance underscores their continued relevance.

Inferential analysis revealed a significant difference between year 4 and year 5 students' perceptions of the lecturer–student relationship ($F(1,168) = 5.35$, $p = 0.022$, partial $\eta^2 = 0.031$), while no significant differences were observed for professional competence ($p = 0.119$) or personal attributes ($p = 0.093$). This suggests that as students progress through clinical training, they place increasing value on relational aspects of bedside teaching. A similar trend was observed by Maleki et al. (34), who found that students at higher educational levels reported stronger appreciation for lecturer–student relationships. Early year 4 students are often adapting to clinical settings, while year 5 students have become more confident and see bedside learning as relevant to their future careers, which may explain this shift. This is supported by evidence that lecturers who demonstrate confidence, respect, and openness can better facilitate learning, especially for more experienced students (16, 25). Given the known impact of lecturer–student relationships on satisfaction, retention, learning approaches, and achievement (35), fostering this domain is critical to enhancing clinical education.

Overall, this study shows that professional competence, lecturer–student relationships, and personal attributes are all considered important for effective bedside teaching. The developmental shift observed in valuing lecturer–student relationships highlights the need for faculty development initiatives that strengthen relational and affective teaching skills, particularly for senior clinical learners. Meanwhile, the consistently high value placed on professional competence and the acknowledged relevance of personal attributes underscore the enduring importance of each. Future multi-centre studies are recommended to validate these findings and explore how these domains interact across diverse educational settings.

The limitations of this study were as follows. First, it was conducted at a single institution, which may have introduced institutional bias. The use of purposive sampling could also have contributed to selection bias. As such, the perceptions captured may reflect specific aspects of UKM's curriculum, faculty culture, or clinical teaching environment, thereby limiting the generalisability of the findings to other medical schools with different educational contexts. Future multi-centre studies could validate and extend these findings across diverse institutional settings. Although the sample size was adequate, it may not have fully captured the range of experiences across all clinical departments or rotations; replication with a more diverse cohort is warranted to enhance generalisability. Furthermore, the limited availability of comparable studies conducted among similar demographic groups restricted the scope for direct comparison.

In addition, while Brown's (17) questionnaire was originally developed for nursing students, whose teaching and learning structures may differ from those of medical students, both groups undergo comparable clinical training in bedside teaching environments such as wards, clinics, and operating theatres, and thus share a similar healthcare-related field. This comparability informed our decision not to conduct a pilot study prior to its use in the current setting. Nevertheless, we acknowledge this disciplinary difference as a limitation, recognising that effective bedside teaching is multifaceted and shaped not only by the students' learning environment, but also by the lecturer's role in ensuring the effectiveness of the teaching–learning encounter.

Therefore, the researchers recommend that clinical instructors prioritise the areas highlighted in these findings to improve their clinical teaching skills. This includes developing a robust knowledge base in their field, demonstrating confidence in clinical skills, and effectively transmitting knowledge to students. Furthermore, conducting objective and fair evaluations is deemed essential for clinical lecturers.

CONCLUSION

While professional competence and personal attributes have remained consistently valued across clinical years, the lecturer-student relationship has become increasingly for more senior clinical students. These findings underscore the evolving educational needs of medical students and suggest that enhancing relational aspects of clinical teaching may contribute to more effective bedside learning. In light of these results, faculty development programmes should explicitly incorporate training to strengthen lecturer-student relationships, focusing on communication, empathy, and supportive learning interactions at the bedside. Future research across diverse institutional contexts is also warranted to validate and expand these insights.

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ETHICAL APPROVAL

The ethical approval was obtained from The Research Ethics Committee of Universiti Kebangsaan Malaysia (FF-2023-172).

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