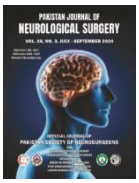

PAKISTAN JOURNAL OF NEUROLOGICAL SURGERY (QUARTERLY) – OFFICIAL JOURNAL OF PAKISTAN SOCIETY OF NEUROSURGEONS

Original Research

Evaluation of Clinical Teaching Quality in Residency Training in a Tertiary Care Hospital Using EFFECT (Evaluation and Feedback for Effective Clinical Teaching) Survey

Ambreen Syed[1], Musawer Khan[2], Naeem ul Haq[2], Imtiazuddin[2], Mohammad Ishaq[2] Shoaib-ur-Rehman[2]

[1]Institute of Health Professions Education and Research (IHPER), Khyber Medical University, Peshawar
[2]Department of Neurosurgery, Mardan Medical Complex/Bacha Khan Medical College, Mardan – Pakistan

ABSTRACT

Objective: To evaluate the quality of clinical teaching in residency training in a tertiary care hospital.

Materials and Methods: The research was conducted in Mardan Medical Complex, Mardan. The study lasted two months, and the participants were enrolled using the simple purposive sampling technique. This prospective cross-sectional study used a validated "EFFECT" questionnaire divided into seven domains containing 58 items. The questionnaire was distributed among the postgraduate trainees of different specialties of the FCPS program, excluding other specialty programs (MS/MD/MCPS), through an online Google form. The data was analyzed using Excel 2022 software.

Results: The number of residents who participated was 89. 71 (80%) were male and 18 (20%) females. The mean age was 29 years. Overall, the residents' perception of their supervisors was good. Few items were scored satisfactory by the residents. The results were also analyzed between four subgroups of the participants: male/female, senior (years 3-5)/junior (years 1-2) residents, medical & allied and surgical & allied residents, and senior (above 50 years age) and junior (below 50 years age) teachers. Significant (P value<0.05) differences were identified among the sub-group responses in different domains.

Conclusion: Overall, the residents' perceptions of their clinical teachers are good. However, there is room for improvement in multiple domains, and some parts of the teaching require special considerations.

Keywords: EFFECT (Evaluation and Feedback for Effective Clinical Teaching), FCPS (Fellow of College of Physicians and Surgeons Pakistan), Clinical Teaching.

Corresponding Author: Musawer Khan
Department of Neurosurgery, Mardan Medical Complex,
Bacha Khan Medical College, Mardan
Email: modestgaze@yahoo.com

Date of Submission: 02-05-2024
Date of Revision: 10-09-2024
Date of Acceptance: 21-09-2024

Date of Online Publishing: 30-9-2024
Date of Print: 30-9-2024

DOI: 10.36552/pjns.v28i3.970

INTRODUCTION

Residents are responsible for taking daily care of

The patients and learning.[1] Doctor must receive good, standardized clinical teaching during residency training for better and more gratifying patient care.[2] This type of teaching mostly takes place in a clinical setting and is defined as workplace learning. A clinical teacher is a physician, usually a senior, supervising clinical practice residents. The attributes of a good teacher can be grouped into the competency of his clinical skills, his supervisorship competencies, and his characteristics and behavior towards the patients and the residents.[3] Knowing the importance of workplace learning is the first step for clinical teachers to encourage learning by asking questions, having discussions, and reflecting to improve their clinical competence.[4]

The main aim of residency training is to educate the resident trainee with cardinal clinical skills, knowledge, and competencies who can provide evidence-based healthcare services.[5] Medical schools are increasingly adopting competency-based learning to improve teaching standards, followed by evaluating the quality of residency training according to standards.[6] Eventually, the community wants to know by whom and where the doctor has been trained. The quality of training is pivotal.[1] Research shows that evaluations of young female doctors who spend more time conducting research are promising.[7]

Proper assessment and feedback are needed to improve the quality of clinical teaching. There are different instruments available for the evaluation, mainly through a questionnaire. The instrument for assessment needs to cover all aspects of clinical education. Most instruments related to providing feedback to the supervisors are based on the literature about quality clinical teaching methods and the role of the teachers.[8,9] Most of these instruments need a theoretical framework. It is challenging to know which aspect needs improvement.[10] Keeping in mind the shortcomings in evaluation models and the importance of improving clinical teaching.

EFFECT questionnaire is developed. It is designed and validated at Radboud University Medical Center in the Netherlands. The main goal of this instrument is to provide proper feedback for improving clinical teaching.[4]

There is ample literature on the evaluation of residents, but more data is needed to assess supervisors. The perception of residents about their educational environment has been proven to be an essential indicator of learning outcomes.[11] Studies are available where a validated questionnaire EFFECT is used to evaluate the clinical teaching in different countries; however, there is a lack of research in KPK and Pakistan about assessing the FCPS clinical training program through a validated questionnaire. This provides ample reason for research into evaluating the residents' perception of clinical teaching using a validated EFFECT questionnaire. This research can help identify the shortcomings in FCPS residency training and can lead to improvements.

MATERIAL AND METHODS

Study Design and Setting

This single-center prospective, cross-sectional study was conducted in a tertiary care teaching hospital, Mardan Medical Complex. The study duration was two months, from 1st June to 31 July 2023. The data collection was started after the ethical clearance certificate was issued by Khyber Medical University (Ref No: 1-12/IHPER/MHPE/KMU/23-30).

Inclusion Criteria:

Postgraduate residents doing Fellowship with the College of Physicians and Surgeons (FCPS) Pakistan in different specialty programs were included in the study. The specialty program consisted of both four and 5-year residency durations.

Exclusion Criteria:

Postgraduate residents who were conducted in the 2nd fellowship program after acquiring the 1st

fellowship degree was excluded. Apart from fellow College of Physicians and Surgeons (FCPS) Pakistan, postgraduate specialty residents are also not included in the study.

Data Collection

Data was collected through online Google Forms. The form consisted of the bio-data part and the EFFECT questionnaire. The EFFECT questionnaire consists of 58 questions (items) and is divided into seven domains. (1-Role modeling, 2-task allocation, 3-planning, 4-feedback, 5-teaching methodology, 6-personal support, 7-assessment). The domain of role modeling is further distributed into four subdomains: 1-clinical skills, 2-CanMEDS roles, 3-Academic research, and 4- reflection. Similarly, the feedback subdomain has two subdomains: 1-process and 2-content. Each item is scored on a 6-point Likert scale (very poor=1, poor=2, intermediate=3, satisfactory=4, good=5, excellent=6). The data was analyzed using Excel 2022 software.

Data Analysis

Data was analyzed using Excel version 2021. The mean with standard deviation was recorded for each item of the EFFECT questionnaire. The responses were compared between different categories of residents by finding the p-value through a two-sample t-test for each item: male/ female, medical specialties/surgical specialties, junior residents (years 1-2)/senior residents (years 3-5), and senior supervisor/junior supervisor (above and below 50 years of age). The data was considered to be normally distributed. A p-value of <0.05 was considered statistically significant. Finding the p-value was vital because it shows us the items of the EFFECT questionnaire where there is a considerable difference (p-value<0.05) in responses among the different categories of Participants, such as between males and females.

RESULTS

Background Information

The total number of participants was 89. The mean age of participants was 29, and the male-female ratio was 80% (71) to 20% (18). Residents from multiple specialties participated in the study. This includes responses to about 20 supervisors (clinical teachers) from surgery and allied, medical and allied, gynecology and obstetrics, ENT, orthopedics, oral and maxillofacial surgery, pediatric medicine, and radiology departments.

In the **role modeling** domain, the overall mean and standard deviation for each item are shown in Table 1. Also, the P value between Medical & Allied and Surgical & Allied, between female and male residents, between senior and junior residents, and between senior and junior teachers for each item is shown in the same table. The lowest mean score is "Expresses when lacking knowledge about something", which is 3.81. Also, two other items related to conversing about lousy news and reflecting on his/her actions have mean values below 4, indicating a satisfactory response by the residents about their supervisors in these items. All other items have scores above 4, which is a good response from the residents. In the "asking for a patient history" and "examining a patient" items, there is a significant statistical difference between the responses from the medicine & allied and surgical &allied residents (P value <0.05). Similarly, in the items "Expresses when lacking knowledge about something" and "reflects on his/her actions", there is also a significant difference between senior and junior teachers.

In the **task allocation** and the **planning** domains, the overall mean and standard deviation for each item are shown in Table 2. P values for each item, for medical and allied and surgical and allied, between female and male residents, between senior and junior residents, and between senior and junior teachers, are also shown in the same table. The lowest mean score for the item "Gives me extra time when I need" is 3.82. Also, the

Table 1: Mean and SD of each item of the role modeling domain and the P values between different categories of participants

Role Modeling						
Role Modeling Clinical Skills	**The Mean of the Participants' Responses**	**S.D.±**	**P value Med vs. Sur**	**P Value F/M Residents**	**P Value Sr/ Jr Residents**	**P value Teacher Sr/JR**
Take patient history	4.43	1.3	**0.04**	0.66	0.60	0.15
Perform physical examination of the patients	4.28	1.4	**0.05**	0.59	0.62	0.45
Perform clinical actions	4.26	1.4	0.09	0.5	0.71	0.48
Role Modeling General Can MEDS Roles						
Work in cooperation with other healthcare providers for the betterment of the patients	4.25	1.4	0.27	0.41	0.34	0.61
Do discussions with the patients	4.45	1.3	0.29	0.97	0.33	0.80
Assist his colleagues	4.32	1.5	0.23	0.84	0.44	0.75
Maintain a balance in his working hours	4.26	1.3	0.13	0.96	0.37	0.48
Follow guidelines and standard protocols	4.28	1.4	0.35	0.61	0.36	0.63
Respect his patients while treating them	4.65	1.2	0.64	0.65	0.53	0.95
Have a bad news conversation	3.83	1.5	0.15	0.35	0.07	0.81
Role Modeling Professionalism						
Accepts his lack of knowledge when realizes it.	3.81	1.4	0.78	0.49	0.78	**0.03**
Reflects upon his actions	3.97	1.3	0.78	0.49	0.78	**0.03**
He is the role model I want to follow in my profession	4.16	1.4	0.95	0.61	0.95	0.44
Role Modelling Scholarship						
Apply the results of academic research	4.74	1.2	0.36	0.8	0.36	0.18

Other item having a mean score below 4 is "Prevents me from having to perform too many tasks irrelevant to my learning". All other items have mean scores of above four and below 5, indicating a good response by the residents about their supervisors. There is a significant statistical difference (P value <0.05) in Medicine & allied and surgical allied in an item "Provides me the liberty of performing tasks independently, suitable to my training level" in the task allocation domain. In the planning domain, two items, "Organizes time for my supervision" and "Is available when I need him/her during my shift", show statistical differences between the residents' responses from medical & allied and surgical & allied specialties.

In the **giving feedback** domain, the overall mean and standard deviation for each item are shown in Table 3. Also, the P value for each item is shown in the same table between Medical & Allied and Surgical & Allied, between female and male residents, between senior and junior residents, and between senior and junior teachers. Three items have scores in the 3.9 and 4 range. These items are related to "reminding me about previously given feedback", feedback about "collaborating with my colleagues in patient care", and "Application of evidence-based knowledge to my practice". All other items have mean scores above four and below 5, which indicates a good response from the residents about their supervisors. There is a

Table 2: Mean and SD of each item of the task allocation and planning domain and the P values between different categories of participants

Task Allocation	The mean of the Participants' Responses	S.D.±	P value Med vs. Sur	P value F/M Residents	P Value Sr/ Jr Residents	P value Teacher Sr/JR
Allows me to perform independently according to my training level	4.57	1.1	**0.01**	0.89	0.16	0.92
Suggest me suitable task according to my training	4.8	1.0	0.15	0.94	0.55	0.28
Encourages me to take responsibility	4.5	1.2	0.25	0.81	0.41	0.36
Encourages me to discuss my shortcomings	4.3	1.3	0.87	0.5	0.77	0.27
Mentors me in my timings and schedules	4.10	1.4	0.15	0.18	0.97	0.45
Prohibits me from performing irrelevant tasks in my training	3.86	1.4	0.19	0.14	0.9	0.11
Planning						
Allocate enough time for my training	4.11	1.5	**0.01**	0.11	0.57	0.16
Always available when in times of need	4.02	1.4	**0.005**	0.39	0.75	0.33
Allocate me extra time when I require	3.8	1.3	0.10	0.80	0.79	0.40

Table 3: Mean and SD of each item of the giving feedback domain and the P values between different categories of participants.

Process (Quality) of the Feedback	Giving Feedback The Mean of the Participants' Responses	S.D.±	P value Med vs. Sur	P value F/M Residents	P Value Sr / Jr Residents	P value Teacher Sr/JR
supervise me directly and provide timely feedback	4.14	1.3	0.41	0.56	0.15	0.67
Expresses when I am doing right	4.1	1.4	0.32	0.61	0.17	0.83
Provide feedback for improvement	4.05	1.4	0.44	0.45	0.18	0.62
Encourages me to reflect upon my strengths and shortcomings	4.09	1.4	0.58	0.34	0.79	0.68
Constantly reminds me about the previous feedback	3.98	1.2	0.57	0.22	0.69	0.36
Content of the Feedback						
Both technical and clinical	-4	1.2	0.68	0.16	0.17	0.22
How to define the boundaries of my skills according to my training	4.1	1.2	0.71	0.14	0.14	0.68
How do I communicate with my colleagues in providing care to the patients	3.9	1.2	0.62	0.15	0.27	0.58
Applying evidence-based medicine	3.9	1.3	0.73	0.17	0.28	0.56
The ways where I openly express ethical issues	4.21	1.2	0.37	0.16	0.42	0.25

About patient communication and dealing	4.59	1.3	0.30	**0.02**	0.47	0.43

Table 4: Mean and SD of each item of the teaching abilities domain and the P values between different categories of participants.

Teaching Abilities (Methodologies)	The Mean of the Participants' Responses	S.D.±	P value Med vs. Sur	P value F/M Residents	P Value Sr/ Jr Residents	P value Teacher Sr/JR
Explains the possible clinical courses and/or complications	4.47	1.3	0.09	0.96	0.65	0.27
Revisit the learning objectives	4.12	1.3	0.06	0.78	0.95	0.37
Encourages me to express my choice for a particular approach (status, resignation form, etc)	4.36	1.3	0.43	0.66	0.65	0.47
Reviews my reports	4.40	1.4	0.23	**0.02**	0.74	0.21
Encourages me to reflect on myself	4.47	1.3	0.12	0.42	0.93	0.15
Encourages me to ask questions	4.56	1.3	0.19	0.61	0.68	0.43
Stimulates me to take part in academic discussions	4.65	1.3	0.10	0.96	0.88	0.42
Clearly explains medical issues	4.94	1.2	0.08	0.32	0.20	0.27

a statistically significant difference in response to the item "How I communicate with patients" between male and female residents.

In the **teaching abilities** domain, the overall mean and standard deviation for each item are in Table 4. Also, the P value for each item is shown in the same table between Medical & Allied and Surgical & Allied, between female and male residents, between senior and junior residents, and between senior and junior teachers. All items have mean scores above four and below five, indicating a good response by the residents about their supervisors. There is a statistically significant difference in response to the item "review my reports" between male and female residents.

In the **personal support** domain, the overall mean and standard deviation for each item are shown in Table 5. Also, the P value between Medical & Allied and Surgical & Allied, between female and male residents, between senior and junior residents, and between senior and junior teachers for each item is shown in the same table. All items have mean scores above four and below five, indicating a good response by the residents about their supervisors. There is a statistically significant difference in response to three items: "Is

Table 5: Mean and SD of each item of the personal support domain and the P values between different categories of participants).

Personal Support	The Mean of the Participants' Responses	±SD	P value Med vs. Sur	P value F/M Residents	P Value Sr/Jr Residents	P value Teacher Sr/JR
Gives me respect	4.77	1.2	0.08	0.32	0.2	0.27
Is a devoted mentor	4.4	1.2	**0.04**	0.9	0.5	0.24
Ensures that I can trust him	4.43	1.4	**0.05**	0.5	0.6	0.13
Available in hard times	4.32	1.3	**0.003**	0.6	0.97	0.15
Listens to personal issues	4.24	1.4	0.12	0.75	0.52	0.2
Mentors me in balancing my home and profession	4.15	1.3	0.26	0.98	0.90	0.43

Table 6: Mean and SD of each item of the assessment domain and the P values between different categories of participants.

Assessment	The Mean of the Participants' Responses	±SD	P value Med vs. Sur	P value F/M Residents	P Value Sr/Jr Residents	P value Teacher Sr/JR
Prepare progress reviews	4.01	1.2	0.26	**0.05**	0.35	0.12
During reviews, keep the learning objectives in consideration	4.22	1.2	0.12	**0.03**	0.95	0.12
Encourages me to raise issues of my own	4.18	1.3	**0.03**	0.98	0.41	0.35
devise next-term learning objectives during these reviews with me	4.06	1.3	0.08	**0.01**	0.85	0.11
Explains how the staff was involved in the assessment	3.94	1.3	0.17	0.10	0.86	0.57
During assessment always consider my portfolio	4.17	1.3	0.10	0.24	0.91	0.32
Keeps track of my self-reflection	4.10	1.3	0.12	0.33	0.49	0.54
Gives a clear and exhaustive assessment	4.43	1.3	0.06	0.36	0.86	0.10

an energetic/devoted supervisor", "Ensures that I can trust him", and "Helps me in hard times" between medical & allied and surgical & allied and residents.

In the **assessment** domain, the overall mean and standard deviation for each item are shown in Table 5. Also, the P value between Medical & Allied and Surgical & Allied, between female and male residents, between senior and junior residents, and between senior and junior teachers for each item is shown in the same table. A single item, "Explains how the staff was involved in the assessment," has a mean score below 4 (satisfactory response). In contrast, all other items had mean scores above four and below five, indicating a good response from the residents about their supervisors. There is a statistically significant difference in response to three items: "Prepare progress reviews", "During reviews, keep the learning objectives in consideration", and "Formulates next-term learning objectives during these reviews with me" between male and female residents. There is also a statistical difference in response to the item "Allows me to raise issues of my own" between medical & allied and surgical & allied residents.

DISCUSSION

A standard questionnaire filled out by the residents is the easiest way to gauge the standard and quality of postgraduate residency training. Efforts have been made across different countries to establish a standard questionnaire that is more coherent with their health education system.[12] This research uses an EFFECT questionnaire compatible with our clinical teaching system. Our survey covered residents' perceptions of their supervisor from most of the specialties. Overall, the mean scores of the items suggest a good response from the residents about their supervisor, as most of the mean values were above 4. There was no score of 5 or more on any of the items of the EFFECT questionnaire. This suggests room for improvement in almost all domains and subdomains of the teaching methodologies offered by the questionnaire. Some items in nearly all domains except the **teaching methodology** and the **personal support** domain had values between 3 and 4, indicating a satisfactory response from the postgraduate residents. In the role modeling domain, these items were related to "have a bad news conversation", "indicate when he/she doesn't know something", and "reflect on his/her actions". In the task allocation and the

planning domain, the items having the lowest mean scores were related to "preventing the residents from learning the irrelevant tasks" and "giving time to the residents when they needed him/her". In the **feedback** domain, there was a satisfactory response from the residents in items about "reminding them of their previous feedback", "residents' collaboration among themselves for patient care", and "application of evidence-based medicine for patient care".

Similarly, in the assessment domain, a satisfactory response is recorded for the item about "explaining how the staff was involved in assessing the resident's performance". The acceptable responses in the above-described items imply significant room for improvement because all the items were related to critical components of competency-based education. Once identified, these areas demand special attention from the supervisors and the governing bodies to improve postgraduate medical education in our country.

After analyzing the results, we can infer statistically significant differences in responses between sub-groups of participants. There are no statistically significant differences in response to the items in the EFFECT questionnaire between senior and junior residents. It signifies that the resident's perception of their supervisors is not significantly affected by their training year. In a similar study conducted in Lithuania, 1st and 3rd-year residents were more positive than 2nd and 4th-year residents.[1] In another study, residents from 1st and 2nd year of training had higher scores than the senior ones.[9] More research is needed to explain the differences between different years of residents. All others differed in response to different items related to different domains of the residency program. Between **medical & allied and surgical & allied** groups of participants, significant P value differences were noted in most of the domains of the EFFECT questionnaire. This signifies that in some crucial regions of their training, they perceive the standards of their postgraduate training differently. In a study by Cornelia et al, surgical teachers scored higher than non-surgical ones.[10] These differences can be due to inherent differences in their specialty training. The surgeons are also involved in patient care in the operation theatre. In contrast to the non-surgical related specialties, they need help giving the residents time about patient care and postgraduate training intricacies in the outpatient department (OPD) or the ward. They offer less time for patient history and examination and rely on investigations compared to the medical specialties. Also, they expose their residents to skills involving surgeries later, and the residents may feel that they are slowly learning essential tasks. Also, the surgeons are not readily available to their residents on multiple occasions due to the nature of their work. Consequently, the residents feel the absence of their supervisors in their time of need. The statistically significant differences between the responses of surgical and non-surgical residents give us an insight into the grey areas where we can work hard to improve the standards of our postgraduate training.

Between **male and female subgroups** of the participants, there is a significantly different response in items related to 3 domains of the EFFECT questionnaire. The difference in the teaching methodology domain is in the response to the "reviews my reports" item. In the feedback domain, one item, "how I communicate with the patients", shows a significantly different response between males and females. In the assessment domain, three items (Prepare progress reviews During reviews, keep the learning objectives in consideration, and formulate next-term learning objectives during these reviews with me) indicate a difference in response between the two genders. Cornelia et al, 2014 found no difference in response to the EFFECT questionnaire between the two genders except in the role modeling domain.[10] By analyzing each item of the EFFECT questionnaire between the two gender-based subgroups, we can infer potential areas where

discrimination is perceived, and the authorities managing postgraduate medical education in Pakistan can focus more on those areas. Perception of the residents about their supervisors based on their age (above and below 50 years) also indicates statistically significant differences in two items related to role model professionalism. Between **senior and junior teachers,** "Indicates when he/she/ himself/herself does not know something" and "Reflects on his/her actions" were the two areas with P value <.05. One probable explanation is that younger teachers are less resistant to accepting their deficiencies and reflecting upon their mistakes. They believe in a learning phase due to their comparatively less experience than the seniors. The same differences were found in other studies where junior teachers received higher scores than seniors. The reason prescribed in those studies was that junior teachers might be more enthusiastic about their trainees and tend to give more time to teaching the residents.[13] A study by Arah et al, in 2012 infers that as time spent in clinical teaching increases, the scores increase for the teachers as well.[13] Surveys were conducted based on the gender of the teachers. In one such gender-based survey of the teachers, the male teachers received higher scores in teaching quality, while female teachers received better scores in communication skills.[14] In a Netherlands-based study, female teachers received better scores than male teachers in almost all domains.[10] In our study, we did not include the gender-based comparison of the teachers because almost all the female teachers belong to the gynecology and obstetrics department and were evaluated only by female residents. The male teachers were from all other specialties. In most cases, only male residents perform their evaluation, so gender-based assessment of the teachers doesn't seem fruitful in our study.

The strength of our study was the inclusion of residents from multiple specialties, including medical and surgical, though basic sciences were not targeted in this study. We also used a validated questionnaire for our study, which provided a sufficient understanding of postgraduate medical education in our country. The study provided data about the level of supervisorship of Fellows of the College of Physicians and Surgeons (FCPS) Pakistan and differences in the subgroups regarding the perception of the overall training program. Qualitative studies can be conducted in the future to understand the perceived differences in the response to various items. Our study does not define a cutoff where the response to the items or domains of the EFFECT questionnaire can be regarded as optimum or significantly deficient. Also, it was a single-center study and can be generalized cautiously across the province or the country. We also did not include a representative sample from each specialty because participation in the study was voluntary; therefore, we could not compare the mean scores between different specialty programs. We find the P value to compare the perception of medical & allied and surgical & allied programs to gauge the areas of significant difference. These differences can signify the areas needing more attention from the authorities managing the postgraduate education in our country. More studies are required to gauge postgraduate residents' perceptions of their supervisors to improve medical education in this country. The clinical teachers consider the discrepancies between the external evaluation by the residents and self-evaluation on the exact domains very seriously.[15] This can direct us to future studies where we can include self-evaluation of the teachers by themselves along with evaluation by the residents based on the EFFECT questionnaire.

CONCLUSION

Overall, the study's results show that the residents perceive their supervisors nicely. As described in the EFFECT questionnaire, there is room for improvement in all the domains of teaching.

Certain areas have the most significant deficiencies, requiring urgent measures to improve those. Also, more research is needed to validate or identify weaknesses in our residency programs and formulate effective and targeted measures.

REFERENCES

1. Vaižgėlienė E, Padaiga Ž, Rastenytė D, Tamelis A, Petrikonis K, Kregždytė R, et al. Validation of the EFFECT questionnaire for competence-based clinical teaching in residency training in Lithuania. Med. 2017;53(3):173–8. Doi: 10.1016/j.medici.2017.05.001
2. Beckman TJ, Cook DA, Mandrekar JN. What is the validity evidence for assessments of clinical teaching? J Gen Intern Med [Internet]. 2005;20(12):1159–64. DOI: 10.1111/j.1525-1497.2005.0258.x
3. Ortiz-López N, Olea-Gangas C, Ponce-Arancibia S, Arancibia-Carvajal S, Rodríguez-Cabello J, Cortés-Chau F, Solís I. Assessing student perceptions of the clinical teachers' performance during early clinical exposure. Rev Med Chil. 2022;150(4):439-449. DOI: 10.4067/S0034-98872022000400439.
4. Fluit C, Bolhuis S, Grol R, Ham M, Feskens R, Laan R, et al. Evaluation and feedback for effective clinical teaching in postgraduate medical education: Validation of an assessment instrument incorporating the CanMEDS roles. Med Teach [Internet]. 2012;34(11):893–901. DOI: 10.3109/0142159X.2012.699114
5. Fluit CRMG, Bolhuis S, Grol R, Laan R, Wensing M. Assessing the Quality of Clinical Teachers. J Gen Intern Med [Internet]. 2010;25(12):1337–45. DOI: 10.1007/s11606-010-1458-y
6. Downing SM. Validity: on meaningful interpretation of assessment data. Med Educ. 2003;37(9):830–7. DOI: 10.1046/j.1365-2923.2003.01594.x
7. Scheepers RA, Lombarts KMJMH, Van Aken MAG, Heineman MJ, Arah OA. Personality traits affect teaching performance of attending physicians: Results of a multi-centre observational study. PLoS One. 2014;9(5). Doi: 10.1371/journal.pone.0098107
8. Bandiera, G., Lee, S., & Tiberius, R. Creating Effective Learning in Today's Emergency Departments: How Accomplished Teachers Get It Done. Annals of Emergency Medicine. 2005;45(3), 253–261. DOI: 10.1016/j.annemergmed.2004.08.007
9. Boor, K., Teunissen, P. W., Scherpbier, A. J., van der Vleuten, C. P., van de Lande, J., & Scheele, F. Residents' perceptions of the ideal clinical teacher-A qualitative study. European Journal of Obstetrics, Gynecology, and Reproductive Biology. 2008;140(2), 152–157. DOI: 10.1016/j.ejogrb.2008.03.010
10. Fluit CRMG, Feskens R, Bolhuis S, Grol R, Wensing M, Laan R. Understanding resident ratings of teaching in the workplace: a multi-centre study. Adv Heal Sci Educ. 2015;20(3):691–707. DOI: 10.1007/s10459-014-9559-8
11. Marwan Y, Luo L, Toobaie A, Benaroch T, Snell L. Operating Room Educational Environment in Canada: Perceptions of Surgical Residents. J Surg Educ. 2021;78(1):60–8. DOI: 10.1016/j.jsurg.2020.07.010
12. Luchsinger L, Berthold A, Brodmann Maeder M, Giger M, Bauer W, Siegrist M. A questionnaire for quality control in postgraduate medical education in Switzerland. Medical Teacher. 2023;45(9):1012-1018. Doi: 10.1080/0142159X.2023.2168181.
13. Arah OA, Heineman MJ, Lombarts KMJMH. Factors influencing residents' evaluations of clinical faculty member teaching qualities and role model status. Med Educ 2012;46(4):381–9. DOI: 10.1111/j.1365-2923.2011.04176.x
14. Morgan HK, Purkiss JA, Porter AC, Lypson ML, Santen SA, Christner JG, et al. Student evaluation of faculty physicians: gender differences in teaching evaluations. J Womens Health 2016;25(5):453–6. Doi: 10.1089/jwh.2015.5475
15. Stalmeijer RE, Dolmans DH, Wolfhagen IH, Peters WG, van Coppenolle L, Scherpbier AJ. Combined student ratings and self-assessment provide useful feedback for clinical teachers. Adv Health Sci Educ Theory Pract. 2010;15(3):315-28. DOI: 10.1007/s10459-009-9199-6

Additional Information

Disclosures: Authors report no conflict of interest.
Ethical Review Board Approval: The research was conducted after getting approval from the institution.
Human Subjects: Consent was obtained by all patients/participants in this study.
Conflicts of Interest:
In compliance with the ICMJE uniform disclosure form, all authors declare the following:
Financial Relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.
Other Relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.
Data Availability Statement: The data of the research is available for any future reference.
Funding: N/A.

AUTHORS CONTRIBUTIONS

Sr.#	Author's Full Name	Intellectual Contribution to Paper in Terms of:
1.	Ambreen Syed	1. Study design and methodology.
2.	Musawer Khan	2. Paper writing.
3.	Shoaib ur Rehman	3. Data collection and calculations.
4.	Imtiazuddin	4. Analysis of data and interpretation of results.
5.	Naeem ul Haq	5. Literature review and referencing.
6.	Mohammad Ishaq	6. Editing and quality insurer.