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Original Article

Assessing Postgraduate Surgical Training Needs at Two Private Tertiary Care Hospitals: A Descriptive Study

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Abstract

Objective: To assess the perceived learning needs and challenges faced by postgraduate surgical residents at two private tertiary care hospitals, with the aim of identifying areas for improvement in the structure and delivery of surgical training programs.

Methodology: A cross-sectional, descriptive observational study was conducted from May 2023 to January 2024 at two private medical colleges offering structured residency programs in Surgery and Allied specialties. Postgraduate residents from years one to four were recruited through purposive sampling after obtaining ethical approval and informed consent. A 23-item questionnaire, developed from literature and pilot-tested for clarity, was administered via Google Forms to 57 residents. Responses were collected using a 5-point Likert scale and subsequently grouped into three categories: disagree (1–2), neutral (3), and agree (4–5). Participants were stratified into junior (years 1–2) and senior (years 3–4) groups. Data were analyzed using SPSS version 24. Chi-square or Fisher's exact tests were applied, with a p-value of <0.05 considered statistically significant.

Results: Overall, 87% of respondents reported receiving specific learning objectives at the start of each rotation—80% of juniors and 93.3% of seniors. Although 65.5% felt they achieved the expected learning outcomes, only 29% perceived the training to be well-structured. A majority (76.3%) expressed dissatisfaction with opportunities to serve as primary surgeons. Feedback was limited; only 30% reported receiving supervisor feedback. While over 60% of residents were familiar with the curriculum and had access to educational resources, only 20% received a formal orientation. Confidence in achieving learning goals was reported by 61.8%, with overall training satisfaction noted in 60% of juniors and 56.7% of seniors.

Conclusion: The study highlights key gaps in surgical training, including inadequate operative exposure, limited feedback mechanisms, and the need for structured evaluation and orientation practices.

Keywords: Postgraduate surgical training, learning needs, trainee feedback, residency programs, clinical education

Introduction

A clinician's educational journey is ongoing, a process of lifetime learning that is essential to improve patient care by enhancing one's knowledge and abilities. Continuing medical education is a means by which healthcare providers continue to learn.[1] All medical education programs, both undergraduate and graduate, must establish a framework for continuous analysis, policy development, and evaluation of the outcomes resulting from the implementation of their strategies. Sadly, scarcity of research in our region leads to inconsistent quality of teaching and learning leaving many trainee doctors feeling unsupported, stressed, and resorting to ineffective coping mechanisms.[2] A surgical error has the potential to permanently change a patient's life; hence educating a surgeon is extremely important and should be of the greatest caliber. For a considerable amount of time, medical educators have maintained that postgraduate surgical trainees should have access to a well-organized system that facilitates the acquisition and improvement of fundamental surgical skills. Before they begin operating on patients, they must receive thorough training.[3] The College of Physicians and Surgeons Pakistan (CPSP) created and organized the Primary Surgical Skills Workshop with this in mind. The CPSP surgical supervisors are directly in charge of organizing this workshop. These workshops were conducted at Pakistan Institute of Medical Sciences (PIMS), Islamabad and delivered to postgraduate surgical trainees from March 2018 to February 2019. It included 107 participants. The College of Physicians and Surgeons Pakistan (CPSP) and Shaheed Zulfiqar Ali Bhutto Medical University (SZABMU) collaboratively developed the educational material or curriculum for the workshop. The standardized and obligatory program for trainees in postgraduate surgery and related fields in Pakistan is this workshop. Since 1996, CPSP has carried it out nationwide through its regional centers.[2] As future consultants, residents-in-training must be provided with a conducive learning environment to ensure they acquire the necessary knowledge and skills. A supportive and encouraging atmosphere is essential for a training program to be successful since it will ultimately lead to better patient care. Post-graduate medical education has been standardized and overseen globally to provide a satisfactory

level of training.[4,5]

Regrettably, a substantial number of our competent medical graduates are compelled to leave the country due to limited learning opportunities, non-conducive environments, and lower remuneration.[6,7] It is essential to restructure residency programs to cater high-quality learning opportunities and standardized financial compensation thus providing medical graduates with compelling reasons to stay in the country and contribute to its healthcare and simultaneously meet global standards in surgical practice.[8,9] Surgery demands precision, where errors are not permissible. Because of this and its inherent qualities, the medical industry is extremely competitive, drawing in the most driven and resilient individuals. It is a field that is likewise evolving predictably quickly and consistently.[10,11]

This study's primary objective is to explore the learning requirements and obstacles faced by the trainees to enhance the efficacy, efficiency and caliber of surgical training programs. The main goal was to find out how trainees felt about the quality and content of surgical training, as well as how this affected how satisfied they felt about the program's ability to help them acquire new skills and knowledge.

Methodology

A cross-sectional descriptive observational study was conducted at two private medical colleges in Karachi, Pakistan, offering structured residency programs in surgery and allied disciplines. These institutions were selected based on the authors' workplace affiliations. After approval from the ethical committee of both institutions with reference number: 5970523NSSUR and IRB/61 respectively, post graduate students enrolled in surgical and allied residency program from year one to year four were included in the study through purposive sampling, after obtaining their written consent. We excluded those with incomplete information. The time period for the study was from May 2023 to January 2024. A preliminary version of the survey form was developed based on literature review and a validated tool. It was then pilot tested by six postgraduate residents via email. The final survey consisted of 23 items structured on a 5- point Likert scale but for the sake of convenience in analyzing the results we merged strongly agree and agree and strongly disagree and disagree (1= disagree, 2= neutral and 3= agree). The survey covered demographic data (gender and year of residency) and four domains including learning objectives for trainees, training in knowledge and skills, techniques for assessment and feedback, and general issues pertaining to training. After piloting, the finalized survey was distributed to 57 postgraduate surgical residents from years one to four via Google Forms. Residents in years one and two were categorized as junior residents, while those in years three and four were classified as senior residents. To maximize response rates, reminders were sent weekly following the initial invitation. Participants were informed about the study's objectives and assured of voluntary participation and data anonymity.

Data was coded and analyzed using SPSS version 24. Descriptive statistics were reported as frequencies and percentages. The Chi-square test of association or Fisher's exact test was applied, where appropriate, to compare responses between junior and senior residents, with statistical significance set at $p < 0.05$.

Results

The survey form was provided to 57 postgraduate students enrolled in the surgical residency program and was completed with a response rate of 97% including 16 (29.1%) males and 39 (70.9%) females. The number of residents at each level of training was 8 (14.5%), 17 (30.9%), 10 (18.2%), and 20 (36.4%) for the years I, II, III, and IV respectively (Figure 1).

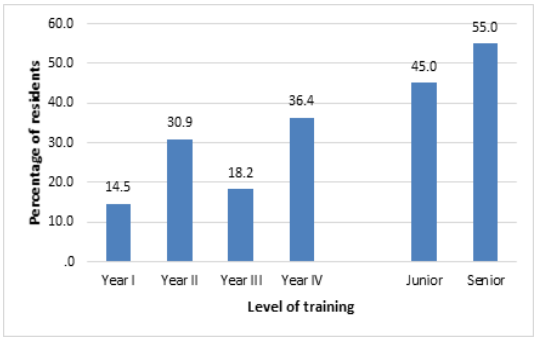

Figure 1: Percentage of residents in each year of training and combined into the junior and senior group

The year I and II residents were classified into junior 25 (45%) while years III and IV were combined into senior 30 (55%) groups. Also, for the analysis purpose, the response options strongly disagreed and disagreed were merged into "Disagreed" and strongly agreed and agreed into "Agreed". The statement-wise analysis was carried out using the three response categories disagreed, neutral, and agreed for each of the domains separately (Table 1).

Table 1: Item-Wise Responses for Each Domain by the Level of Training

Items	Level	Response f (%)			p-value
		Disagreed†	Neutral	Agreed†	
Learning objectives for trainees					
1. Clear learning objectives are provided at the start of each rotation.	Junior	6 (24)	7 (28)	12 (48)	0.445*
	Senior	7 (23.3)	13 (43.3)	10 (33.3)	
2. Specific learning goals are set before each rotation begins.	Junior	4 (16)	1 (4)	20 (80)	0.286‡
	Senior	2 (6.7)	0	28 (93.3)	
3. I achieve the expected learning outcomes by the end of each rotation.	Junior	5 (20)	4 (16)	16 (64)	0.846‡
	Senior	7 (23.3)	3 (10)	20 (66.7)	

Training in knowledge and skills					
4. I frequently get the opportunity to perform as the primary surgeon.	Junior	10 (40)	8 (32)	7 (28)	0.282*
	Senior	8 (26.7)	16 (53.3)	6 (20)	
5. The technical/operative training is well-structured.	Junior	6 (24)	9 (36)	10 (40)	0.148*
	Senior	5 (17.2)	18 (62.1)	6 (20.7)	
6. I often feel competition for surgical opportunities.	Junior	4 (16)	3 (12)	18 (72)	0.256ɬ
	Senior	10 (33.3)	5 (16.7)	15 (50)	
7. I receive sufficient surgical exposure to meet my learning objectives.	Junior	9 (36)	2 (8)	14 (56)	0.926ɬ
	Senior	11 (36.7)	4 (13.3)	15 (50)	
Techniques for assessment and feedback					
8. Supervisors provide regular informal feedback.	Junior	7 (28)	11 (44)	7 (28)	0.384*
	Senior	4 (13.3)	17 (56.7)	9 (30)	
9. Supervisors offer formal feedback after rotations.	Junior	7 (28)	10 (40)	8 (32)	0.324*
	Senior	4 (13.3)	17 (56.7)	9 (30)	
10. I get to review and sign my assessment form at the end of each rotation.	Junior	8 (32)	9 (36)	8 (32)	0.214*
	Senior	4 (13.3)	16 (53.3)	10 (33.3)	
11. There is a formal system to provide feedback on supervisors.	Junior	8 (32)	8 (32)	9 (36)	0.415*
	Senior	12 (40)	12 (40)	6 (20)	
12. There is a system to evaluate the training center and rotations.	Junior	10 (40)	10 (40)	5 (20)	0.873*
	Senior	13 (43.3)	10 (33.3)	7 (23.3)	
General issues pertaining to training					
13. I fully understand my program's curriculum design.	Junior	3 (12)	5 (20)	17 (68)	0.060ɬ
	Senior	10 (33.3)	1 (3.3)	19 (63.3)	
14. I am aware of my program's educational requirements.	Junior	7 (28)	2 (8)	16 (64)	0.277ɬ
	Senior	7 (23.3)	0	23 (76.7)	
15. Teaching tools and materials are easily accessible.	Junior	9 (36)	3 (12)	13 (52)	0.455ɬ
	Senior	7 (23.3)	2 (6.7)	21 (70)	
16. An orientation is provided before each rotation.	Junior	8 (32)	12 (48)	5 (20)	0.955*
	Senior	9 (30)	14 (46.7)	7 (23.3)	
17. I can choose elective rotations to support my learning.	Junior	5 (20)	5 (20)	15 (60)	0.331ɬ
	Senior	9 (30)	2 (6.7)	19 (63.3)	
18. My academic half-day is well-protected during rotations.	Junior	8 (32)	4 (16)	13 (52)	0.807ɬ
	Senior	8 (26.7)	4 (13.3)	18 (60)	

19. Evaluating supervisors and training institutes enhances training.	Junior	2 (8)	1 (4)	22 (88)	0.715ǂ
	Senior	5 (16.7)	1 (3.3)	24 (80)	
20. My knowledge improves by the end of each rotation.	Junior	6 (24)	3 (12)	16 (64)	0.801ǂ
	Senior	8 (26.7)	5 (16.7)	17 (56.7)	
21. My clinical skills improve by the end of each rotation.	Junior	7 (28)	10 (40)	8 (32)	0.923*
	Senior	7 (23.3)	13 (43.3)	10 (33.3)	
22. I acquire the necessary knowledge by the end of each rotation.	Junior	2 (8)	7 (28)	16 (64)	0.467ǂ
	Senior	6 (20)	6 (20)	18 (60)	
23. I am satisfied with my residency training.	Junior	4 (16)	6 (24)	15 (60)	0.865ǂ
	Senior	4 (13.3)	9 (30)	17 (56.7)	

* Chi-square test of association
ǂ Fisher Exact test

For the first domain "Learning objectives for trainee", 48% of juniors and 33.3% of seniors acknowledged receiving specific learning objectives at the start of each rotation. Overall, 87% had defined objectives, but only 65.5% felt they met their learning expectations. No significant difference was found between groups (p = 0.445, 0.286, 0.846).

The second domain comprised four questions about "The training in knowledge and skills", 40% juniors and 20.7% seniors agreed that technical training was well-structured, yet 76.3% felt they lacked frequent opportunities as primary surgeons. Competition among trainees was reported by 72% of juniors and 50% of seniors (p = 0.256). Half of both groups found their surgical training adequate (p = 0.926).

For the third domain "Techniques for assessment and feedback", 30% in both groups received formal/informal feedback and had opportunities to discuss assessments. A formal system for trainee feedback on supervisors was supported by 36% of juniors and 20% of seniors (p = 0.415), with similar responses for training center evaluations (p = 0.873).

In the fourth domain, namely "general issues pertaining to training", Over 60% understood the curriculum and had access to teaching materials, but only 20% of juniors and 23.3% of seniors reported an orientation before rotations. Around 80% believed evaluating supervisors would enhance training. By rotation end, 64% of juniors and 56.7% of seniors felt their knowledge improved (p = 0.801), though only 30% saw enhanced clinical performance. Confidence in achieving learning objectives stood at 61.8%. Satisfaction levels were similar across groups: ~60% satisfied, ~15% dissatisfied, and ~25% neutral.

Discussion

This study assessed the perceived learning needs and challenges among postgraduate surgical residents at two private tertiary care hospitals, revealing key gaps in the structure and delivery of residency training. While a majority of residents reported having defined learning objectives and felt they learned as expected, less than one-third believed their training was well-structured. Significant dissatisfaction was noted regarding limited opportunities to act as primary surgeons and the lack of regular feedback from supervisors. Although most residents understood the curriculum and had access to teaching materials, very few received formal orientation before rotations. These findings highlight the need for improvements in hands-on surgical exposure, structured teaching, and systematic feedback mechanisms to enhance the overall quality of surgical training.

This study provides insights into the current state of surgical residency in Pakistan from the perspective of trainees, offering valuable input that can contribute to effectiveness in our residency programs. To establish appropriate ways to improve training outcomes, the results of our assessment could be used as indicators of the evaluation of the training programs.[12]

The significant finding from this study is the lack of structured hands-on surgical opportunities (Table 1). There has been widespread use of simulation-based training in residency programs, however our findings showed that trainees still experience competition for hands on opportunities and very minimal primary surgeon roles. Progressive autonomy has been identified as a crucial factor for graduating residents' confidence stepping in independent practice after completion of residency.[13] Subjective reports from trainees have advocated that autonomy facilitates building confidence by enhancing their clinical decision-making abilities, which increases their educational experience.[14] There is enough literature to suggest that a rise in autonomy optimizes retention of learning outcomes.[15] A survey conducted by Fillmore et al., autonomy was found to be aligned with enhanced confidence and satisfaction of residents.[16]

Another key issue is the lack of a structured mechanism for giving feedback, with only 30% of trainees being provided with regular feedback. Constructive feedback is crucial for the professional growth of trainees, and according to

international standards, workplace-based assessment with structured debriefing sessions is mandatory to reinforce productive learning.[17] Within structured training programs, feedback is deliberately incorporated, encouraging continuous improvement and refinement of surgical skills. By initiating structured faculty training for constructive feedback and assessment frameworks, they could substantially improve training outcomes. Fadelalla MG study confirms that good feedback can shorten the time it takes for trainees to master psychomotor skills.[18] Psychomotor skill is the most important component of surgical training and solely depends on genuine feedback. Using the Kirkpatrick model, a large academic general surgery residency program with 42 residents was sequentially surveyed in 2022 to evaluate the efficacy of a feedback faculty and trainee. The percentage of residents who thought their faculty was giving feedback successfully rose from 23% to 54% following feedback training. Surgical trainees' educational abilities are dramatically improved by formal feedback.[19] According to research by Harrison et al., in 2016, an environment that only have assessments with summative goal will not generate a culture of learning and improving skills.[20]

Additionally, while majority of trainees comprehended their curriculum, the lack of structured orientation programs could lead to instability in training expectations. Opposite to this, surgical training programs across globally maintain comprehensive orientation sessions, guidance or mentorship sessions, and individual trainee learning plans to strengthen transparency and accountability. Proving orientation before each rotation and mentoring session could handle obstacles and concerns of trainees and enhance overall effectiveness of rotation learning outcomes. Each new clinical environment in rotations requires trainees to navigate a diverse set of complex communication to engage in safe patient care while receiving training from live patients. Orientation before each rotation forms the foundation of trainees learning.[21,22]

The study also highlights that most residents perceived vast improvement in their clinical knowledge at the end of each rotation. But there was also a significant void between knowledge comprehension and application of practical knowledge. This was evident by 30% of the students highlighted increase clinical performance. This gap revealed that theoretical knowledge is being delivered effectively, there may be unsatisfactory hands-on training experiences or opportunities, less or inadequate supervision, or a lack of constructive feedback mechanism. According to Azim, 2021, the quality of surgical training is impacted by the growing number of residents, less operating room training chances, and ethical concerns. The quality of surgical training is being impacted by these factors globally, to differing degrees.[23]

Based on these findings, we must enhance the educational experience for both junior and senior residents. It is crucial to address identified gaps in surgical training and feedback mechanisms. Implementing structured orientations for new rotations can ensure trainees are adequately prepared and aware of their learning objectives. Increasing opportunities for residents to perform as primary surgeons may foster confidence and skill development, thereby enhancing technical proficiency. Establishing a formal feedback system for supervisors and training centers can encourage open communication, allowing residents to voice their concerns and suggestions. Lastly, ongoing assessments of curriculum effectiveness and the provision of teaching resources should be prioritized to align training with residents' learning needs, ultimately leading to improved satisfaction and performance in residency training.

Limitations

The sample size is relatively small, consisting of only 57 residents from two private institutions, which limits the generalizability of the findings to a broader population of surgical trainees. Additionally, the study relies solely on self-reported data from trainees, which may introduce response bias and does not include faculty perspectives that could provide a more balanced evaluation of the training programs.

Conclusion

This study identifies deficiencies in postgraduate surgical training, such as a lack of opportunity for hands-on practice, structured learning, and feedback systems. Residency programs, satisfaction of trainees, and patient care can all be improved by bolstering competency-based training, structured feedback, and surgical exposure. Faculty viewpoints should be included in future research for a more thorough assessment.

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