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ORIGINAL ARTICLE

Perception of the Educational Environment of Post-graduate Residents in Teaching Hospitals across Pakistan

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ABSTRACT

Aim: To evaluate the perception of educational environment of post-graduate residents in teaching hospitals of Pakistan.
Methodology: This cross-sectional descriptive study was conducted in four tertiary care hospitals in Pakistan from January 2020 to November 2020.The Post-graduate Hospital Education Environment Measure (PHEEM) inventory (40 items on a 0-4 Likert scale) was distributed among 195 post-graduate residents of multiple specialties by convenience non-probability sampling technique. Response was recorded into three subscales which included perception of teaching, role of autonomy and social support. The total score of these three domains had a combined maximum and minimum of 160 and 0, respectively.
Results: Cumulative mean score obtained in our study showed a total score of 23.69 ± 16.247 / 56 for the theme: Perception of Role of autonomy, 24.17 ± 16.928 / 60 for Perception of Teaching and 19.35 ± 13.224 / 44 for Perception of Social Support.
Conclusion: There are no drastic flaws in the post-graduate medical education residency-training program currently running in Pakistan. However, there is need for further improvement in teaching attitude of instructors and the need to eradicate discriminatory behavior felt by the post-graduate residents in certain circumstances.
Keywords: Perception, Educational environment, Postgraduate Residents, Pakistan.

INTRODUCTON

Post Graduate Medical Education (PGME) is a mode of learning where resident doctors are taught in a practical clinical setting with an objective to learn and apply that knowledge, simultaneously [1]. Educational environment is an important factor for the assessment of the quality of medical education being delivered and the aptitude of its post-graduate residents (PGRs) in a teaching hospital[2]. World Federation for Medical Education emphasizes that the work environment, learning opportunities and infrastructure of the workplace are vital for quality educational environment[3]. A deficient educational setting can become stressful for PGRs, leading to increases incidence of burnout [4]. The residents in training are the future consultants and they should be provided with an optimal educational environment which is necessary for their adequate learning[5]. For an effective training program, it is important to have a positive and facilitating environment as this is ultimately reflective towards improved patient care[6].

Around the globe, post-graduate medical training has been standardized and is monitored to provide an acceptable standard of training[2]. Regarding PGME in Pakistan, fellowship of the College of Physicians and Surgeons of Pakistan (CPSP) is the most commonly opted pathway. Apart from CPSP, many other universities are issuing their own degrees. To be fit for offering training, a few standards are in place for the accredited hospitals and mandatory trainings are given to supervisors in areas of supervisory skills, research, educational planning, evaluation and assessment of competence[7]. However, there is variation in the excellence and proficiency of the training program in different hospitals and a pro-active supervised evaluation of training standard is not in effect, throughout Pakistan[8].

The Post-graduate Hospital Educational Environment Measure (PHEEM) is a tool used for the assessment of educational environment of doctors in training at teaching hospitals. It has 40 questions and each item is answered by trainees on a 5-point Likert scale. The included sub-scales of department and educational environment are Autonomy, Teaching and Social Support. It has extensive popularity and has become a commonly used inventory[9]. PHEEM has been validated in many studies and has higher Crohnbach's alpha values, indicating it's higher internal consistency[10]. It can assess the strengths and weaknesses of the educational environment of the hospitals and it's departments[11]. There are only a few studies in Pakistan seeking to assess the educational environment provided to the residents pursuing fellowships, and that too are limited to a single institute[12,13]. There is a dire need to evaluate educational environment of PGRs on mass level in Pakistan and work towards improving the areas that need reformation.

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METHODOLOGY

This cross-sectional study involved the assessment of the educational environment in four different tertiary care hospitals in Pakistan. It was conducted for 11 months from January 2020 to November 2020. A sample size of 195 participants was achieved with 95% confidence level and 5% margin of error. The PHEEM was adapted to local context to suit the Pakistani system and was used to assess the educational environment of residency programs in these hospitals. Two questions (item 11: 'I am bleeped inappropriately' and item 17: 'My hours conform to the New Deal') in the autonomy section were changed, as they were not applicable to the hospital set-ups being investigated. They were rephrased as (11: 'I am called for inappropriate duties' and 17: 'My hours of work are in agreement with my contract'). The questionnaire was distributed to the residents in their respective departments and then collected on completion. The questionnaire was anonymous and the participants did not have to provide their name, addresses or any other personal information via the form. To maintain confidentiality, hospitals were assigned the following codes; H1, H2, H3 and H4. H1 is a private tertiary care center hospital located in Karachi in the province of Sindh. H2 and H3 are government tertiary care hospitals in Faisalabad in the province of Punjab while H4 is a tertiary care hospital in Islamabad which is the federal capital territory of the country. Informed consent was obtained from all participants and the study had IRB approvals from all the four hospitals.

To assess the PGR's responses, we used the five-point Likert scale with following options;
Strongly Agree (SA) = 4

Agree (A) = 3
Uncertain (U) = 2
Disagree (D) = 1
Strongly Disagree (SD) = 0

Clinical education environment was considered effective if there was a higher level of PGRs agreement. Among 40 statements, four were scored in reverse order as they were negative statements (7, 8, 11 & 13), as following;

Strongly Agree (SA) = 0
Agree (A) = 1
Uncertain (U) = 2
Disagree (D) = 3
Strongly Disagree (SD) = 4

Sub-scales were interpreted as:

I: Perception of Role of Autonomy: 14 items with maximum score of 56; Excellent Perception = 43-56, A more positive perception of one's job = 29-42, A -ve view of one's role=15-28, Very poor=0-14.

II: Perception of Teaching: 15 items with maximum score 60; 46-60 = Model teaching, 31-45 = Moving in the right direction, 16-30 = In need of some retraining, 0-15 = Very poor quality.

III: Perception of Social Support: 11 items with maximum of 44; A good supporting environment = 34-44, More positive than negative = 23-33, Not a pleasant place = 12-22, Non-existent= 0-11

Range of above scores was from minimum 0 to maximum 160. Tool developer[14] has given the interpretation of above combined scores as:

Very poor educational environment 0-40
Significant problems 41-80
More positive than negative but room of improvement 81-120
Excellent clinical education environment 121-160

SPSS 20 was used for data analysis. Demographic data included PGR's year of residency, gender, age and specialty. Descriptive statistics included frequencies and percentages for categorical variables and mean and standard deviation for continuous variables. Chi square test was used for statistical analysis. P <0.05 was considered significant.

RESULTS

One hundred and ninety five participants of post-graduate medical education (PGME) from four different hospitals in Pakistan, completed the survey. The responses from the three public sector hospitals when accumulated together were 54.3%, being 6.6% more to the one private sector hospital. Altogether residents were from 18 different specialties. The highest response rate was from the Department of Medicine; while the lowest was from the Emergency, Ophthalmology and Pediatrics Surgery Departments. Residents from all five years were a part of this study with more prevalent second year residents' responses (Table 1).

The cumulative highest score that can be obtained in each category of PHEEM i.e. Perception of Role of Autonomy, Perception of Teaching and Perception of Social Support is 56, 60 and 44 respectively. Cumulative mean score obtained in our study showed a total score of 23.69 ± 16.247 for the theme: Perception of Role of autonomy, 24.17±16.928 for Perception of Teaching and 19.35 ± 13.224 for Perception of Social Support. The scores can be interpreted as a mean view of the participants towards each category. Participants were mostly unsure or agreed to have autonomy in the position they were working at, the benefits of the current method of teaching in their programs and the social support provided to them (Table 2).

The statements that the participants most strongly agreed with included 'I have a contract of employment that provides information about hours of work'; Statement 1 from the category: Perception of Role of Autonomy, which was chosen by 61 respondents (31.3%). It was followed by the statement 'I feel physically safe within the hospital environment'; Statement 24 from the category: Perception of Social Support chosen by 55 subjects (28.2%). These two statements were followed by 'I have good collaboration (teamwork) with other resident doctors'; Statement 16 from the category: Perception of Social Support which was selected by 50 participants (25.6%).

The statements that the participants most strongly disagreed with included 'I have to perform an inappropriate task'; Statement 8 from the category: Perception of Role of Autonomy, which was chosen by 36 respondents (18.5%). It was followed by the statement 'There is discrimination (unfair) in this post'; Statement 7 from the category: Perception of Social Support chosen by 30 subjects (15.4%). These two statements were followed by 'There are good counseling opportunities for resident doctors who experience difficulty regarding their training'; Statement 38 from the category: Perception of Social Support which was selected by 28 participants (14.4%).

The scores for each of the three components were divided into responses received from Government Public and Private Hospitals. The independent sample t-test showed that the difference between the mean score for each component for government and private sector was statistically significant with the scores from public sector being higher than private sector hospital. There was also a significant association between the quality of educational environment, the problems of education environment and room for improvement in public and private institutions. Private hospitals included in this study had an unsatisfactory poorer educational environment as compared to public hospitals. However, public sector hospitals had more problems associated with them. Despite this post-graduate residents perceived government public hospitals to show a higher room for improvement as compared to their private counterpart (Table 3). This may reflect on higher satisfaction levels in public sector's residency training in comparison to private teaching hospitals.

Table 1: Characteristics of participants in study

Category		Total n=195
Hospital Affiliation (Public or Private)		
H1	Private	93(47.7%)
H2	Public	48(26.6%)
H3	Public	3(1.5%)
H4	Public	51(26.2%)
Gender		
Male		74(37.9%)
Female		121(62%)
Specialty		
Anesthesia		9(4.6%)
Community Health Sciences		5(2.6%)
Dentistry		15(7.7%)
Dermatology		3(1.5%)
Emergency		1(0.5%)
Ear, Nose, Throat		2(1.0%)
Family Medicine		11(5.6%)
General Surgery		29(14.9%)
Gynecology/Obstetrics		16(8.2%)
Medicine		56(28.7%)
Neurology		2(1.0%)
Neurosurgery		27(13.8%)
Ophthalmology		1(0.5%)
Orthopedics		3(1.5%)
Pediatrics		5(2.6%)
Pediatrics Surgery		1(0.5%)
Psychiatry		2(1.0%)
Radiology		7(3.6%)
Year of Postgraduate Training		
First Year		49(25.1%)
Second Year		54(27.7%)
Third Year		43(22.1%)
Fourth Year		40(20.5%)
Fifth Year		9(4.6%)

Table 2: PHEEM Inventory with mean and standard deviation

No.	PHEEM Question	Mean ± St. Deviation
Perception of Role of Autonomy		
1	I possess an employment that provides information about hours of work	1.25±1.224
4	I was given an informative induction (introductory) program	1.42±1.097
5	I am granted the appropriate level of responsibility during my post-graduate training	1.50±1.146
8	I am asked to perform inappropriate task(s)	21.24±1.15
9	An informative rotation handbook is available	2.06±1.182
11	I am contacted inappropriately	1.93±1.214
14	There is a presence of clinical protocols (sets of rules)	1.50±1.100

	in my training	
17	My hours conform (match) to what is listed in the internship regulations	1.92±1.177
18	I am given the opportunity to provide continuity of care	1.43±1.079
29	I am made to feel part of a team while working here	1.49±1.164
30	I am granted opportunities to obtain suitable skills in practical procedures for my year of training	1.54±1.113
32	My workload in this job is manageable	1.95±1.213
34	The training in this residency allows me to feel ready for postgraduate studies	1.70±1.123
40	My clinical preceptors provide an atmosphere of mutual respect and encouragement	1.85±1.174
Perception of Teaching		
2	My clinical supervisor set clear expectations	1.40±1.012
3	I have protected educational time during my training	1.88±1.108
6	I have good clinical supervision at all-time	1.52±1.177
10	My clinical teachers have good communication skills	1.65±1.123
12	I am able to participate actively in educational events	1.45±1.145
15	My clinical teachers are dedicated (committed)	1.56±1.158
21	There is access to an educational program relevant to my needs	1.65±1.241
22	I get regular feedback from seniors	1.67±1.200
23	My clinical teachers are well organized	1.49±1.190
27	I have enough clinical learning opportunities for my needs	1.68±1.095
28	My clinical teachers have good teaching skills	1.47±1.137
31	My clinical teachers are accessible	1.47±1.141
33	Senior staff utilize learning opportunities effectively	1.80±1.048
37	My clinical teachers encourage me to be an independent learner	1.67±1.018
39	The clinical teachers provide me with good feedback on my strengths and weaknesses	1.81±1.135
Perception of Social Support		
7	Discrimination exists in this position	1.97±1.258
13	Discrimination of gender exists in this rotation	2.03±1.226
16	Collaborative work (teamwork) with other residents is good	1.40±1.164
19	I am allowed access to suitable career counseling and guidance	1.75±1.236
20	The hospital provides an appropriate accommodation for its doctors and on-call residents	1.68±1.244
24	I do not feel my physical safety is at risk within the hospital	1.53±1.301
25	There is a no blame culture in this post	2.02±1.166
26	There are adequate catering facilities when I am on call	1.78±1.229
35	My clinical supervisors possess good mentoring skills	1.48±1.071
36	I feel a lot of satisfaction and delight owing to my present job	1.73±1.094
38	There are good counselling opportunities for residents who struggle with their training	1.98±1.235

Table 3: Comparison of PHEEM perception among PGR's of Public and Private hospitals

	Public	**Private**	**p-value**
PHEEM	72.60±17.63	61.31±25.03	<0.001
Perception of Role of granted Autonomy	24.39±6.54	22.89±8.09	<0.001
Perception of Teaching	27.23±7.15	20.81±12.16	<0.001
Perception of Social Support	20.98±5.97	17.61±6.51	<0.001
Chi Square Test			
Poor Educational Environment	3(2.90%)	17(18.30%)	<0.001
Significant Problem	68(66.7%)	57(61.30%)	<0.001
Room for Improvement	31(30.40%)	17(18.30%)	<0.001

DISCUSSION

The World Federation for Medical Education states that the learning environment must be assessed as part of conducting an evaluation of medical education programs[15].

Medical education environment has to be evaluated to assess the nature of the practice of post-graduate medical education in Pakistan. This allows the provision of a broad, systematic, holistic viewpoint of the overall state of the medical education process.

In the study conducted, the Post-Graduation Residents (PGRs) either agreed with the statements or remained neutral, which showed that they were either satisfied with the current method of training program or at least did not have any complaints against it. This can be interpreted as an affirmative sign to the quality of education being provided to medical doctors in Pakistan. However, there is still room for improvement. Though other studies carried out in Saudi Arabia differed but one study by Bu Ali et al presented a similar response regarding the evaluation of residency training programs , like the results of this study [16].

Perception of Social Support: Social support was perceived positively by PGRs. This meant that the PGRs were contented with provision of safety, accommodation and learning environment while working at the hospital. Two PHEEM studies have been carried out in Pakistan assessing the quality of education provided in hospitals in Rawalpindi and Lahore. Both stated 'perception of social support' to have the lowest score among the three aspects of the PHEEM questionnaire[17, 18]. Due to the limitation of data collection from only 4 out of 1279 hospitals in Pakistan, our study can be an under representation of all the hospitals in Pakistan. However, the improvement in the perception of social support among medical doctors should still be considered as a positive achievement in terms of providing a supportive work environment to the trainees. One of the top two strongly agreed statements from the entire questionnaire belonged to this specific category including the feeling of safety in hospital premises and PGRs having a great repertoire with their team. However, the latter might be a biased answer because this greatly depends on the ability of the doctors themselves to condense and work as a single unit. This category still had some shortcomings including the discrimination in the residency position perceived by the participants, especially based on gender, the existence of blame culture and an absence of counseling for PGRs. While the subjects of this study did not hold these sentiments strongly, these are still some serious issues that should be looked into properly and resolved accordingly. Burnout being a serious issue among medical health-care professionals, the introduction of counselors and psychologists for doctors would be a facilitating initiative towards ensuring their mental health.

Perception of Teaching: The least well-received category among the three was the 'perception of teaching'. PGME is a teaching program for PGRs. Teaching to be the most poorly perceived aspect of the program is alarming. Unfortunately, our study subjects rated it the least in quality when considering the three aspects of the residency program (Autonomy, Social Support and Teaching). While most participants agreed with knowing what their supervisors' expectations were from them (Mean: 1.40, SD: 1.012), many also agreed to not receiving opportunities (Mean: 1.80, SD: 1.048) or constructive feedback (Mean: 1.81, SD: 1.135) to improve. In addition, the PGRs were not satisfied with the amount of time provided to them to study by themselves, which would help them improve on their medical knowledge and perform better on field. In contrast to our findings, Zeb et al showed that the hospitals included in their study scored highest for the perception of teaching. Hospitals involved in our study and all over Pakistan could observe the methods of teaching and the training program being conducted at those hospitals mentioned by Zeb et al to improve on their own curriculum and style of teaching[19].

Perception of granted Autonomy was a category about which the PGRs were mostly neutral. However, there were certain statements that were strongly agreed and disagreed. PGRs which were a part of this study, agreed to have a contract of employment that mentioned the pre-decided work hours for their job. Liaqat et al carried out a similar study among pediatric residents in Pakistan, the results of which are consistent with the findings of our study about the perception of PGRs being aware of the work hours that they were expected to complete during their training period [20]. This is a practical and optimistic aspect of the PGME program offered in Pakistan for residency training since it ensures that there is no ambiguity in terms of the number of work hours that PGRs are expected to complete on their duty. Another pragmatic response by the participants was the disagreement to having to perform inappropriate tasks as a part of their training unlike the results of the study carried out in the hospitals of Saudi Arabia[16].

Limitations: This study's main limitation is due to its small sample size of 195 participants and inclusion of only 4 hospitals from Pakistan. Multiple similar or a singular large multi-central study should be carried out, involving all the provinces of Pakistan with representation in as many districts in order to depict a more holistic picture of the issues related to PGME in the country. Furthermore,

the bulk of the study was done during the COVID-19 Pandemic. This had an indefinite impact on the results obtained. This could be because of the duty hours and unprecedented workload on health-care professionals, off which the PGRs were most affected. For a study to be truly representative of the ground realities, it would have to be optimally conducted during time periods where working conditions are optimum, so a standard can be accessed.

CONCLUSION

This study suggests that Pakistan is on a progressive path towards the process of developing an ideal teaching program for PGME students. There are no radical flaws in the PGME residency training program currently running in Pakistan. However, there is a need for further improvement, especially when it comes to advancing teaching practices and curbing the discriminatory behavior felt by the PGRs towards them. The educational regulatory bodies have to address these concerns with proper policies to ensure resident well-being and enhancing their abilities to thrive.

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