



Measuring Cross-Cultural Perception of Educational Environment among Postgraduates by Using Postgraduate Hospital Educational Environment Measure (PHEEM) Inventory

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: A postgraduate training program should be focused on positive and healthy educational environment. Postgraduate trainees suffer invariably during their training when the hospital educational environment is stressful. It is, therefore very important to assess the training environment of an institute as a part of good educational practice.

Aims: The aim of this study is assess and compare the clinical learning environment in the postgraduate training programs in Dubai and Sialkot. We also measure the perception of autonomy, the perception of teaching, and the perception of social support to identify more specific weaknesses and strengths in an educational environment. We demonstrate the appropriate steps, focusing on the Postgraduate Hospital Educational Environment Measure (PHEEM).

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Methods: PHEEM questionnaire was completed by 95 postgraduate residents in an observational, quantitative study involving a cross sectional survey of the perception of attitudes and behavior in postgraduate training programs in Dubai (UAE) and Sialkot (Pakistan).

Results: We used "IBM SPSS STATISTICS 21" software for data analysis. The results were analyzed and compared between postgraduate residents from Dubai and Sialkot. The total PHEEM score we achieved in our study is 104.8. The comparative scores achieved between Dubai and Sialkot residents by three domains of PHEEM inventory include Perception of role autonomy (34.44/35.85), Perception of teaching (36.60/40.65), and Perception of social support (24.42/24.42) respectively. There is no statistically significant association between PG year of training and country of training but there is statistically significant association between gender and country of training.

Conclusion: PHEEM is a simple, multidimensional, valid and highly reliable instrument measuring the educational environment among postgraduates working in different cultures and clinical disciplines. There are more positive than negative as far as the learning environment is concerned in both Dubai and Sialkot; however, there is room for improvement. Perception of social support and role autonomy is identical in Dubai and Sialkot. But teaching is better in Sialkot, attributed mainly to pediatric residency.

Keywords: Perception; postgraduates; educational environment; autonomy; teaching; social support.

1. INTRODUCTION

Menaka et al. [1] described that a training program should be focused on positive and healthy educational environment. The 'educational environment' defined as everything that happens within the classroom, department, faculty or university, is crucial in determining the success of undergraduate medical education. Genn et al. [2] exemplified the educational environment by the following quote, "Considerations of climate in the medical school, along the lines of continuous quality improvement and innovation, are likely to further the medical school as a learning organization with the attendant benefits". Soemantri [3] elaborated that it is vital to assess the educational environment by using a valid and reliable instrument as a part of an institution's good educational practice and the PHEEM is a valid and highly reliable instrument that can be applied to measure the educational environment among interns and residents in hospital-based clerkships. David et al. [4] determined that the PHEEM is a multi-dimensional instrument, overall, it is very reliable and there is a good fit of the three defined subscales, derived by qualitative methods, with the three principal factors derived from the data by exploratory factor analysis. Different versions and amendments of PHEEM have been tried in various educational settings. Persa et al. [5] used the Greek version of PHEEM and found it a valid, reliable, and sensitive instrument to measure the educational environment among junior doctors in Greek hospitals and concluded that it can be

used for evidence-based SWOT analysis and policy. Similarly, Shahrzad et al. [6] applied the Persian version of the PHEEM which appeared to be a reliable and potentially valid instrument for use in Iranian medical schools in evaluating the educational environments of residency programs nationwide. Riquelme et al. [7] described the Spanish version of PHEEM a multidimensional, valid and highly reliable instrument measuring the educational environment among undergraduate medical students working in hospital-based clerkships. Niels et al. [8] subjected the PHEEM inventory to educational evaluation and quality for both short term as well as long term training programs. PHEEM was used to assess the need for replacement of 12-months internship training with 18 months of postgraduate training and was found that the young physicians were reluctant towards the new basic postgraduate training program. Yasuharu et al. [9] revealed that the difference in educational environment may also explain the greater satisfaction of non-university residents and account for the massive shift of residents from university to non-university hospitals after introduction of the new postgraduate medical education program in Japan. Rathi et al. [10] added that it will be a good idea to contextualize the impact on the educational environment. Those involved in introducing revisions to educational programs and curricula must attend to change management. Both basic and advanced trainees may perceive the learning environment positively but significant concerns must be addressed. The advanced trainees perceived the overall learning

environment and the teaching they receive more positively than basic trainees. PHEEM has also been studied as a reliable instrument for measuring the quality of medical residency programs and the research conducted by Vieira [11] suggests that quality of teaching was the best indicator of overall response to the questionnaire. Boor et al. [12] found few limitations in PHEEM questionnaire as it may measure one dimension instead of the hypothesized three dimensions. PHEEM was also subjected to study the relation between the educational climate and the leadership skills of the clinical consultants responsible for postgraduate medical education in clinical departments. Bente et al. [13] found that the consultants responsible for education are in a weak position to influence the educational climate in the clinical department. Further studies are needed to explore, how heads of departments and other factors related to the clinical organization could influence the educational climate. Christopher et al. [14] concluded in a systemic review that PHEEM is widely adopted in different learning settings as a useful tool to identify the strengths and weaknesses of an educational environment. PHEEM was also used by Auret et al. [15] to compare the educational environment between rural and urban setup in Western Australia and it was confirmed that, in terms of educational environment, rural intern rotations compare favorably with those in urban settings. Postgraduate residents suffer more during their training when the educational environment is unfavorable. It is, therefore very important, as concluded by Soemantri et al. [16] to assess the educational environment as a part of an institution's good educational practice.

The purpose of the study is to assess the clinical learning environment in each stage of training in the postgraduate training programme in Dubai and Sialkot by using PHEEM questionnaire. Dubai Health Authority (DHA) offers a post graduate training program known as Dubai Residency Training Program (DRTP) in various disciplines including emergency medicine, general surgery, pediatrics, gynecology & obstetrics, family medicine, and so on [17]. The duration of this training program varies from 4-6 years, depending upon the specific speciality. This intense training program in various hospitals in Dubai puts postgraduates under tremendous amount of stress, both academic and environmental. To evaluate the perception of clinical learning environment among those

postgraduates, we conducted a research by using a tool which was developed in UK by Roff et al. [18], known as Postgraduate Hospital Educational Environment Measure (PHEEM). PHEEM instrument has been used in clinical research in various countries including England, Sri Lanka, Finland, Scotland, Chile, Pakistan, Brazil, Japan, and many more. Though PHEEM inventory has not been used to evaluate postgraduate training and learning environment in United Arab Emirates (UAE) but a similar questionnaire known as Dundee Ready Educational Environment Measure (DREEM) was exercised by Zulfiqar et al. [19] in Dubai in 2015. We also conducted a simultaneous research in postgraduate training program at Allama Iqbal Memorial Teaching Hospital (AIMTH) in Sialkot, Pakistan affiliated with College of Physicians and Surgeons of Pakistan (CPSP) by using the same PHEEM questionnaire. CPSP is a countrywide postgraduate awarding authority offering a uniform training fellowship program in multiple disciplines known as FCPS (Fellowship of College of Physicians and Surgeons of Pakistan) [20].

2. METHODS AND MATERIALS

2.1 Design

An observational, quantitative study involving a cross sectional survey of the perception of attitudes and behavior in postgraduate training programs in Dubai (UAE) and Sialkot (Pakistan). The postgraduate trainees, enrolled in training programs in Dubai and Sialkot, participated in our study.

2.1.1 Primary objectives

- 1- To measure and compare the overall postgraduate educational and training environment in Dubai and Sialkot.

2.1.2 Secondary objectives

- 1- To measure the perception of autonomy, the perception of teaching, and the perception of social support in educational environment
- 2- To identify more specific weaknesses and strengths in postgraduate learning and training environment

2.1.3 Inclusion criteria

- 1- Current residents enrolled with Dubai Residency Training Program (DRTP).

- 2- Current trainees enrolled with College of Physicians and Surgeons of Pakistan (CPSP) for fellowship program in Sialkot.

2.1.4 Exclusion criteria

- 1- Postgraduates who have already completed their training years
- 2- Non-trainee doctors
- 3- Interns and house officers
- 4- Specialists and consultants
- 5- Non-clinical and basic sciences trainees

2.2 Instrument/Research Tool

We used 40-item PHEEM questionnaire as “research tool” to evaluate postgraduate clinical learning environment. One researcher distributed the PHEEM questionnaire to postgraduates during their academic sessions both in Dubai and Sialkot. A second researcher collected the data at the end of academic sessions. We also labeled each questionnaire with a unique number that hide the identity of the responders.

2.3 Procedure

The PHEEM items or statement are scored at 5-point Likert scale where a score of 4 means Strongly Agree (SA), 3 for Agree (A), 2 for Uncertain (U), 1 for Disagree (D), and 0 for Strongly Disagree (SD). Four items (number 7, 8, 11, 13; italicized) are negative statements and these are scored as: 0 for Strongly Agree (SA), 1 for Agree (A), 2 for Uncertain (U), 3 for Disagree (D), and 4 for Strongly Disagree (SD). The total score for the PHEEM inventory thus is 160 which means an ideal leaning environment but generally the results are interpreted by using a guide: Score 0-40 (very poor), 41-80 (plenty of problems), 81-120 (more positive than negative, but room for improvement), and 121-160 (excellent). To extract the scores in more detail, the 40-item PHEEM questionnaire is used against three domains; 1- Perception of autonomy (14 items, maximum score 56), 2- Perception of teaching (15 items, maximum score 60), and 3- Perception of social support (11 items, maximum score 44). All items in PHEEM questionnaire are randomly arranged so it will not reveal an insight about a particular domain.

To identify more specific weaknesses and strengths in postgraduate learning and training environment, we also looked very carefully at all the responses to each item individually in 40-item

PHEEM questionnaire. Any item with a mean score of 3.5 or above is considered as real positive and excellent, whereas a mean score of 2 or less is taken as problem area. A mean score of 2 and 3 for any item is examined very carefully because it reveals an environment which needs improvement and enhancement. We also exposed and compared PHEEM questionnaire to gender, year of training program, accommodation, specialty and country of training enrolled.

3. RESULTS

Data was exposed to strict statistical analysis by using “IBM SPSS STATISTICS 21” software. The results were analyzed and compared between postgraduate residents from Dubai and Sialkot.

3.1 Demographic Data

Demographic data was collected with total frequency of 95 (a total of 95 self-administered PHEEM responses). Table 1 shows the demographic comparison between Dubai (UAE) and Sialkot (Pakistan) with details of specialties by country of training, postgraduate year of training, gender and accommodation. It is seen that 53% (n=32) of the Dubai residents are from emergency medicine and none from emergency medicine among the Sialkot residents, 42% (n=25) of the Dubai residents and 31% (n=11) of the Sialkot residents are from Internal medicine, and none of the Dubai residents and 37% (n=13) of the Sialkot residents are from Pediatrics. As far as postgraduate year of training and country of training is concerned, we found that the chi square with 3 degree of freedom is 3.045, $p = 0.385$. This tells us that there is no statistically significant association between PG year of training and country of training. Table 1 also reveals that there is statistically significant association between gender and country of training (chi square with 1 degree of freedom is 8.221, $p = 0.004$). It is calculated that 17% (n=6) of the residents in Sialkot and 5% (n=3) of the Dubai residents stay in the hostel.

3.2 Three Domains of PHEEM

The combined responses of 40-item PHEEM questionnaire from Dubai and Sialkot postgraduates are analyzed against each of three domains; Perception of autonomy (PORA), Perception of teaching (POT), and Perception of social support (POSS) as shown in Table 2.

Table 1. Demographic data and crosstabs according to country of training

Demographic data		
Variable	Frequency	Percentage
Specialty of training		
Emergency Med	32	33.7
Internal med	36	37.9
Pediatrics	13	13.7
Gen. Surgery	8	8.4
Ob/Gyn	5	5.3
Others (ortho)	1	1.1
Total	95	100.0
Country of training		
Dubai (UAE)	60	63.2
Sialkot (Pakistan)	35	36.8
Total	95	100.0
Postgraduate year of training		
1 st year	28	29.5
2 nd year	35	36.8
3 rd year	18	18.9
4 th year	14	14.7
Total	95	100.0
Gender		
Female	56	58.9
Male	39	41.1
Total	95	100.0
Accommodation		
Home	86	90.5
Hostel	9	9.5
Total	95	100.0

Crosstabs			
Variable	Country of training		Total
	Dubai (UAE)	Sialkot (Pakistan)	
Specialty of training			
Em Med	32 (53.3%)	0 (0.0%)	32 (33.7%)
Internal med	25 (41.7%)	11 (31.4%)	36 (37.9%)
Pediatrics	0 (0.0%)	13 (37.1%)	13 (13.7%)
Gen. Surgery	3 (5.0%)	5 (14.3%)	8 (8.4%)
Ob/Gyn	0 (0.0%)	5 (14.3%)	5 (5.3%)
Others	0 (0.0%)	1 (2.9%)	1 (1.1%)
Total	60 (100.0%)	35 (100.0%)	95 (100.0%)
Postgraduate year of training			
1 st year	16 (26.7%)	12 (34.3%)	28 (29.5%)
2 nd year	20 (33.3%)	15 (42.9%)	35 (36.8%)
3 rd year	13 (21.7%)	5 (14.3%)	18 (18.9%)
4 th year	11 (18.3%)	3 (8.6%)	14 (14.7%)
Total	60 (100.0%)	35 (100.0%)	95 (100.0%)
Gender			
Female	42 (70.0%)	14 (40.0%)	56 (58.9%)
Male	18 (30.0%)	21 (60.0%)	39 (41.1%)
Total	60 (100.0%)	35 (100.0%)	95 (100.0%)
Accommodation			
Home	57 (95.0%)	29 (82.9%)	86 (90.5%)
Hostel	3 (5.0%)	6 (17.1%)	9 (9.5%)
Total	60 (100.0%)	35 (100.0%)	95 (100.0%)

Table 2. PHEEM combined results (n=95) graded on a five-point Likert-type scale (mean \pm SD)

PHEEM domain	Internal Medicine		General Surgery		Emergency Medicine		Pediatrics		Ob & Gyn		Others	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Perception of role autonomy (PORA)												
1. I have a contract of employment that provides information about hours of work	2.33	1.37	2.13	0.99	3.78	0.42	2.46	0.78	2.20	0.45	2.00	0.00
4. I had an informative induction program	2.06	1.12	2.50	0.53	3.44	0.56	2.92	0.86	1.40	0.55	2.00	0.00
5. I have the appropriate level of responsibility in this post	2.75	0.69	3.63	0.52	2.84	1.02	3.46	0.52	2.20	0.45	4.00	0.00
8. I have to perform inappropriate task	2.50	0.97	2.88	1.46	3.00	1.14	3.23	0.60	2.20	0.84	4.00	0.00
9. There is an informative Junior Doctors handbook	1.11	0.95	2.50	1.07	1.59	1.27	1.92	0.76	1.80	0.84	3.00	0.00
11. I am bleeped inappropriately	1.83	0.97	1.63	0.52	2.91	0.89	2.15	0.38	2.00	0.00	2.00	0.00
14. There are clear clinical protocols in this post	2.11	0.95	2.88	0.99	2.97	0.78	2.92	0.49	1.20	0.84	4.00	0.00
17. My hours conform to the new deal	2.25	1.11	2.00	1.07	2.59	0.80	2.31	1.03	2.00	0.00	4.00	0.00
18. I have the opportunity to provide continuity of care	2.81	0.67	3.00	0.76	2.66	0.90	3.54	0.52	2.20	0.84	4.00	0.00
29. I feel part of a team working here	2.67	1.15	2.88	1.13	3.06	0.91	3.62	0.65	2.20	0.45	4.00	0.00
30. I have opportunities to acquire the appropriate practical procedures for my grade	2.28	0.94	2.63	1.19	2.75	1.02	3.31	0.75	1.60	0.55	4.00	0.00
32. My workload in this job is fine	2.00	1.41	1.25	0.46	3.06	0.88	1.54	1.76	1.60	0.89	1.00	0.00
34. The training in this post makes me feel ready to be Specialist/Consultant	2.11	1.12	2.75	1.16	2.72	0.92	3.15	0.99	1.60	0.89	4.00	0.00
40. My clinical teachers promote an atmosphere of mutual respect	2.36	0.99	3.13	0.83	3.25	0.84	3.46	0.66	2.20	0.84	4.00	0.00
Perception of teaching (POT)												
2. My clinical teachers set clear expectations	2.22	0.90	3.50	0.76	2.53	0.92	3.54	0.52	1.80	0.84	3.00	0.00
3. I have protected educational time in this post	1.44	1.13	2.75	1.58	3.31	1.09	3.38	0.51	1.80	0.84	3.00	0.00
6. I have good clinical supervision at all time	2.56	0.97	3.38	0.74	3.03	0.97	3.69	0.48	2.00	0.00	4.00	0.00
10. My clinical teachers have good communication skills	2.75	0.81	3.00	0.93	3.22	0.61	3.77	0.44	2.20	0.45	4.00	0.00
12. I am able to participate actively in educational events	2.67	0.89	3.13	0.83	3.31	0.74	3.38	0.51	1.80	0.84	4.00	0.00
15. My clinical teachers are enthusiastic	2.36	0.80	2.75	1.04	2.81	1.09	3.62	0.65	2.00	0.71	4.00	0.00
21. There is access to an educational program relevant to my needs	2.17	1.30	3.38	0.52	3.06	0.84	2.62	1.33	1.60	0.89	4.00	0.00
22. I get regular feedback from seniors	2.11	1.09	2.13	0.83	2.78	1.04	2.77	0.83	2.00	0.00	3.00	0.00
23. My clinical teachers are well organized	2.11	1.06	2.75	1.16	2.84	0.81	3.69	0.48	2.20	0.45	4.00	0.00
27. I have enough clinical learning opportunities for my needs	2.11	1.09	2.63	1.30	2.66	1.07	3.15	0.99	1.60	0.89	4.00	0.00
28. My clinical teachers have good teaching skills	2.61	0.93	2.88	1.13	2.91	0.86	3.69	0.48	2.00	0.71	4.00	0.00
31. My clinical teachers are accessible	2.61	0.87	2.75	1.04	3.09	0.82	3.62	0.51	2.00	0.00	4.00	0.00

PHEEM domain	Internal Medicine		General Surgery		Emergency Medicine		Pediatrics		Ob & Gyn		Others	
33. Senior staff utilize learning opportunities effectively	1.89	1.12	2.63	1.41	2.63	1.01	3.08	1.12	1.60	0.89	4.00	0.00
37. My clinical teachers encourage me to be an independent learner	2.81	0.79	2.75	1.16	2.94	0.98	3.15	1.07	2.20	0.45	4.00	0.00
39. The clinical teachers provide me with good feedback on my strengths and weaknesses	2.06	0.98	2.63	1.30	2.38	1.01	3.31	0.75	2.20	0.45	4.00	0.00
Perception of social support (POSS)	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
7. <i>There is racism in this post</i>	2.81	1.14	3.13	1.36	1.88	1.36	2.77	1.24	1.60	0.89	4.00	0.00
13. <i>There is sexism in this post</i>	2.36	1.20	2.50	1.69	2.84	1.22	3.00	0.91	2.80	0.45	0.00	0.00
16. I have good collaboration with other doctors in my grade	3.06	0.92	3.00	1.07	3.03	0.82	3.54	0.52	2.20	0.45	4.00	0.00
19. I have suitable access to careers advice	2.00	1.22	2.63	1.06	2.25	1.14	3.23	1.17	2.40	0.55	1.00	0.00
20. This hospital has good quality accommodation for junior doctors, especially when on call	1.00	1.24	0.88	0.64	0.97	1.26	0.46	0.88	1.80	0.84	1.00	0.00
24. I feel physically safe within the hospital environment	2.72	1.43	2.00	0.76	3.47	0.88	1.69	1.11	2.40	0.89	2.00	0.00
25. There is no-blame culture in this post	2.22	1.29	3.00	1.07	2.59	1.34	3.08	1.12	2.80	0.45	4.00	0.00
26. There are adequate catering facilities when I am on call	1.28	1.28	1.00	1.20	1.66	1.31	0.62	1.12	1.00	0.71	0.00	0.00
35. My clinical teachers have good mentoring skills	2.11	1.01	2.63	1.30	2.84	0.77	3.23	1.30	1.80	0.45	4.00	0.00
36. I get a lot of enjoyment out of my present job	1.94	0.89	1.88	0.35	3.09	0.86	1.69	1.44	1.60	0.89	2.00	0.00
38. There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	1.72	1.09	2.75	1.16	2.06	0.95	3.08	1.12	1.80	0.45	4.00	0.00

Levels ranged from 'strongly disagree' = 0 to 'strongly agree' = 4. * Items 7, 8, 11 and 13 must be switched to properly match the perception/domain to which they belong

3.3 Comparison of Three Domains of PHEEM Questionnaire

The data from three domains of PHEEM questionnaire; Perception of role autonomy (PORA), Perception of teaching (POT), and Perception of social support (POSS) is also analyzed according to the postgraduate training programs available in Dubai (Table 3) and Sialkot (Table 4).

The collective PHEEM score we achieved in our study is 104.8 (against total standard PHEEM score 160) as seen in Table 5 and Fig. 1.

Table 6 and Fig. 2 show the comparative scores achieved by three domains of PHEEM inventory that includes perception of role autonomy (PORA), perception of teaching (POT), and perception of social support (POSS) for Dubai and Sialkot postgraduates.

Table 7, Table 8 and Fig. 3 show the PHEEM scores for all three domains of PHEEM inventory with focus on individual specialties both in Dubai and Sialkot respectively.

3.4 Individual Items of PHEEM with Score <2

We also evaluated the responses to each item individually and all those items with a mean score of less than 2 were identified as seen in Table 9.

3.5 Statistical Analysis

Comparison of mean score of all three domains of PHEEM questionnaire between Dubai and Sialkot residents was performed using student's t-test. A p-value of less than 0.05 is considered to indicate statistical significance.

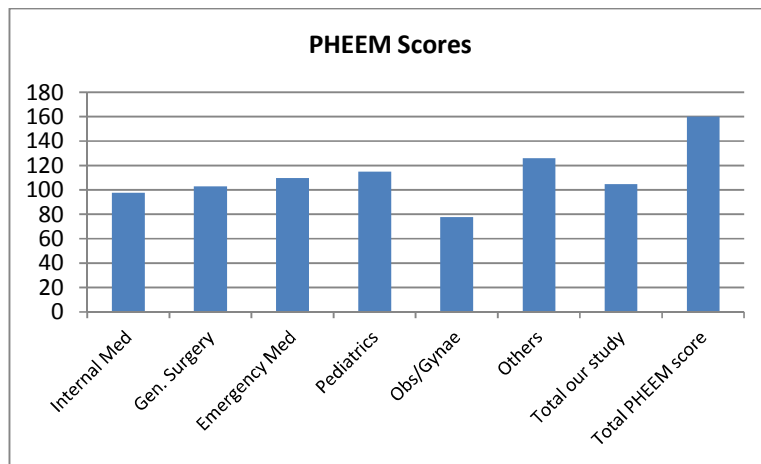


Fig. 1. Total and comparative PHEEM score among various specialties

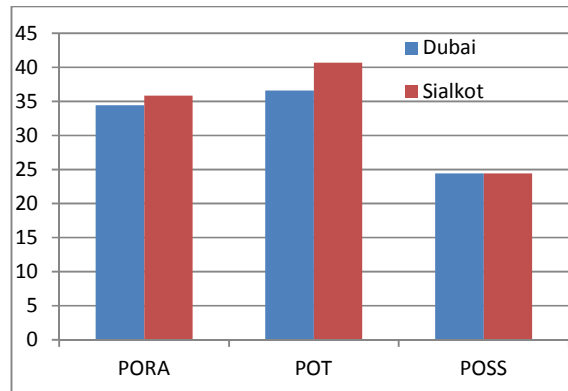


Fig. 2. Final scores of three domains of PHEEM

Table 3. The “PHEEM” according to specialty training in Dubai

PHEEM Dubai	Emergency med n = 32		General surgery n = 3		Internal med n = 25	
	Mean	SD	Mean	SD	Mean	SD
Perception of role autonomy (PORA)						
1. I have a contract of employment that provides information about hours of work	3.78	0.42	2.00	1.73	2.76	1.27
4. I had an informative induction program	3.44	0.56	2.67	0.58	2.60	0.58
5. I have the appropriate level of responsibility in this post	2.84	1.02	3.00	0.00	2.68	0.69
8. I have to perform inappropriate task	3.00	1.14	2.33	0.58	2.52	1.08
9. There is an informative Junior Doctors handbook	1.59	1.27	2.00	1.73	1.16	1.07
11. I am bleeped inappropriately	2.91	0.89	1.33	0.58	1.60	0.96
14. There are clear clinical protocols in this post	2.97	0.78	2.00	0.00	2.16	1.03
17. My hours conform to the new deal	2.59	0.80	3.00	0.00	2.28	1.14
18. I have the opportunity to provide continuity of care	2.66	0.90	2.67	0.58	2.96	0.54
29. I feel part of a team working here	3.06	0.91	2.33	1.15	2.76	0.83
30. I have opportunities to acquire the appropriate practical procedures for my grade	2.75	1.02	1.67	0.58	2.20	1.00
32. My workload in this job is fine	3.06	0.88	1.00	0.00	2.12	1.42
34. The training in this post makes me feel ready to be Specialist/Consultant	2.72	0.92	2.00	1.00	1.96	1.17
40. My clinical teachers promote an atmosphere of mutual respect	3.25	0.84	3.00	0.00	2.36	0.91
Perception of teaching (POT)						
2. My clinical teachers set clear expectations	2.53	0.92	3.00	1.00	2.12	0.93
3. I have protected educational time in this post	3.31	1.09	2.00	1.00	1.64	1.22
6. I have good clinical supervision at all time	3.03	0.97	3.00	0.00	2.64	0.95
10. My clinical teachers have good communication skills	3.22	0.61	2.67	0.58	2.56	0.82
12. I am able to participate actively in educational events	3.31	0.74	3.00	0.00	2.48	0.96
15. My clinical teachers are enthusiastic	2.81	1.09	2.00	0.00	2.20	0.87
21. There is access to an educational program relevant to my needs	3.06	0.84	3.00	0.00	2.28	1.21
22. I get regular feedback from seniors	2.78	1.04	1.33	0.58	2.08	0.95
23. My clinical teachers are well organized	2.84	0.81	2.00	1.00	1.76	1.01
27. I have enough clinical learning opportunities for my needs	2.66	1.07	1.67	1.15	2.44	0.92
28. My clinical teachers have good teaching skills	2.91	0.86	2.33	1.15	2.32	0.90
31. My clinical teachers are accessible	3.09	0.82	2.00	0.00	2.52	0.96
33. Senior staff utilize learning opportunities effectively	2.63	1.01	1.67	1.53	1.68	1.11
37. My clinical teachers encourage me to be an independent learner	2.94	0.98	2.00	1.00	2.72	0.68
39. The clinical teachers provide me with good feedback on my strengths and weaknesses	2.38	1.01	1.67	1.15	2.16	0.94
Perception of Social Support (POSS)						
7. There is racism in this post	1.88	1.36	3.00	0.00	2.60	1.15
13. There is sexism in this post	2.84	1.22	2.67	0.58	2.28	1.17

PHEEM Dubai	Emergency med n = 32		General surgery n = 3		Internal med n = 25	
16. I have good collaboration with other doctors in my grade	3.03	0.82	3.00	0.00	2.76	0.93
19. I have suitable access to careers advice	2.25	1.14	1.67	0.58	1.84	1.28
20. This hospital has good quality accommodation for junior doctors, especially when on call	0.97	1.26	0.33	0.58	1.24	1.20
24. I feel physically safe within the hospital environment	3.47	0.88	2.67	0.58	3.56	0.51
25. There is no-blame culture in this post	2.59	1.34	2.67	1.15	2.20	1.22
26. There are adequate catering facilities when I am on call	1.66	1.31	1.33	1.53	1.76	1.20
35. My clinical teachers have good mentoring skills	2.84	0.77	1.67	1.15	2.12	0.93
36. I get a lot of enjoyment out of my present job	3.09	0.86	1.67	0.58	2.20	0.76
38. There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	2.06	0.95	2.00	1.00	1.72	1.06

Table 4. The “PHEEM” according to specialty training in Sialkot

PHEEM Sialkot	General surgery n = 5		Internal med n = 11		Ob & gyn n = 5		Others n = 1		Pediatrics n = 13	
Perception of role autonomy (PORA)	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. I have a contract of employment that provides information about hours of work	2.20	0.45	1.36	1.12	2.20	0.45	2.00	0	2.46	0.78
4. I had an informative induction program	2.40	0.55	0.82	1.08	1.40	0.55	2.00	0	2.92	0.86
5. I have the appropriate level of responsibility in this post	4.00	0.00	2.91	0.70	2.20	0.45	4.00	0	3.46	0.52
8. I have to perform inappropriate task	3.20	1.79	2.45	0.69	2.20	0.84	4.00	0	3.23	0.60
9. There is an informative Junior Doctors handbook	2.80	0.45	1.00	0.63	1.80	0.84	3.00	0	1.92	0.76
11. I am bleeped inappropriately	1.80	0.45	2.36	0.81	2.00	0.00	2.00	0	2.15	0.38
14. There are clear clinical protocols in this pos	3.40	0.89	2.00	0.77	1.20	0.84	4.00	0	2.92	0.49
17. My hours conform to the new deal	1.40	0.89	2.18	1.08	2.00	0.00	4.00	0	2.31	1.03
18. I have the opportunity to provide continuity of care	3.20	0.84	2.45	0.82	2.20	0.84	4.00	0	3.54	0.52
29. I feel part of a team working here	3.20	1.10	2.45	1.69	2.20	0.45	4.00	0	3.62	0.65
30. I have opportunities to acquire the appropriate practical procedures for my grade	3.20	1.10	2.45	0.82	1.60	0.55	4.00	0	3.31	0.75
32. My workload in this job is fine	1.40	0.55	1.73	1.42	1.60	0.89	1.00	0	1.54	1.76
34. The training in this post makes me feel ready to be Specialist/Consultant	3.20	1.10	2.45	0.93	1.60	0.89	4.00	0	3.15	0.99
40. My clinical teachers promote an atmosphere of mutual respect	3.20	1.10	2.36	1.21	2.20	0.84	4.00	0	3.46	0.66
Perception of Teaching (POT)	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
2. My clinical teachers set clear expectations	3.80	0.45	2.45	0.82	1.80	0.84	3.00	0	3.54	0.52
3. I have protected educational time in this post	3.20	1.79	1.00	0.77	1.80	0.84	3.00	0	3.38	0.51
6. I have good clinical supervision at all time	3.60	0.89	2.36	1.03	2.00	0.00	4.00	0	3.69	0.48

PHEEM Sialkot	General surgery n = 5		Internal med n = 11		Ob & gyn n = 5		Others n = 1		Pediatrics n = 13	
10. My clinical teachers have good communication skills	3.20	1.10	3.18	0.60	2.20	0.45	4.00	0	3.77	0.44
12. I am able to participate actively in educational events	3.20	1.10	3.09	0.54	1.80	0.84	4.00	0	3.38	0.51
15. My clinical teachers are enthusiastic	3.20	1.10	2.73	0.47	2.00	0.71	4.00	0	3.62	0.65
21. There is access to an educational program relevant to my needs	3.60	0.55	1.91	1.51	1.60	0.89	4.00	0	2.62	1.33
22. I get regular feedback from seniors	2.60	0.55	2.18	1.40	2.00	0.00	3.00	0	2.77	0.83
23. My clinical teachers are well organized	3.20	1.10	2.91	0.70	2.20	0.45	4.00	0	3.69	0.48
27. I have enough clinical learning opportunities for my needs	3.20	1.10	1.36	1.12	1.60	0.89	4.00	0	3.15	0.99
28. My clinical teachers have good teaching skills	3.20	1.10	3.27	0.65	2.00	0.71	4.00	0	3.69	0.48
31. My clinical teachers are accessible	3.20	1.10	2.82	0.60	2.00	0.00	4.00	0	3.62	0.51
33. Senior staff utilize learning opportunities effectively	3.20	1.10	2.36	1.03	1.60	0.89	4.00	0	3.08	1.12
37. My clinical teachers encourage me to be an independent learner	3.20	1.10	3.00	1.00	2.20	0.45	4.00	0	3.15	1.07
39. The clinical teachers provide me with good feedback on my strengths and weaknesses	3.20	1.10	1.82	1.08	2.20	0.45	4.00	0	3.31	0.75
Perception of social support (POSS)	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
7. There is racism in this post	3.20	1.79	3.27	1.01	1.60	0.89	4	0	2.77	1.24
13. There is sexism in this post	2.40	2.19	2.55	1.29	2.80	0.45	0	0	3.00	0.91
16. I have good collaboration with other doctors in my grade	3.00	1.41	3.73	0.47	2.20	0.45	4	0	3.54	0.52
19. I have suitable access to careers advice	3.20	0.84	2.36	1.03	2.40	0.55	1	0	3.23	1.17
20. This hospital has good quality accommodation for junior doctors, especially when on call	1.20	0.45	0.45	1.21	1.80	0.84	1	0	0.46	0.88
24. I feel physically safe within the hospital environment	1.60	0.55	0.82	0.87	2.40	0.89	2	0	1.69	1.11
25. There is no-blame culture in this post	3.20	1.10	2.27	1.49	2.80	0.45	4	0	3.08	1.12
26. There are adequate catering facilities when I am on call	0.80	1.10	0.18	0.60	1.00	0.71	0	0	0.62	1.12
35. My clinical teachers have good mentoring skills	3.20	1.10	2.09	1.22	1.80	0.45	4	0	3.23	1.30
36. I get a lot of enjoyment out of my present job	2.00	0.00	1.36	0.92	1.60	0.89	2	0	1.69	1.44
38. There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	3.20	1.10	1.73	1.19	1.80	0.45	4	0	3.08	1.12

Table 5. Total and comparative PHEEM score among various specialties

Internal med.	Gen. surgery	Emergency med.	Pediatrics	Obs & gynae	Others	Our study score	PHEEM total score
97.5	103.1	109.7	114.9	77.8	125.9	104.8	160

Interpretation: The total PHEEM score is 160 which means an ideal leaning environment but generally the results are interpreted by using a guide: Score 0-40 (very poor); Score 41-80 (plenty of problems) ; Score 81-120 (more positive than negative, but room for improvement); Score 121-160 (excellent)

Table 6. Final scores of three Domains of PHEEM

Domain	Dubai	Sialkot
Perception of role autonomy (PORA) Scoring: (14 items, max score 56) 0–14 very poor; 15–28 a negative view of one’s role; 29–42 a more positive perception of one’s job; 43–56 excellent perception of one’s job	34.44	35.84
Perception of teaching (POT) Scoring: (15 items, max score 60) 0–15 very poor quality; 16–30 in need of some retraining; 31–45 moving in the right direction; 46–60 model teachers	36.60	40.65
Perception of social support (POSS) Scoring: (11 items, max score 44) 0–11 non-existent; 12–22 not a pleasant place; 23–33 more pros than cons; 34–44 a good supportive environment	24.42	24.42

Table 7. PHEEM Dubai (with total scores and percentages) among residents of emergency medicine, general surgery, and internal medicine

PHEEM scores (Dubai)	Emergency med n = 32	General surgery n = 3	Internal med n = 25
Autonomy (PORA)	40.62 (72.5%)	31 (55.3%)	32.12 (57.3%)
Teaching (POT)	43.5 (72.5%)	33.34 (55.5%)	33.6 (56.0%)
Social support (POSS)	26.68 (60.6%)	22.68 (51.5%)	24.28 (55.1%)

Table 8. PHEEM Sialkot (with total scores and percentages) among residents of general surgery, internal medicine, Ob/Gyn, others and pediatrics

PHEEM scores (Sialkot)	G. surgery n = 5	Int. med n = 11	Ob & Gyn n = 5	Others n = 1	Pediatrics n = 13
Autonomy (PORA)	38.6 (68.9%)	28.97 (51.7%)	26.4 (47.1%)	46.0 (82.1%)	39.99 (71.4%)
Teaching (POT)	45.2 (75.3%)	36.44 (60.7%)	29.0 (48.3%)	57.0 (95.0%)	50.46 (84.1%)
Social support (POSS)	27.0 (61.3%)	20.81 (47.2%)	22.2 (50.4%)	26.0 (59.0%)	26.3 (59.7%)

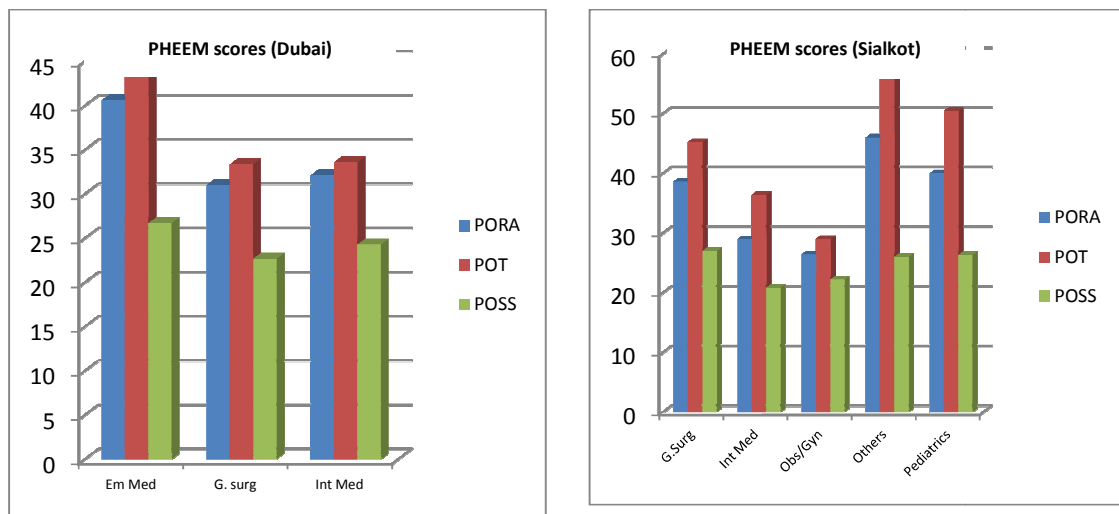


Fig. 3. Three domains of PHEEM (Dubai and Sialkot)

Table 9. Summary of items with mean score <2, depicted in an ascending order for all the specialties

	Mean	SD
Internal medicine		
20. This hospital has good quality accommodation for junior doctors, especially when on call	1.00	1.24
9. There is an informative Junior Doctors handbook	1.11	0.95
26. There are adequate catering facilities when I am on call	1.28	1.28
3. I have protected educational time in this post	1.44	1.13
38. There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	1.72	1.09
11. I am bleeped inappropriately	1.83	0.97
33. Senior staff utilize learning opportunities effectively	1.89	1.12
36. I get a lot of enjoyment out of my present job	1.94	0.89
General surgery		
20. This hospital has good quality accommodation for junior doctors, especially when on call	0.88	0.64
26. There are adequate catering facilities when I am on call	1.00	1.20
32. My workload in this job is fine	1.25	0.46
11. I am bleeped inappropriately	1.63	0.52
36. I get a lot of enjoyment out of my present job	1.88	0.35
Emergency Medicine		
20. This hospital has good quality accommodation for junior doctors, especially when on call	0.97	1.26
9. There is an informative Junior Doctors handbook	1.59	1.27
26. There are adequate catering facilities when I am on call	1.66	1.31
7. There is racism in this post	1.88	1.36
Pediatrics		
20. This hospital has good quality accommodation for junior doctors, especially when on call	0.46	0.88
26. There are adequate catering facilities when I am on call	0.62	1.12
32. My workload in this job is fine	1.54	1.76
24. I feel physically safe within the hospital environment	1.69	1.11
36. I get a lot of enjoyment out of my present job	1.69	1.44
9. There is an informative Junior Doctors handbook	1.92	0.76
Obstetrics and gynecology		
26. There are adequate catering facilities when I am on call	1.00	0.71
14. There are clear clinical protocols in this post	1.20	0.84
4. I had an informative induction program	1.40	0.55
30. I have opportunities to acquire the appropriate practical procedures for my grade	1.60	0.55
32. My workload in this job is fine	1.60	0.89
34. The training in this post makes me feel ready to be Specialist/Consultant	1.60	0.89
21. There is access to an educational program relevant to my needs	1.60	0.89
27. I have enough clinical learning opportunities for my needs	1.60	0.89
33. Senior staff utilize learning opportunities effectively	1.60	0.89
7. There is racism in this post	1.60	0.89
36. I get a lot of enjoyment out of my present job	1.60	0.89
9. There is an informative Junior Doctors handbook	1.80	0.84
2. My clinical teachers set clear expectations	1.80	0.84
3. I have protected educational time in this post	1.80	0.84
12. I am able to participate actively in educational events	1.80	0.84
20. This hospital has good quality accommodation for junior doctors, especially when on call	1.80	0.84
35. My clinical teachers have good mentoring skills	1.80	0.45
Others		
13. There is sexism in this post	0.00	0.00
26. There are adequate catering facilities when I am on call	0.00	0.00
32. My workload in this job is fine	1.00	0.00
19. I have suitable access to careers advice	1.00	0.00
20. This hospital has good quality accommodation for junior doctors, especially when on call	1.00	0.00

The following findings about “Perceptions of role autonomy” (Table 10) show significant differences between Dubai and Sialkot residents, since the p-value is less than 0.05:

- 1- Have a contract of employment that provides information about hours of work (p<0.01)
- 2- Had an informative induction program (p<0.01)
- 3- Have the appropriate level of responsibility in this post (p=0.017)
- 4- Workload in this job is fine (p<0.01)

- 1- Racism in this post (p=0.026)
- 2- Good collaboration with other doctors in my grade (p=0.020)
- 3- Suitable access to careers advice (p=0.003)
- 4- Feel physically safe within the hospital environment (p=0.0001)
- 5- Adequate catering facilities when I am on call (p=0.0001)
- 6- Get a lot of enjoyment out of my present job (p=0.0001)
- 7- There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily (p=0.018)

The following findings about “Perceptions of teaching” (Table 11) show statistically significant differences between Dubai and Sialkot residents, since the p-value is less than 0.05:

- 1- Clinical teachers set clear expectations (p=0.005)
- 2- Clinical teachers have good communication skills (p=0.029)
- 3- Clinical teachers are enthusiastic (p=0.008)
- 4- Clinical teachers are well organized (p=0.0001)
- 5- Clinical teachers have good teaching skills (p=0.001)
- 6- Senior staff utilize learning opportunities effectively (p=0.045)

Table 12 shows the following statistically significant differences between Dubai and Sialkot residents concerning “Perception of social support”, since the p-value is less than 0.05:

4. DISCUSSION

Our study shows that there are more positive than negative as far as the educational environment is concerned, but at the same time there is plenty of room for improvement. The results are similar to Mona et al [21] where it was concluded that the hospital training environment was positive, and the interns were more satisfied than the residents and gender had no influence on the perceptions of the hospital's educational environment. But in our study, gender has significant influence on perception of educational environment (chi square with 1 degree of freedom is 8.221, p = 0.004).

Table 10. Statistical analysis “Perception of role autonomy”

Perception of role autonomy	Mean ± SD			P values
	Overall n = 95	Dubai n = 60	Sialkot n = 35	
1. I have a contract of employment that provides information about hours of work	2.81 ± 1.19	3.27 ± 1.09	2.03 ± 0.92	0.0001
4. I had an informative induction program	2.64 ± 1.07	3.05 ± 0.70	1.94 ± 1.24	0.0001
5. I have the appropriate level of responsibility in this post	2.94 ± .85	2.78 ± 0.87	3.20 ± 0.76	0.017
8. I have to perform inappropriate task	2.80 ± 1.06	2.77 ± 1.11	2.86 ± 0.97	0.680
9. There is an informative Junior Doctors handbook	1.56 ± 1.12	1.43 ± 1.21	1.77 ± 0.91	0.127
11. I am bleeped inappropriately	2.23 ± .95	2.28 ± 1.12	2.14 ± 0.55	0.416
14. There are clear clinical protocols in this post	2.55 ± .98	2.58 ± 0.96	2.49 ± 1.01	0.645
17. My hours conform to the new deal	2.36 ± .98	2.48 ± 0.95	2.14 ± 1.00	0.108
18. I have the opportunity to provide continuity of care	2.85 ± .81	2.78 ± 0.76	2.97 ± 0.89	0.299
29. I feel part of a team working here	2.94 ± 1.03	2.90 ± 0.90	3.00 ± 1.24	0.677
30. I have opportunities to acquire the appropriate practical procedures for my grade	2.59 ± 1.03	2.47 ± 1.03	2.80 ± 0.99	0.124
32. My workload in this job is fine	2.20 ± 1.37	2.57 ± 1.25	1.57 ± 1.36	0.001
34. The training in this post makes me feel ready to be Specialist/Consultant	2.51 ± 1.10	2.37 ± 1.09	2.74 ± 1.09	0.110
40. My clinical teachers promote an atmosphere of mutual respect	2.88 ± .99	2.87 ± 0.95	2.91 ± 1.07	0.828

Table 11. Statistical analysis “Perception of teaching”

Perception of teaching	Mean ± SD			P values
	Overall n = 95	Dubai n = 60	Sialkot n = 35	
2. My clinical teachers set clear expectations	2.60 ± .98	2.38 ± .94	2.97 ± .95	0.005
3. I have protected educational time in this post	2.48 ± 1.38	2.55 ± 1.4	2.37 ± 1.37	.545
6. I have good clinical supervision at all time	2.93 ± .97	2.87 ± .95	3.03 ± 1.01	.445
10. My clinical teachers have good communication skills	3.05 ± .79	2.92 ± .77	3.29 ± .79	.029
12. I am able to participate actively in educational events	2.99 ± .88	2.95 ± .91	3.06 ± .84	.562
15. My clinical teachers are enthusiastic	2.72 ± .99	2.52 ± 1.02	3.06 ± .87	.008
21. There is access to an educational program relevant to my needs	2.62 ± 1.19	2.73 ± 1.06	2.43 ± 1.38	.263
22. I get regular feedback from seniors	2.43 ± 1.03	2.42 ± 1.06	2.46 ± .98	.851
23. My clinical teachers are well organized	2.65 ± 1.04	2.35 ± 1.04	3.17 ± .82	0.0001
27. I have enough clinical learning opportunities for my needs	2.47 ± 1.14	2.52 ± 1.02	2.40 ± 1.33	.656
28. My clinical teachers have good teaching skills	2.86 ± .94	2.63 ± .92	3.26 ± .85	.001
31. My clinical teachers are accessible	2.91 ± .89	2.80 ± .92	3.09 ± .82	.120
33. Senior staff utilize learning opportunities effectively	2.37 ± 1.18	2.18 ± 1.16	2.69 ± 1.16	.045
37. My clinical teachers encourage me to be an independent learner	2.87 ± .93	2.80 ± .88	3.00 ± 1.00	.33
39. The clinical teachers provide me with good feedback on my strengths and weaknesses	2.41 ± 1.05	2.25 ± .99	2.69 ± 1.11	.058

Table 12. Statistical analysis “Perception of social support”

Perception of social support	Mean ± SD			P values
	Overall n = 95	Dubai n = 60	Sialkot n = 35	
7. There is racism in this post	2.46 ± 1.32	2.23 ± 1.29	2.86 ± 1.29	.026
13. There is sexism in this post	2.62 ± 1.22	2.60 ± 1.20	2.66 ± 1.28	.831
16. I have good collaboration with other doctors in my grade	3.07 ± .87	2.92 ± .85	3.34 ± .84	.020
19. I have suitable access to careers advice	2.32 ± 1.2	2.05 ± 1.19	2.77 ± 1.09	.003
20. This hospital has good quality accommodation for junior doctors, especially when on call	.95 ± 1.15	1.05 ± 1.21	.77 ± 1.03	.238
24. I feel physically safe within the hospital environment	2.75 ± 1.28	3.47 ± .75	1.51 ± 1.04	.0001
25. There is no-blame culture in this post	2.58 ± 1.26	2.43 ± 1.28	2.83 ± 1.20	.135
26. There are adequate catering facilities when I am on call	1.26 ± 1.27	1.68 ± 1.26	.54 ± .92	.0001
35. My clinical teachers have good mentoring skills	2.56 ± 1.07	2.48 ± .93	2.69 ± 1.28	.416
36. I get a lot of enjoyment out of my present job	2.27 ± 1.1	2.65 ± .94	1.63 ± 1.06	.0001
38. There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	2.14 ± 1.13	1.92 ± 1.0	2.51 ± 1.25	.018

We have 58.9% (n=56) females trainees as compared to 41.1% (n=39) and this gender influence is even more marked in Dubai where 70% (n=42) postgraduates are female. The

reason for high percentage of females in Dubai is because most of the postgraduates are inducted from Dubai Medical College for Women. Similarly, the medical residents of the King Fahad Hospital of Dammam University considered their educational environment as more positive than negative with potential aspects for improvement. Perception of educational environment is associated with gender but not with stages of the residency program [22]. However, in our study there is no statistically significant association between PG year of training and country of training (Chi square with 3 degree of freedom is 3.045, $p = 0.385$). Alireza et al. [23] concluded that though the educational climate was generally perceived positively by trainees but there were few problematic components and some remedial measures must be adopted to rectify them. We also identified few problematic areas in autonomy, teaching and social structure of training environment that needs to be rectified on priority basis. Some problems encountered include (Table 9) lack of quality accommodation for junior doctors on call, lack of adequate catering facilities, shortage of handbooks for junior doctors, lack of enjoyment out of the present job, workload not fine, residents being inappropriately bleeped, senior staff do not utilize learning opportunities effectively, there is racism and lack of good counseling opportunities for junior doctors who failed. In addition to these areas, there is lack of clear clinical protocols, presence of gender discrimination, lack of informative induction program, lack of opportunities to acquire the appropriate practical procedures, the training in this post doesn't give the feeling of readiness to be specialist/consultant, lack of access to educational programs as per need, lack of enough clinical learning opportunities as per need, clinical teachers set less clear expectations, not able to participate actively in educational events, clinical teachers lack good mentoring skills, feel physically unsafe within the hospital environment and lack of access to career advice. Gooneratne et al. [24] concluded that the clinical educational environment is collectively represented as a single dimension. This may be due to the complex interplay between individual items in the questionnaire. Therefore the psychometric properties do not justify the interpretation of the educational environment through specified subscales. But it is obvious that three subclasses or domains of PHEEM questionnaire address different perceptions of an educational environment. On

further exploration of the overall perception of educational environment, the postgraduates both in Dubai and Sialkot feel more positive in their perception of role autonomy at their workplace, their teaching is moving towards right direction and the social support is good enough with more pros than cons.

PHEEM inventory has been subjected to both individual as well as multiple departments to compare the efficacy of postgraduate training environment. Calpham et al. [25] applied PHEEM in ICU setting and found it a reliable and consistent tool to assess educational climate with an overall Cronbach's alpha of 0.921. Sami A. Alghaidi [26] identified a need of comprehensive review to improve the quality of the training in four 4 postgraduate disciplines which include surgery, pediatrics, gynecology and internal medicine in Taiba University, Saudi Arabia. In our study, we receive the responses from 3 disciplines (Emergency Medicine, Internal Medicine, and General Surgery) from Dubai and 5 disciplines from Sialkot (Internal Medicine, General Surgery, Gynecology, Pediatrics and Others). The postgraduate trainees in their respective specialities perceived their learning environment more positive than negative except Ob/Gyn trainees. The Ob/Gyn residents in Sialkot are facing plenty of problems (Table 9) which have to be addressed and rectified at earliest. The Ob/Gyn residents in Sialkot feel uncomfortable and negative about their autonomy; they perceive the teaching offered is very poor; but they have a better social support in their training environment. One of the reason for unsatisfactory response from Ob/Gyn trainees in Sialkot is the less number ($n=5$, 5.3%) of participation in PHEEM inventory. But the overall response among Sialkot residents was marginally better as compared to Dubai i.e. 33.6 vs 31.6 (Table 6), even though the hospital attached is much smaller as compared to Dubai. Pinnok et al. [27] concluded that the trainees at smaller hospitals perceived that their social supports were better than at larger hospitals. The perception of social support (24.4 vs 24.4) and role autonomy (34.4 vs 35.8) both in Dubai and Sialkot trainees is similar respectively, though the perception of overall teaching is better in Sialkot (40.6 vs 36.6). The pediatric residency program clearly contributed in better perception of teaching in Sialkot (Table 8). The responses with scores of less than 2 (Table 9, in red) identified in our study should be addressed immediately. Khoja [28] suggested the problems in the training program need urgent actions to improve the

residents' learning experience particularly during rotations. Also, the curriculum should be restructured, and effective training methods introduced using the Best Evidence in Medical Education to meet the expectations and learning needs of the physicians.

5. LIMITATIONS

We encountered few limitations in our study. The small sample size (n=95) is small both in Dubai and Sialkot, mainly due to a limited number of postgraduate training inductions in Sialkot (60vs 35). Another limitation is the specialties compared between Dubai and Sialkot trainees; two disciplines are common (internal medicine and general surgery), but others are limited to Dubai (emergency medicine), and Sialkot (pediatrics, Ob/Gyn, others) respectively. The emergency medicine training is exclusively available in Dubai. Though pediatrics and Ob/Gyn residency program is available in Dubai, but not in Rashid Hospital where we conducted this study. Additionally, other specialties (n=1) i.e. orthopedic in Sialkot poses some difficulty in statistical interpretation. It is needed to validate our findings with a larger sample involving different cities of United Arab Emirates and Pakistan.

6. CONCLUSION

The PHEEM is found to be an excellent multidimensional and reliable tool to measure the educational environment for medical postgraduates in training. There are more positive than negative as far as the learning environment is concerned both in Dubai and Sialkot. Perception of social support and role autonomy is identical in Dubai and Sialkot. But teaching is better in Sialkot, attributed mainly to pediatric residency. Furthermore, there are few problems encountered that requires plenty of room for improvement. There is no statistically significant association between PG year of training and country of training (Chi square with 3 degree of freedom is 3.045, $p = 0.385$) but there is statistically significant association between gender and country of training (chi square with 1 degree of freedom is 8.221, $p = 0.004$). The results in our study depict further addition to behavioral component of learning. It is also hoped that these results would help the decision makers both in Dubai and Sialkot to rectify the deficiencies and the areas that need improvement for their future postgraduate residents.

ETHICAL APPROVAL

An ethical approval was taken from the following authorities:

- 1- Chairperson Rashid Hospital Research Committee, Dubai
- 2- CEO, Rashid Hospital, Dubai
- 3- Dubai Scientific Research Ethics Committee (DSREC) Dubai, UAE
- 4- Chairman, Research committee, Khawaja Mohammad Safdar Medical College Sialkot, Pakistan.

COMPETING INTERESTS

The authors have no conflicts of interest and are responsible for the content and writing of this article. There is neither author nor co-authors having any beneficiary interest and the research is purely an academic intent.

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