Phys Med Rehab & Electrodiagnosis 2019; 1(3): 119-24
DOI: https://doi.org/10.22122/pmre.v1i3.14 **Published by** *Vesnu Publications*

Original Article

Evaluation of Hospital Learning Environment for Physical Medicine and Rehabilitation Residency in Iran

Received: 27 Mar. 2019
Accepted: 08 July 2019
Published: 05 Sep. 2019

Seyed Pezhman Madani[1], Jalil Koohpayehzadeh[2], Tannaz Ahadi[1], Korosh Mansoori[3], Neda Taghvadoost[4], Ali Ahmadi[4], Gholam Reza Raissi[1]

[1] Associate Professor, Neuromusculoskeletal Research Center, Iran University of Medical Sciences, Tehran, Iran
[2] Associate Professor, Preventive Medicine and Public Health Research Center, Iran University of Medical Sciences, Tehran, Iran
[3] Assistant Professor, Neuromusculoskeletal Research Center, Iran University of Medical Sciences, Tehran, Iran
[4] Specialist in Physical Medicine and Rehabilitation, Neuromusculoskeletal Research Center, Iran University of Medical Sciences, Tehran, Iran

Keywords
Medical education; Physical medicine and rehabilitation; Residency

Abstract

Background: The quality of clinical educational environment is an essential factor in achieving satisfactory learning outcomes in all medical educational systems. To improve this, a comprehensive assessment of learning environment is required. The aim of this study was to evaluate the educational environment of teaching hospitals for physical medicine and rehabilitation (PM&R) residency in Iran.

Methods: In this cross-sectional study, the valid Persian version of Postgraduate Hospital Educational Environment Measure (PHEEM) questionnaire was distributed among residents of PM&R across the country (n = 96).

Results: 82 of 96 residents (85.41%) filled in the questionnaires. They were 35 (42.7%) men and 47 (52.3%) women in three residency years. The mean score and standard deviation (SD) for perceptions of role autonomy, teaching, and social support subscales were 49.67 ± 6.65, 50.93 ± 8.14, and 35.39 ± 4.90, respectively. Men ranked the questionnaire higher than women. Overall mean score and SD was 135.99 ± 17.38.

Conclusion: Our findings represent that educational environment of PM&R is outstanding in Iran, although there is still a room for improvement.

How to cite this article: Madani SP, Koohpayehzadeh J, Ahadi T, Mansoori K, Taghvadoost N, Ahmadi A, et al. **Evaluation of Hospital Learning Environment for Physical Medicine and Rehabilitation Residency in Iran.** Phys Med Rehab & Electrodiagnosis 2019; 1(3): 119-24.

Introduction

The quality of educational systems has been considered as an important issue. Some experts consider it as the ability to achieve favourable results, while others believe that it is an equivalent of the system efficiency. Therefore, the quality improvement will develop the performance of an educational system.[1]

In a medical education system, more attention to the quality of learning environment is the primary step in providing health care requirements and promoting the practitioners' scientific level. Regarding this, it is essential to evaluate the educational

Email: farapuboffice@gmail.com
Corresponding Author: Gholam Reza Raissi
Email: raissi.gh@iums.ac.ir

environment in order to develop a quality improvement program.[2]

Residency involves clinical training in hospitals. As a result, the clinical educational environment influences learning and effectiveness of curricula. To assess educational performance of clinical departments, evaluation of this environment is needed.[3] For this purpose, the Postgraduate Hospital Educational Environment Measure (PHEEM), developed in 2005, is a reliable multi-dimensional instrument and has been validated in several countries for use in evaluating the clinical learning environment of physicians in training.[4] The Persian version of this questionnaire has a good consistency and is a valid and reliable tool for evaluating the educational environment of Iranian clinical settings.[5]

There is half a century of physical medicine and rehabilitation (PM&R) undergraduate programs and 38 years of residency training in Iran.[6,7] In this research, we used PHEEM to assess the educational environment of PM&R departments in Iran. The results will be useful in improving the residency educational programs in our teaching hospitals.

Methods

In this cross-sectional study, participants were residents of PM&R in all seven departments across the country in 2017. The data collection instrument was a validated Persian version of PHEEM questionnaire. It is a questionnaire with high internal consistency and has 40 items in 3 subscales composed of role autonomy with 14, teaching with 15, and social support with 11 statements. A 5-point scale ranging from strongly agree (4), agree (3), uncertain (2), disagree (1) to strongly disagree (0) was used by the responders to score each item. Marking is reversed for negative statements. Maximum scores in domains of role autonomy, teaching, and social support perceptions are 56, 60, and 44, respectively. Questionnaire total score range is 0-160 and better scores indicate higher qualities of educational environment. In this study, the questionnaires were distributed among residents. Post or email was used for departments away from the research team. An instruction to fill the inventory was given by a researcher or sent to the departments. Collected data were used to calculate the mean score and standard deviation (SD) for each item and domain as well as total mean score. SPSS software (version 18, SPSS Inc., Chicago, IL) was utilized to analyse data.

Results

During the study, a total number of 96 PM&R residents were under training in 7 departments across the country (Iran, Shahid Beheshti, Artesh, Baqiyatallah, Tabriz, Shiraz, and Isfahan universities). 82 residents filled in the questionnaires. They were 35 (42.7%) men and 47 (52.3%) women in three residency years. Most of them (37.8%) were postgraduate year one (PGY-1) and the lowest (24.0%) were PGY-3 residents. Iran, Isfahan, and Baqiyatallah departments had the highest (100%) and Tabriz (60.0%) and Shahid Beheshti (70.6%) departments had the lowest participation rates, respectively. The number of respondents and participation rates are listed in table 1. The mean score and SD on each statement of PHEEM are listed in table 2.

Table 1. Number of respondents and participation rate for departments of physical medicine and rehabilitation (PM&R) in Iran

Department	Number of respondent residents	Participation rate (%)
Iran	18	100
Isfahan	13	100
Shiraz	13	86.7
Shahid Beheshti	12	70.6
Baqiyatallah	12	100
Tabriz	9	60.0
Artesh	5	83.3
Total	82	85.4

The questionnaire total mean score was 135.99 ± 17.38 out of 160 and each of the subscales got a mean score as following: role autonomy 49.67 ± 6.65 out of 56, teaching 50.93 ± 8.14 out of 60, and social support 35.39 ± 4.90 out of 44.

Table 2. Summary results of postgraduate hospital educational environment measure (PHEEM) questionnaire rating by 82 Iranian physical medicine and rehabilitation (PM&R) residents

Subscale	Question number	Statement	Mean ± SD
Perceptions of role autonomy	1	I have a contract of employment that provides information about hours of work	3.37 ± 1.18
	4	I have an informative induction program	3.48 ± 1.18
	5	I have the appropriate level of responsibility in this post	3.73 ± 0.83
	8	I have to perform inappropriate tasks	3.54 ± 0.96
	9	There is an informative junior doctors handbook	3.27 ± 1.24
	11	I am bleeped inappropriately	3.37 ± 0.82
	14	There are clear clinical protocols in this post	3.22 ± 0.98
	17	My hours conform to the new deal	3.99 ± 0.89
	18	I have the opportunity to provide continuity of care	3.66 ± 1.03
	29	I feel part of a team working here	3.62 ± 0.84
	30	I have opportunities to acquire the appropriate practical procedures for my grade	3.28 ± 1.03
	32	My workload in this job is fine	3.74 ± 1.02
	34	The training in this post makes me feel ready to be an SpR/consultant	3.44 ± 0.96
Perceptions of teaching	40	My clinical teachers promote an atmosphere of mutual respect	3.98 ± 0.99
	2	My clinical teachers set clear expectations	3.63 ± 0.85
	3	I have protected educational time in this post	3.68 ± 0.94
	6	I have good clinical supervision at all times	3.33 ± 1.04
	10	My clinical teachers have good communication skills	2.16 ± 0.94
	12	I am able to participate actively in educational events	3.91 ± 0.76
	15	My clinical teachers are enthusiastic	3.68 ± 0.91
	21	There is access to an educational program relevant to my needs	3.12 ± 1.14
	22	I get regular feedback from seniors	3.16 ± 0.93
	23	My clinical teachers are well organized	3.13 ± 1.08
	27	I have enough clinical learning opportunities for my needs	3.21 ± 1.08
	28	My clinical teachers have good teaching skills	3.48 ± 1.00
	31	My clinical teachers are accessible	3.95 ± 0.83
	33	Senior staff utilize learning opportunities effectively	3.35 ± 0.88
	37	My clinical teachers encourage me to be an independent learner	3.67 ± 0.94
	39	My clinical teachers provide me with good feedback on my strengths and weaknesses	3.45 ± 0.93
Perceptions of social support	7	There is discrimination between doctors in this post	2.76 ± 1.20
	13	There is sex discrimination in this post	3.11 ± 1.44
	16	I have good collaboration with other doctors in my grade	4.12 ± 0.74
	19	I have suitable access to careers advice	3.28 ± 0.97
	20	This hospital has good quality accommodation for junior doctors, especially when on call	2.70 ± 1.28
	24	I feel physically safe within the hospital environment	3.96 ± 0.96
	25	There is a no-blame culture in this post	3.45 ± 1.27
	26	There are adequate catering facilities when I am on call	2.76 ± 1.09
	35	My clinical teachers have good mentoring skills	2.49 ± 0.96
	36	I get a lot of enjoyment out of my present job	3.56 ± 0.99
	38	There are good counselling opportunities for junior doctors who fail to complete their training satisfactorily	3.21 ± 0.81

SpR: Specialist registrar; SD: Standard deviation

In terms of gender, men were more satisfied with role autonomy and teaching domains than women (P = 0.001), but there was no statistical difference between two groups in social support subscale. In total, men graded the inventory higher than women (P = 0.001). Regarding residency year, residents in PGY-1 were more content with role autonomy and social support in comparison to PGY-3 and PGY-2 residents

(P = 0.004 and P = 0.040, respectively). Our findings revealed no significant difference between perceptions of teaching related to postgraduate year.

Discussion

In this study, we used the PHEEM questionnaire to assess the educational environment of PM&R in Iranian teaching hospitals. Prior to discussion, there should be a guide to interpret our results. For a total score of PHEEM, scores of 0-40, 41-80, 81-120, and 121-160 are representative of very poor, lots of problems, room for improvement, and outstanding, respectively. In the domain of role autonomy perceptions, scores of 0-14, 15-28, 29-42, and 43-56 are considered as very poor, a more negative perception, a more positive perception, and excellent. Regarding teaching perceptions, scores ranging 0-14 indicate very poor quality, while scores of 15-30 mean the need for some retraining and 31-45 imply being in the right direction. Scores ranging 46-60 indicate model teachers. Finally in the subscale of perceptions of social support, scores of 0-11, 12-22, 23-33, and 34-44 are considered as not available, not a pleasant place, more social support existence, and a good supportive environment, respectively.[8]

According to the results, our teaching hospitals are placed in the excellent position in respect to role autonomy. They have good supportive environment and in terms of teaching, we are in the right direction with even model teachers in most of the departments. Total mean score in our research was 135.99 ± 17.38 which is suggestive of an outstanding educational environment. In role autonomy domain, questions number 14 and 9 were ranked the lowest which suggest the lack of clear clinical protocols and informative handbooks for junior residents. In regard to social support subscale, questions number 7, 20, 26, and 35 were rated poorly in comparison to others. These questions are about existence of discrimination between doctors, good quality accommodation for junior doctors, mentoring skills of the teachers, and adequate catering facilities, respectively. It is worth mentioning that all the scores in this subscale were acceptable (more than 2). Finally in terms of teaching perceptions, statement number 10 which asks about the communication skills of the teachers, obtained the lowest score in comparison to other items. All other statements of these domains were highly rated (more than 3).

In a survey conducted by Clapham et al., the educational environment of intensive care medicine in United Kingdom (UK) had room for improvement. In regard to teaching, the results indicated being in the right direction. Participants perceived role autonomy more positively and there was a more positive than negative social support in their educational climate.[9] The authors recognized no sexism in their data collection which was quite distinct from ours. In our research, men ranked the questionnaire higher than women.

In another study by Al-Marshad and Alotaibi,[10] residents of King Fahd Hospital of Dammam University, Dammam, Saudi Arabia, had perceptions of three domains as following: They believed that teachers were in need for some retraining and had more positive perceptions of role autonomy. They found the environment not to be a pleasant place in respect to social support.

In another study, residents' perceptions of the overall educational environment was more positive than negative but with potential aspects for improvement. Significant difference existed in the perception of educational eenvironment in terms of two genders, as male residents had a more positive conception than females. From the standpoint of residency year, there was not a significant difference between perceptions.[11]

In New Zealand, PHEEM was used to assess the learning environment of paediatric trainees by Pinnock et al. In that research, advanced trainees had a more positive perception of the learning environment in comparison to their first counterparts.

Moreover, trainees at smaller hospitals had a better impression of their social support when compared to larger hospitals.[12] In our study, PGY-1 trainees were more content with role autonomy and social support of their educational environment. This can be attributed to the expectations of the trainees. Residents in PGY-1 usually have low expectations in comparison to their senior peers and can be satisfied more easily or it can be attributed to performance inadequacy of our clinical educational system which gives a lot of autonomy to PGY-1 residents.

Difference between two genders in Al-Marshad and Alotaibi[10] study is similar to our results. It seems that culture can influence perceptions of clinical environment. On the other hand, statement number 13 which is about sex discrimination was rated more than three and most of the residents denied sexism in their clinical environment. Therefore, the difference may be attributed to expectations of two genders. Other possible causes need to be explored.

Wall et al. demonstrated that scores on three domains correlated to each other, as a good educational environment was highly rated in all subscales and the reverse was true about a poor one.[4] This was also observed in our study.

Overall, this survey indicates that the educational environmet of PM&R in Iran has met expectations of residents. All the individual training departments obtained the outstanding educational environment score. A little interdepartmental difference may be multifactorial. Considering the small sample size of the research, lower participation rate in some departments such as Tabriz and Shahid Beheshti (60% and 70.6%, respectively) can be an important interfering factor. Further research may be needed to identify other potential causes.

It is obvious that a comprehensive plan for promotion should include issues of dissatisfaction mentioned in this study. In comparison to most fields of medicine, PM&R is a new specialty in Iran and resources allocated to it are limited. Limited international communications between residents can lead to both unrealistic expectations and false satisfaction. Participation in international conferences and taking courses abroad may help overcome these issues.

The main limitation of this study was the small sample size which was due to low numbers of PM&R departments in Iran. Further studies with larger sample size, especially of graduated residents' clinical climate, is recommended.

Conclusion

Although PM&R educational environment in Iran has an outstanding position, there are even more potential aspects for progress. Planning to provide a high-quality educational environment for residents will in turn improve the level of providing health services.

Acknowledgments

The authors would like to thank residents of PM&R in all departments across the country for their cooperation.

Conflict of Interest

All authors of this paper declare that they do not have any financial or other conflict of interest related to the submission.

References

1. Soltani Arabshahi SK, Ajami A, Siabani C. Determination of the effect of teaching skills workshop on the quality of residents' teaching. Razi J Med Sci2004; 11(39): 49-57.
2. Fasihi Harandi T, Soltani Arabshahi SK, Tahami SA, Mohammad Alizadeh S. Viewpoints of medical students about the quality of clinical education. J Qazvin Univ Med Sci 2004; 8(1): 4-9. [In Persian].
3. Boor K, Scheele F, van der Vleuten CP, Scherpbier AJ, Teunissen PW, Sijtsma K. Psychometric properties of an instrument to measure the clinical learning environment. Med Educ 2007; 41(1): 92-9.
4. Wall D, Clapham M, Riquelme A, Vieira J, Cartmill R, Aspegren K, et al. Is PHEEM a multi-dimensional instrument? An international perspective. Med Teach 2009; 31(11): e521-e527.

5. Shokoohi S, Hossein EA, Mohammadi A, Ahmadi S, Mojtahedzadeh R. Psychometric properties of the postgraduate hospital educational environment measure in an Iranian hospital setting. Med Educ Online 2014; 19: 24546.

6. Raissi GR, Vahdatpour B, Ashraf A, Mansouri K. Integrating physical medicine and rehabilitation into the curriculum of Iranian medical students. Disabil Rehabil 2006; 28(1): 67-70.

7. Raissi GR, Mansoori K, Madani P, Rayegani SM. Survey of general practitioners' attitudes toward physical medicine and rehabilitation. Int J Rehabil Res 2006; 29(2): 167-70.

8. Raissi GR, Ahadi T, Forogh B, Adelmanesh F. Forty years history of physical medicine and rehabilitation in Iran. J Rehabil Med 2011; 43(4): 369.

9. Clapham M, Wall D, Batchelor A. Educational environment in intensive care medicine--use of Postgraduate Hospital Educational Environment Measure (PHEEM). Med Teach 2007; 29(6): e184-e191.

10. Al-Marshad S, Alotaibi G. Evaluation of clinical education environment at King Fahad Hospital of Dammam University using the Postgraduate Hospital Education Environment Measure (PHEEM) Inventory. Education in Medicine Journal 2011; 3(2): e6-e14.

11. Khan JS. Evaluation of the educational environment of postgraduate surgical teaching. J Ayub Med Coll Abbottabad 2008; 20(3): 104-7.

12. Pinnock R, Reed P, Wright M. The learning environment of paediatric trainees in New Zealand. J Paediatr Child Health 2009; 45(9): 529-34.