

Evaluation of learning environment of different family medicine programs, Jeddah-KSA, 2021

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ABSTRACT

Background: A supportive educational climate in which learners are educated and monitored is a significant determinant of the medical trainees' performance and progress and eventually contributes to better patient care. Therefore, residents' training programs need to be assessed and incorporated according to the views and expectations of the candidates. The objectives of this research are to compare and evaluate the learning environment of Family Medicine (FM) programs in Jeddah and make practical recommendations for improvement of the learning environment. **Methods:** A descriptive causal-comparative study was designed at FM programs in Jeddah, Saudi Arabia during January, and February 2021, including all residents from R1 to R4. A Postgraduate Hospital Educational Environment Measure (PHEEM) questionnaire was used in this study. The overall score and the three domains were calculated. **Results:** Two hundred and eighty-three questionnaires were distributed, and 262 were completed and collected, making a response rate of 92.6%. Females represented were 150 (57.3%), and males were 112 (42.7%). The study shows that 78 (29.8%) of the residents reported that the learning environment was excellent, and 154 (58.8%) described it as a more positive than the negative environment, whereas 29 (11.1%) described it as having a lot of problems. Out of 160 maximum scores, the highest total score (127) was observed among residents at the National Guard program, whereas the lowest score (108) was in the FM joint program, $P < 0.001$. **Conclusion:** Evaluation of the training programs is an essential component of quality assurance procedures. The satisfaction of the FM residents at different programs in Jeddah, Saudi Arabia, is better than reported previously, but however, further improvement is warranted. Juniors and residents of the National Guard program were more satisfied than their peers. We recommend low score items should have special consideration from high authorities and ongoing evaluation of the FM training program for further improvement of the learning environment.

Keywords: Evaluation, family medicine programs, learning environment, perception

Introduction

Family medicine (FM) residency programs are different from other training programs in their shorter duration (two to three years in North America and three years in Saudi Arabia's current curriculum) and their broader learning spectrum.^[1]

FM is a distinct profession where clinicians provide ongoing holistic healthcare for individuals of all ages and gender. FM

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is based on a combination of knowledge and competency from various medical specialties, public health, and behavioral sciences. It is a unique healthcare context in implementing and integrating these specialties into a particular patient, family, and community.^[2]

In Saudi Arabia, FM was started in the early 1980s, growing slowly like most Arab countries compared with other medical specialties.^[3] Graduate doctors who pass the Saudi Commission for Health Specialties (SCFHS) are required to sit for an exam before enrolling in an FM residency program. The program involves three years (according to the new FM curriculum) of training. Completing the residency program qualifies the trainee to receive an FM specialist certification.^[4]

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A supportive educational climate, in which learners are educated, monitored, and fostered, is a significant determinant of the medical trainees' performance and progress and eventually contributes to better patient care.^[5]

FM training takes place in hospitals and primary healthcare (PHC) centers in which training in PHC rotation is taking a considerable portion of the postgraduate FM program curriculum. However, little is attributed to PHC as a clinical learning environment.^[6]

The educational environment is described as “the dynamic, co-constructed perceptions, experiences and behaviors of participants, in the physical and virtual spaces within which learning occurs.”^[7]

Many researchers evaluate hospital learning environments, but few studies have addressed the educational environment in PHC, in which clinical learning is dynamic and has its unique difficulties.^[5]

Training development using different tools to assess the consistency of training in many aspects is critical for approaching excellence in education.^[8]

This study aims to compare and evaluate the learning environment of the postgraduate FM training program in Jeddah and make practical recommendations for improvement of the learning environment at different FM training programs.

Methodology

Study setting and duration

This study was conducted in Jeddah City, Saudi Arabia during January and February 2021. There are three FM programs in Jeddah City; the Joint Program of Postgraduate Studies of Family Medicine (JPPGSFM), the National Guard Family Medicine Residency Program (NGFMRP), and the King Abdulaziz University Family Medicine Residency Program (KAUFMRP). Ethical approval was obtained from the College of Medicine Research Committee College of Medicine, King Saud ibn Abdulaziz University for Health Sciences on Dec. 7, 2020.

The FM Board Program was established in Jeddah, in Saudi Arabia in 1994. It provides structured training covering a broad scope of knowledge and skills in PHC centers and hospital-based medicine in a three-year current curriculum (4 years in the old curriculum) of the full-time supervised residency training program.

Study design

This study is a descriptive causal-comparative study.

Sample size and sampling technique

All FM residents in Jeddah (283) were included in this study (Joint program, National Guard, and King Abdulaziz University

programs). Residents who volunteered to participate and fulfill the inclusion and exclusion criteria were considered. Following this, the questionnaire was sent out to all FM residents enrolled in the FM residency programs in Jeddah to their professional emails. The questionnaire was left open for 3 weeks, and three reminder emails were sent.

Data collection tool

Postgraduate Hospital Educational Environment Measure (PHEEM), a self-administered questionnaire, was used as an investigation tool. The PHEEM is specifically designed to assess the clinical learning environment for postgraduate trainees. It is the most widely used instrument for measuring postgraduate educational environments worldwide.^[1,7]

The PHEEM questionnaire consisted of 40 questions in 3 domains: perceptions of role autonomy, perceptions of teaching, and residents' social support. It uses a 5-point Likert scale (0, strongly disagree, to 4, strongly agree) for a maximum score of 160.

The PHEEM is considered a practical, valid, and reliable tool that could evaluate and assess the educational environment and compare different trainees, departments, and centers.^[7,9-13] A zero score is the lowest and would be highly alarming. An estimated guide for measuring the overall score is 0–40 very poor, 41–80 lots of problems, 81–120 more positive than negative, but still space for improvement, and 121–160 excellent.

Data collection

All residents were invited to fill in the PHEEM questionnaire that was sent to them by email. They share their perceptions and descriptions about FM residency training programs' educational environment by completing the questionnaire. Their perception is essential to give us feedback about the learning environment in Jeddah. Participants were informed about the nature and the purpose of the study before providing written consent.

Data analysis

The data were analyzed by descriptive statistical analysis, in which the items were scored as follows: 4 for strongly agree, 3 for agree, 2 for uncertain, 1 for disagree, and 0 for strongly disagree. There are four negative statements (questions 7, 8, 11, and 13), so they were scored in reverse, as the higher the score, the more positive the environment. Question no. 11 was modified a little after piloting on 10 residents (graduated FM residents), to suit our population because there is no on-call in FM rotation.

The study's independent variable is the FM program (Joint program, National Guard program, and King Abdulaziz University residency programs). The main outcome variable is the questionnaire perceptions score, taken as a mean \pm standard deviation value based on 40 questions linked to their educational environment's trainee perceptions.

The questionnaire has a maximum score of 160 showing the perfect learning climate as the learner perceives it. Table 1 shows the score interpretation of the perception.

Data entry was carried out using an Excel sheet, analyses were carried out using the IBM SPSS Statistics for Windows, version 26.0 (SPSS Inc., Chicago, Ill., USA) was used for the analysis. Categorical variables were presented by frequency and percentages while numerical data such as perception scores were presented as the median and interquartile range (IQR). The normality of autonomy, teaching, and social scores was tested using the Shapiro–Wilk test. Kruskal–Wallis H-test followed by Dunn’s post hoc test was applied to compare the autonomy, teaching, and social scores by residency level and program. The study’s level of significance (α) in the study was set as 0.05.

Results

The response rate was 92.6%. The highest proportion of residents was recruited from the R4 residency level (31.4%), whereas the lowest proportion was recruited from the R1 residency level (20.2%).

Total score of Postgraduate Educational Environment Measure

It is shown that 29.8% of the resident physicians reported that the teaching environment was excellent and 58.8% described it as a more positive than negative environment whereas 11.1% described it as having a lot of problems and not a pleasant place, respectively.

Table 2 demonstrates that the highest total score of PHEEM was observed among R2 resident physicians (150.74) whereas the lowest was observed among R3 residents (101.39), $P < 0.01$. Regarding the residency program, the highest total score of PHEEM was observed among residents in the National Guard program (184.80). In contrast, the lowest score was observed among residents in the Joint Program of Ministry of Health (MOH) (108.89), $P < 0.001$.

Dunn’s test showed that the total score of PHEEM was significantly higher in R1 and R2 residents than in R3 residents. P values were <0.05 and <0.01 , respectively [Table 3]. Dunn’s test showed that the total score of PHEEM was significantly higher in residents of the National Guard program compared to residents of the King Abdulaziz program ($P < 0.05$) and of the Joint Program of MOH ($P < 0.001$) [Table 4].

Discussion

A satisfactory level of quality training, meeting the needs of the trainees in all aspects, for family physicians is needed to improve the health outcome indicators on both global and local levels.^[14] FM residency training programs are characterized by a broader scope of learning within a relatively shorter period of time compared to other residency training programs.^[15-17] Evaluation

of such programs by educational organizations as well as comparing the learning environment of the candidates in different programs and different institutes is an essential component of quality assurance procedures.^[18] Thus, this study was conducted to evaluate and compare the learning environment of the postgraduate FM training programs in different governmental institutes; the Joint Program of FM of MOH, the National Guard Program, and the King Abdulaziz University Program in Jeddah, Saudi Arabia. Furthermore, in this study, we looked for a practical recommendation for the improvement of the learning environment of the FM training programs.

Table 1: The Score of Different Merit of Perceptions according to participants’ opinion

I. Perceptions of role autonomy	II. Perceptions of teaching	III. Perceptions of social support
0-14 very poor	0-15 very low standard quality	0-11 non-existing
15-28 a negative perception	16-30 need some retraining	12-22 not a pleasant place
29-42 positive perception	31-45 a step in the right direction	23-33 more positive than negative
43-56 excellent	46-60 ideal teachers	34-44 positive environment

Table 2: Factors associated with the total score of Postgraduate Educational Environment Measure among the participants

Items	Total score of Postgraduate Hospital Educational Environment Measure			P
	Median	IQR	Mean rank	
Gender				
Male (n=112)	111.5	99-128.75	133.92	NS*
Female (n=150)	111	100.75-123	129.69	
Residency level				
R1 (n=53)	115	101-129	144.08	0.002**
R2 (n=69)	116	108-133	150.74	
R3 (n=58)	108.5	86.5-114	101.39	
R4 (n=82)	111	100-120.75	128.48	
Residency program				
Joint Program (n=160)	108	91-116.75	108.89	<0.001**
National Guard Program (n=73)	127	113-145.5	184.80	
King Abdul-Aziz Program (n=29)	110	99-116	122.05	

*Mann–Whitney test. **Kruskal–Wallis test. IQR: Interquartile range. NS: not significant

Table 3: Comparison between different residency levels regarding total score of Postgraduate Educational Environment Measure using Dunn’s test

Group		Mean Rank Diff.	Std. Error	z	P
Group 1	Group 2				
R3	R4	27.094	12.998	2.084	0.037
R3	R1	42.688	14.396	2.965	0.003
R3	R2	49.351	13.495	3.657	< 0.001
R4	R1	15.594	13.352	1.168	0.243
R4	R2	22.257	12.376	1.798	0.072
R1	R2	6.664	13.837	0.482	0.630

Table 4: Comparison between different residency programs regarding total score of Postgraduate Educational Environment Measure using Dunn's test

Group		Mean Rank Diff.	Std. Error	Z	P
Group 1	Group 2				
Joint Program	NG Program	75.908	10.700	7.094	< 0.001
Joint Program	KAU Program	13.158	15.290	0.861	0.389
NG Program	KAU Program	62.750	16.629	3.774	< 0.001

In the current study, the PHEEM tool has been used to evaluate the learning environment among the participants. It has been proven for validity and reliability in several studies.^[1,9,12,13,19-22]

Perception of role autonomy

Regarding the perception of role autonomy, the highest agreed-upon statements were “having the appropriate level of responsibility in this post” (mean score = 3.22), “their clinical teachers promote an atmosphere of mutual respect” (mean score = 3.21), and “they had an informative induction program” (mean score = 3.0). Therefore, other items with lower satisfaction need to be addressed, particularly, inappropriate interruption during patients' consultations and the existence of an informative junior doctors' handbook. In a study conducted in Riyadh,^[1] there was poor satisfaction of the FM residents with the contract of employment that provides information about hours of work, an opportunity to provide continuity of care, an informative junior doctors' handbook, opportunities to acquire the appropriate practical procedures for the trainees' grade, and feeling of being a part of a team working in the institution.

Perception of teaching environment

In the current study, 29.8% of the residents reported that the teaching environment was excellent and 58.8% described it as a more positive than negative environment whereas 11.1% described it as having a lot of problems and not a pleasant place, respectively. These results could be because the overall learning environment had more positive than negative results. Furthermore, more positive than negative perceptions were observed regarding the perception of role autonomy, perception of teaching, and perception of social support. Overall scoring of items was slightly better than those recorded in the other two Saudi studies using the same study tool.^[1,21] This may indicate that some improvement in the learning environment has been achieved. However, more improvement in the training programs is needed, particularly for low-satisfaction items. Also, in a study done in Riyadh,^[1] poor satisfaction regarding the absence of gender discrimination in the program, noblame culture, and adequate catering facilities were observed. Khoja^[21] reported a poor rating of the FM residents regarding noblame culture, and adequate catering facilities.

Limitations

The self-reported nature of the study tool is subjected to response bias. The cross-sectional design of the study is another

limitation as it merely proves associations rather than inferences between independent variables and satisfaction with the learning environment. Despite those few limitations, the study carries importance in identifying points of dissatisfaction in the training program to help decision-making in improving the situation.

Conclusion and Implication for Primary Care Physicians

The satisfaction of residents in different FM programs in Jeddah city is better than those reported previously in Saudi Arabia. However, dissatisfaction was observed in some issues, such as having enough clinical learning opportunities and access to an educational program relevant to the needs of the trainee, as well as getting regular feedback from seniors and the existence of an informative junior doctors' handbook. Juniors and residents of the National Guard program were more satisfied compared to their peers.

Based on the present study results, the following are recommended:

- Poorly rated issues should have particular attention paid by higher authorities for further improvement of the learning environment.
- FM residents' opinions should be considered in any trial to improve their training.
- Continuous assessment of the FM residency training programs.
- Further studies including FM residents from other cities in the Kingdom of Saudi Arabia to enable a more comprehensive image of the situation.

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Conflicts of interest

There are no conflicts of interest.

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