Original Article

Family medicine residents' educational environment and satisfaction of training program in Riyadh

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Abstract

Background: Improving health outcome indicators worldwide needs well-trained family physicians, and the Kingdom of Saudi Arabia is of no exception from that need. **Objectives:** To address the level of satisfaction and assess the educational environment among residents of family medicine (FM) in Riyadh city. **Methodology:** A cross-sectional study; the Postgraduate Hospital Educational Environment Measure (PHEEM) was used to assess the educational environment for all FM residents in fully structured training centers that include all levels of residents in Riyadh during 2016. **Results:** About 187 surveys were distributed and 140 were collected, with a response rate of 74.87%. Cronbach's alpha scored at 0.917 for overall items. Out of 160 maximum score, the overall score of the PHEEM was 86.73 (standard deviation [SD]: 19.46). The perception of teaching score was 33.11 (SD: 8.80) out of 60, the perception of role autonomy score was 28.60 (SD: 7.35) out of 56, and the perception of social support was 25.02 (SD: 5.43) out of 44. **Conclusion:** The educational environment is an important determinant of medical trainees' achievements and success. The results are better than what had been found in the previous studies, but more attention and effort should be done, especially for the poorly rated points in this study. We recommend a continuous evaluation and reconstruction of the Saudi Board of FM program, and such results could be a tool that might help in fostering better and stronger educational program.

Keywords: Education, family medicine residents, satisfaction, training program

Introduction

Improving health outcome indicators worldwide needs well-trained family physicians, and the Kingdom of Saudi Arabia (KSA) is of no exceptions from that need.[1] Residency training programs in family medicine (FM) have been in existence for a number of years as reported in studies carried out in the United States[2] and KSA.[3] Despite being mandatory, FM training programs differ from all other training programs in their shorter duration (usually 2 or 3 years in North America and 4 years in KSA) and their broader scope of learning within this period.[4-6] As an essential part of quality assurance procedures, educational organizations need to evaluate their educational processes.[7] The scientific board of the Saudi Commission for Health Specialties (SCFHS) has reviewed the whole curriculum of FM training of KSA, but nothing of note has been done for the evaluation of the hospital clinical rotation training part of the program.[8] As per one of the studies from eight centers across KSA conducted mainly on the medicine specialty clinical rotation and published in 2006, the authors found that the majority of trainees were not satisfied with the rotation.[9] They were treated as service residents, rather than FM trainees.[9] Moreover, these findings were in consistence with the results of similar national and international studies, coming up with the conclusion that postgraduate FM training programs are in a need for evaluation and implementation according to the residents' views and perceptions.[10,11]

The educational environment, sometimes referred to as climate, atmosphere, or tone, is a set of factors that describe what it is

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like to be a learner within that organization,[12] and it has been previously considered in three divisions.[12] These three divisions are the physical environment (safety, food, shelter, comfort, and other facilities), the emotional climate (security, constructive feedback, being supported, and absence of bullying and harassment), and the intellectual climate (learning with patients, relevance to practice, evidence-based, active participation by learners, motivating, and planned education).[12]

In reference to the study that had been published by Khoja in 2015,[3] there are five basic reasons that make the evaluation of the educational environment a matter of importance and interest. These five reasons are first, provision of an insight for the prospective trainee and trainers; second, being a central part in curriculum development; third, exposure of the informal and hidden curriculum; fourth, being a tool for quality assurance and improvement; and fifth, provision of vital evidence for change and policy development.

In KSA, the Scientific Board of the Saudi Board of FM (SBFM), which works under the umbrella of the SCFHS, is the one supervising all postgraduate FM programs. The FM residency training program provides supervised guided learning opportunities for FM in ambulatory care and hospital-based medicine in a 4-year, fulltime, and supervised residency training program. The structure and rotations of the SBFM program curriculum at the time of the current study were as follows: 6-week introductory course, and in the following years up to end of R3, trainees undergo different rotations in various specialties apart from a 3-month rotation in family practice each year.[13] The trainee will spend the entire 4th year in FM practice.[13] The research methodology and fieldwork rotation are to be taken at R2. The community medicine course is to be taken at R3.[13]

In the current version of the training program,[13] there are many noticeable changes; some of them are summarized as follows: (1) all rotations of the training program, as well as educational activities, are described in a competency-based format with clear objectives according to The Canadian Medical Education Directives for Specialists (FM) framework, (2) addition of a list of the most important clinical topics and procedures in FM as well as universal topics, new regulations regarding attendance and punctuality, new section about mentoring, and a new section on rules and regulations (resident job description, chief resident, and levels of supervision), and (3) drastic change and revision of the assessment of every rotation.

The main aim of the current study was to assess the educational environment and satisfaction of the SBFM training program that might give us a clue to the changes happened since the previous study.[3]

Methodology

We set out to assess the educational environment and satisfaction among training FM residents in four training well-established centers (King Khalid University Hospital, National Guard Hospital, Prince Sultan Military Medical City, and Security Forces Hospital) in Riyadh city, KSA that cover all levels of residency from R1 to R4. For the assessment of the educational environment, we used the Postgraduate Hospital Educational Environment Measure (PHEEM)[14] questionnaire as a self-administered tool that has been recommended before by the research advisory group, a group of medical educators at SCFHS, trainers, and residents.[3] This questionnaire is valid, reliable, and transferable tool that was previously reported to be used in both educational evaluation[12,14-17] as well as the evaluation of the rotational based training programs.[15-18] It has 40 statements with the respondents who were asked to indicate their agreement using a 5-point Likert scale; these range from strongly agree (4), agree (3), unsure (2), disagree (1), to strongly disagree (0).[12] Agreement with the items indicates a "good" environment giving high scores. The four negative statements (questions 7, 8, 11, and 13) were scored in reverse so that the higher the score, the more positive the environment. Information on gender and seniority in terms of the grade of post were also requested as part of the questionnaire.[12]

Besides using the PHEEM, we add one more question about the satisfaction of training program. The study was approved by the Institutional Review Board of King Saud University. A pilot study was conducted on ten residents from different specialties who answered the questionnaire within 5 min without facing any difficulties. After that, the PHEEM questionnaire together with the consent form was given to the chief residents in each center to be distributed. All residents' identification data were kept confidential.

Statistical analysis

Data were analyzed using Statistical Package for Social Studies (SPSS 22; IBM Corp., New York, NY, USA). Continuous variables were expressed as mean ± standard deviation, and categorical variables were expressed as percentages. The Cronbach's alpha was used to assess reliability and internal consistency of the items in the questionnaire. Chi square test was used for categorical variables. $P < 0.05$ was considered as statistically significant.

Results

Out of 187 FM resident trainees who were asked to participate in this study, 140 accepted to participate with a response rate of 74.87%. 132 out of the 140 completed the questionnaire. These were drawn from four training centers within Riyadh that cover all levels of residency from R1 to R4. The numbers of residents within each residency level from R1 to R4 were 41 (31.06%), 39 (29.55%), 29 (21.97%), and 23 (17.42%), respectively. There were 85 (64.39%) male trainees and 47 (35.61%) female trainees [Table 1].

Cronbach's alpha was calculated and scored at 0.917 for overall items. When this was analyzed to each question in turn, using the

Table 1: Distribution of the study participants by gender and training level

	n (%)
Gender	
Male	85 (64.39)
Female	47 (35.61)
Training level	
R1	41 (31.06)
R2	39 (29.55)
R3	29 (21.97)
R4	23 (17.42)

"alpha if item deleted," no significant improvement was noticed in the score, thus confirming all the questions were relevant and should be included and also reflecting excellent reliability and internal consistency of the items in the questionnaire [Table 2].

Table 3 shows the summary of the response for each question in addition to the subscales and overall scale scores, in which we calculated the mean and the median to give a better overall view of the results. From the whole 40 statements, only one statement (I have good collaboration with other doctors in my grade) was highly rated (mean value >3) and 13 statements were poorly rated (mean value 2 or less).

The aggregate scores to identify measures of the environment as overall, and in terms of perception of teaching, perception of role autonomy, and perception of social support, were also summarized in Table 3. Out of 160 maximum score, the overall score of the PHEEM was 86.73 (standard deviation [SD]: 19.46). The perception of teaching score was 33.11 (SD: 8.80) out of 60, the perception of role autonomy score was 28.60 (SD: 7.35) out of 56, and the perception of social support was 25.02 (SD: 5.43) out of 44 [Table 3].

Table 4 shows the frequency of trainees that falls into each of the PHEEM scales' domains. Overall, considering the training environment as excellent was only rated by three (2.3%) residents while the majority of them (62.9%) considered it more positive than negative. In regard to the perceptions of training, only 12 (9.1%) residents believed that the teachers were model teachers, while 67 (50.8%) residents believed that the teachers are moving in the right direction, 52 (39.4%) residents believed that the teachers need retraining, and only one resident believed that the teachers are poor. For the perception of role autonomy, majority of the residents were divided between the scales of either a negative view of one's role (47.0%) or more positive perception (46.2%), leaving only 3.0% who believed excellent perception of one's job and 3.8% who believed poor. About the perception of social support, only 7 (5.3%) believed good support, the majority (65.9%) rated more pros than cons, leaving 36 (27.3%) residents who were not pleasant and two (1.5%) believed that the social support is nonexistent.

In regard to the question of the satisfaction of the training program [Table 5], the participants were asked to rate their satisfaction level as strongly disagree, disagree, undecided, agree, or strongly agree. It was found that only 2.27% of the participants strongly agree, 31.82% agree, 24.24% undecided, 35.61% disagree, and 6.06% strongly disagree that the training program was satisfied for them. There was no significant difference ($P = 0.076$) between males and females in terms of the degree of satisfaction with the training program. It was found that only three females strongly agree that they are satisfied, while none of the males reported that. When the satisfaction degree was stratified according to the residency level (R1–R4), no statistically significant difference was found ($P = 0.097$). Unfortunately, none of the R3 or R4 residents rated strongly agree, while only two in R1 and only one in R2 report that. With the exception of R1, the vast proportion of the FM residents rated their degree of satisfaction as either disagree or undecided.

Discussion

The vital role of the educational environment in the learning process is well known. In this study, we have shown that the PHEEM questionnaire has a set of reliable items that can be used for measuring the educational environment and identifying the strength and weakness of a medical residency program within FM (Cronbach's alpha 0.917), and this has been also shown by different studies.[12,14-17]

Our study showed that, overall, item 16, which assesses the good collaboration between the residents and other doctors in their grade, was the only highly rated point with a mean score of 3.08, and this did not differ much from what has been reported by Binsaleh, where they found no overall real positively rated points.[19] We also found that 26 items seemed satisfactory with a mean score between 2 and 3, and the remaining 13 were poorly rated which means that these 13 items need an effort to be resolved. Compared to the study published from KSA by Khoja,[3] the current study showed better results in terms of the items' scores, where he reported 30 (75%) items that were poorly scored compared to 13 (32.5%) items in the current study. Despite this good improvement, these poorly rated items mean that the FM residents still struggle to reach the intended goal of the training program. The lowest recorded score was 1.36 for item18 (I have the opportunity to provide continuity of care), a situation that can be easily solved by assigning patients to same residents on every visit.

Poorly rated questions included questions 6, 21, 22, and 39 from the perception of teaching domain. These questions assess the presence of good clinical supervision at all time, the access to an educational program relevant to the trainee need, getting regular feedback from seniors, and if the clinical teachers provide the trainees with good feedback on their strengths and weakness. This is an indication that there is a significant lack of good clinical supervision, a finding that is comparable with what had been previously reported from local studies, where 64% of FM residents indicated that they lack close supervision.[20] Feedback is well known to promote

Table 2: Reliability analysis of the overall questionnaire

Item number	Statement	Scale mean if item deleted	Scale variance if item deleted	Corrected Item-total correlation	Cronbach's Alpha if item deleted
Q1	I have a contract of employment that provides information about hours of work	84.79	363.542	0.363	0.916
Q2	My clinical teachers set clear expectations	84.73	356.135	0.599	0.913
Q3	I have protected educational time in this program	84.49	356.908	0.525	0.914
Q4	I had an informative induction program	84.61	359.857	0.479	0.914
Q5	I have the appropriate level of responsibility in this program	84.47	362.969	0.371	0.916
Q6	I have good clinical supervision at all time	84.98	357.725	0.470	0.914
Q7	There is racism in this program	83.81	380.216	-0.069	0.921
Q8	I have to perform inappropriate tasks	84.26	374.666	0.062	0.919
Q9	There is an informative junior doctors' handbook	85.05	359.906	0.433	0.915
Q10	My clinical teachers have good communication skills	84.12	361.573	0.524	0.914
Q11	I am bleeped inappropriately	84.35	373.786	0.124	0.918
Q12	I am able to participate actively in educational events	83.87	365.930	0.358	0.916
Q13	There is sex discrimination in this program	84.96	364.113	0.267	0.917
Q14	There are clear clinical protocols in this program	84.73	353.727	0.598	0.913
Q15	My clinical teachers are enthusiastic	84.57	356.934	0.610	0.913
Q16	I have good collaboration with other doctors in my grade	83.65	371.740	0.210	0.917
Q17	My hours are enough to do the new task I was given	84.70	360.686	0.447	0.915
Q18	I have the opportunity to provide continuity of care	85.38	356.726	0.472	0.914
Q19	I have suitable access to careers advice	84.56	359.042	0.514	0.914
Q20	This hospital has good-quality accommodation for junior doctors, especially when on call	84.57	360.782	0.345	0.916
Q21	There is access to an educational program relevant to my needs	84.95	355.364	0.549	0.913
Q22	I get regular feedback from seniors	85.12	355.146	0.552	0.913
Q23	My clinical teachers are well organized	84.67	354.343	0.641	0.913
Q24	I feel physically safe within the institution environment	83.82	370.379	0.211	0.917
Q25	There is a no-blame culture in this program	84.97	363.449	0.344	0.916
Q26	There are adequate catering facilities (Cafeterias and food supply) when I am on call	84.81	361.758	0.313	0.917
Q27	I have enough clinical learning opportunities for my needs	84.67	355.781	0.582	0.913
Q28	My clinical teachers have good teaching skills	84.30	359.037	0.552	0.914
Q29	I feel part of a team working here	84.90	353.097	0.590	0.913
Q30	I have opportunities to acquire the appropriate practical procedures for my grade	85.09	356.266	0.560	0.913
Q31	My clinical teachers are accessible	83.98	363.366	0.515	0.914
Q32	My workload in this job is fine	84.58	356.077	0.525	0.914
Q33	Senior staff utilize learning opportunities effectively	84.46	362.617	0.499	0.914
Q34	The training in this program makes me feel ready to be a registrar/senior registrar	84.63	356.708	0.581	0.913
Q35	My clinical teachers have good mentoring skills	84.61	355.353	0.595	0.913
Q36	I get a lot of enjoyment out of my present job	84.67	353.155	0.624	0.913
Q37	My clinical teachers encourage me to be an independent learner	84.14	359.310	0.576	0.914
Q38	There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	84.63	363.105	0.470	0.915
Q39	The clinical teachers provide me with good feedback on my strengths and weaknesses	84.85	354.404	0.551	0.913
Q40	My clinical teachers promote an atmosphere of mutual respect	84.16	357.585	0.511	0.914

trainees' academic and professional development, and that many learning opportunities are wasted if they are not accompanied by feedback from an observer;[21] unfortunately, our trainees rated such kind of feedback as poor.

Table 3: Mean and median of each question, overall and subscale scores

Item number	Statement	Mean±SD	Median
	Perception of teaching		
Q2	My clinical teachers set clear expectations	2.00±0.95	2.00
Q3	I have protected educational time in this program	2.24±1.03	2.00
Q6	I have good clinical supervision at all time	1.75±1.10	1.50
Q10	My clinical teachers have good communication skills	2.61±0.82	3.00
Q12	I am able to participate actively in educational events	2.86±0.86	3.00
Q15	My clinical teachers are enthusiastic	2.17±0.90	2.00
Q21	There is access to an educational program relevant to my needs	1.79±1.06	2.00
Q22	I get regular feedback from seniors	1.61±1.07	1.00
Q23	My clinical teachers are well organized	2.06±0.96	2.00
Q27	I have enough clinical learning opportunities for my needs	2.07±0.99	2.00
Q28	My clinical teachers have good teaching skills	2.43±0.89	3.00
Q31	My clinical teachers are accessible	2.76±0.74	3.00
Q33	Senior staff utilize learning opportunities effectively	2.27±0.80	2.00
Q37	My clinical teachers encourage me to be an independent learner	2.60±0.85	3.00
Q39	The clinical teachers provide me with good feedback on my strengths and weaknesses	1.89±1.10	2.00
	Cumulative scores of the above items out of 60	33.11±8.80	25.00
	Perception of role autonomy		
Q1	I have a contract of employment that provides information about hours of work	1.95±1.01	2.00
Q4	I had an informative induction program	2.12±0.97	2.00
Q5	I have the appropriate level of responsibility in this program	2.27±1.03	3.00
Q8	I have to perform inappropriate tasks	2.48±1.09	3.00
Q9	There is an informative junior doctors' handbook	1.69±1.06	2.00
Q11	I am bleeped inappropriately	2.39±0.83	2.00
Q14	There are clear clinical protocols in this program	2.01±1.05	2.00
Q17	My hours are enough to do the new task I was given	2.04±0.99	2.00
Q18	I have the opportunity to provide continuity of care	1.36±1.15	1.00
Q29	I feel part of a team working here	1.83±1.09	2.00
Q30	I have opportunities to acquire the appropriate practical procedures for my grade	1.64±1.00	1.00
Q32	My workload in this job is fine	2.15±1.07	3.00
Q34	The training in this program makes me feel ready to be a registrar/senior registrar	2.11±0.95	2.00
Q40	My clinical teachers promote an atmosphere of mutual respect	2.58±1.03	3.00
	Cumulative scores of the above items out of 56	28.60±7.35	26.00
	Perception of social support		
Q7	There is racism in this program*	2.92±1.03	3.00
Q13	There is sex discrimination in this program*	1.77±1.26	1.00
Q16	I have good collaboration with other doctors in my grade	3.08±0.76	3.00
Q19	I have suitable access to careers advice	2.17±0.95	2.00
Q20	This hospital has good-quality accommodation for junior doctors, especially when on call	2.17±1.24	3.00
Q24	I feel physically safe within the institution environment	2.92±0.90	3.00
Q25	There is a no-blame culture in this program	1.77±1.06	2.00
Q26	There are adequate catering facilities (Cafeterias and food supply) when I am on call	1.92±1.27	2.00
Q35	My clinical teachers have good mentoring skills	2.12±0.99	2.00
Q36	I get a lot of enjoyment out of my present job	2.07±1.04	2.00
Q38	There are good counseling opportunities for junior doctors who fail to complete their training satisfactorily	2.11±0.82	2.00
	Cumulative scores of the above items out of 44	25.02±5.43	25.0
	Cumulative scores of all items out of 160	86.73±19.46	91.0

*Questions with reverse scoring. SD: Standard deviation

Other poorly rated questions included Q1, Q9, Q18, Q29, and Q30 from the perception of role autonomy, which assess the presence of a contract of employment that provides information about hours of work, an informative junior doctors' handbook, an opportunity to provide continuity of care, feeling of being a part of a team working in the institution, and opportunities to acquire the appropriate practical procedures for the trainees' grade.

Questions from the social domain that were poorly rated were Q13, Q25, and Q26. These questions assess the following: the presence of (no) sex discrimination in the program, no-blame

Table 4: Frequency of trainees in each postgraduate Hospital Educational Environment Measure scales' domains

Domain	Interpretation of score	Frequency (%)
Total score	0-40 very poor	1 (0.8)
	41-80 plenty problems	45 (34.1)
	81-120 more+than −	83 (62.9)
	121-160 excellent	3 (2.3)
Perceptions of teaching	0-5 poor	1 (0.8)
	16-30 need retraining	52 (39.4)
	31-45 (good) moving in the right direction	67 (50.8)
	46-60 model teachers	12 (9.1)
Perceptions of role autonomy	0-14 poor	5 (3.8)
	15-28 a negative view of one's role	62 (47.0)
	29-42 more positive perception	61 (46.2)
	43-56 excellent perception of one's job	4 (3.0)
Perceptions of social support	0-11 nonexistent	2 (1.5)
	12-22 not pleasant	36 (27.3)
	23-33 more pros than cons	87 (65.9)
	34-44 good support	7 (5.3)

Table 5: Satisfaction of training program by gender and training level

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	*P*
Over all	8 (6.06)	47 (35.61)	32 (24.24)	42 (31.82)	3 (2.27)	
Gender						
Male	7 (8.24)	33 (38.82)	19 (22.35)	26 (30.59)	0 (0.00)	0.076
Female	1 (2.13)	14 (29.79)	13 (27.66)	16 (34.04)	3 (6.38)	
Training level						
R1	1 (2.44)	9 (21.95)	9 (21.95)	20 (48.78)	2 (4.88)	0.097
R2	3 (7.69)	14 (35.90)	13 (33.33)	8 (20.51)	1 (2.56)	
R3	2 (6.90)	16 (55.17)	6 (20.69)	5 (17.24)	0 (0.00)	
R4	2 (8.70)	8 (34.78)	4 (17.39)	9 (39.13)	0 (0.00)	

culture in the program, and adequate catering facilities when they are on call. These results of the last two questions are in accordance with what had been reported previously.[3] It seems that the trainees are unsatisfied with the catering, a situation that can be easily solved by proper training and site management. The current study showed that the educational climate in FM has sex discrimination within these posts despite the concept that both male and female should have the same rights and opportunities in the postgraduate training in KSA. We were glad to find that there was low level of perceived racism, which is in a line with the UK study[12] and in contrast with previous studies (19–21) that had reported a common bullying.

It is worthy to mention that the current study results revealed important issues in the FM training program. Ranking an overall score of 86.73 from 160 (53.93%), that as per the Khoja *et al.*'s score, occurs in the area of more positive than negative which means a good overall educational environments, a result which is quite good compared to the previous studies from KSA.[3,19] The perception of teaching score was within the area of moving in the right direction, which also considered better than the previous studies,[3,19] that rated it as need retraining. For the perception of role autonomy, the score was slightly moving to the area of more positive perception, which is a bit better than the study published by Khoja.[3] More pros than cons was the area in which the score of perception of social support rated, an indication of a better social support for the FM residency program in KSA than before.[3]

In general, the trainees were dissatisfied with the training program. There was no significant difference in terms of the degree of satisfaction between the two genders and also among the four levels of residency. This might be an indication that postgraduate FM curriculum might need to be improved, and opinions of residents regarding their training should be taken into consideration.

Conclusion

The educational environment is an important determinant of medical trainees' achievements and success. The results are quite better than what had been found in the previous study,[3] but more attention and effort should be done, especially for the poorly rated points in this study. We recommend a continuous evaluation and reconstruction of the SBFM program, and such results could be a tool that might help in fostering better and stronger educational program.

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Conflicts of interest

There are no conflicts of interest.

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