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Training climate of the Saudi Emergency Medicine Program in Riyadh

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Abstract

Objective: This study aims to explore the resident's perspectives of the training climate and the different learning domains within the Saudi Residency Training Program of Emergency Medicine using the Dutch Residency Educational Climate Test (D-RECT).

Methods: A cross sectional survey was conducted using email to all residents of the Saudi Residency Training Program of Emergency Medicine in Riyadh. The survey consisted of the validated Dutch Residency Educational Climate Test (D-RECT). The responses received from the participants were analyzed using JMP. ANOVA and the reliability test were applied after determining Cronbach's alpha.

Results: Ninety residents out of 215 responded to the survey. Males represented 57% of the sample with equal distribution of residents across the years of training. The overall D-RECT score was 3.51 ± 0.46. The training climate scored very well (>4) for the following subscales: Teamwork, peer collaboration, and formal education. The training climate did poorly on the scale for the item of Feedback (<3). All the other items were within an average score of 3-4. Cronbach's alpha was calculated to be above 0.6 in all scales.

Conclusion: The study shows that the emergency training program has a relatively good training climate with the need to improve on feedback for residents. Possible options to improve feedback are discussed in the article. In addition, the D-RECT score offers a good method of monitoring the training climate.

Keywords: Emergency Medicine; Learning; Residency; Saudi Arabia.

1. Introduction

The improvement of learning climate is central to achieving high-quality residency training and patient care. It is important to assess the educational climate of training in residency [1, 2]. It is a complex climate plagued with stress, competition for the interest of

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educators, and overall is a very complex working environment [3]. The quality of the climate has a direct influence on the quality of postgraduate medical education [4]. This has become more important as we expand in our programs in Saudi Arabia, with a significant discrepancy in our training sites in terms of size, experience and facilities [5]. We will need to assess our current situation and how each of these training sites progresses in terms of all domains of the learning climates for our residencies.

Furthermore, a literature review of all available tools that measure medical education training climates revealed a systematic review that ranked many validated tools [6]. Among the tools was the Dutch Residency Educational Climate Test (D-RECT) scale for postgraduate education [7]. We selected the D-RECT scale because it has good validity and reliability for measuring postgraduate education climate and specifically because it was the preferred scale for measuring socio-cultural differences [7, 8]. This study aims to explore the current resident's perspectives of the training climate and its different learning domains within the Saudi Residency Training Program of Emergency Medicine in Riyadh using the Dutch Residency Educational Climate Test (D-RECT).

2. Methods

2.1 Study setting

The Saudi program of Emergency Medicine in Riyadh consists of a conjoint program between nine different training sites that share some training aspects among them. The residents usually spend most of their time training in their designated training site while rotating through the others occasionally. The study was a cross-sectional survey sent to 257 residents within Riyadh during the period of August till October 2018. Only 90 residents responded to the questionnaire.

2.2 Data collection

The study was approved by the local supervisory committee of Emergency Medicine training in Riyadh with the approval of the program directors of all the sites. The survey was sent by email through a third-party website to collect the survey results, and there was both personal and email follow-up to increase reply rates. The participants were assured of the confidentiality of both their identity and the identity of their training centres.

2.3 The D-RECT assessment tool

An assessment tool that was validated and showed good reliability was required for this evaluation. The Dutch Residency Educational Climate Test (D-RECT) was developed in 2011[7]. It has been used and validated to monitor progress in clinical learning climates [8–10]. The tool is a questionnaire that consists of eleven learning climate domains: supervision, coaching and assessment, feedback, teamwork, peer collaboration, professional relations between consultants, work adaptation to residents' competence levels, consultant's attitude towards residents, formal education, the role of the specialty tutor, and patient handover.[7] The English version of the questionnaire was applied in our study as all the residents understood English and used English as the main language in their medical practice and training.

2.4 Data analysis

The statistical analysis was done using JMP version 14 (SAS, Cary, NC, USA). The means, standard deviations of the D-RECT items and subscales were calculated. Comparisons between means were done using the T-test and ANOVA, using a cut-off of 0.05 for statistical significance. The Cronbach's alpha was calculated for all the D-RECT items as a measure of internal consistency.

3. Results

Among the 215 residents in Riyadh, only 90 residents agreed to fill the form and participated in this study. The baseline characteristics of these residents are presented in Table 1. The sample predominantly comprised of male (57%) participants. There was a relatively equal distribution of all levels of training from the first year until the fourth year. The majority of the participants were from the three biggest centres, while the majority of the residents from smaller centres refused to participate in the study. The overall number of residents that have had disputes or complaints against their centre is 17.8%.

Table 1: Baseline characteristics of Residents participating in the study from Riyadh

Variables	n	%
Age - mean (SD)	27	(1.9)
Male	57	63.30%
Year of training:		
1	16	17.80%
2	25	27.80%
3	22	24.40%

4	27	30.00%
Centre of training:		
Centre #1	50	55.60%
Centre #2	15	16.70%
Centre #3	10	11.10%
Centre #4	5	5.60%
Centre #5	4	4.40%
Centre #6	3	3.30%
Centre #7	2	2.20%
Centre #8	1	1.10%
Residents that have had conflict or dispute with the centre or the director during their training.	16	17.80%

The results of the D-RECT scale are represented in Table 2. It shows that the scale had acceptable internal consistency for all its subscales with Cronbach's alpha ranging between 0.61-0.88. The overall D-RECT score was 3.51±0.46. This shows that the training climate scored very well (>4) for the following subscales: Teamwork, Peer collaboration, and Formal Education. The training climate did poorly on the scale for the item of Feedback (<3), with all the other items within an average score of 3-4. However, there were a few items within some of the average score subscales that had concerning scores less than three and they were: My attendings take the initiative to explain their actions (CA3), My attendings occasionally observe me taking a history (CA7), There is enough time in the schedule for me to learn new skills (WA4) and, There is (are) NO attending physician(s) who have a negative impact on the educational climate (AR3). The overall D-RECT score was 3.51±0.46.

Table 2: Mean and standard deviation of each D-RECT subscales and its items; It includes the Cronbach's alpha for each of the subscales.

Variables	Mean	SD*
1. Supervision (SV)		
SV1: The guidelines clearly outline when to request input from a supervisor.	3.04	1.06
SV2: The amount of supervision I receive is appropriate to my level of experience.	3.23	1.20
SV3: It is clear which attending supervises me.	3.62	1.26
Cronbach's α = 0.71	3.30	1.17
2. Coaching & Assessment (CA)		
CA1: I am asked on a regular basis to provide a rationale for my management decisions and actions.	3.26	1.11
CA2: My attendings coach me on how to communicate with difficult patients.	3.13	1.21
CA3: My attendings take the initiative to explain their actions.	2.73	1.22

CA4: My attendings take the initiative to evaluate my performance.	3.11	1.16
CA5: My attendings take the initiative to evaluate difficult situations I have been involved in.	3.11	1.26
CA6: My attendings evaluate whether my performance in patient care is commensurate with my level of training.	3.37	0.99
CA7: My attendings occasionally observe me taking a history.	2.32	1.31
CA8: My attendings assess not only my medical expertise but also other skills such as teamwork, organization or professional behaviour.	3.60	1.09
Cronbach's α = 0.88	3.08	1.17
3. Feedback (FB)		
FB1: My attendings give regular feedback on my strengths and weaknesses.	2.80	1.18
FB2: Observation forms (i. e. Mini-CEX) are used to structure feedback.	2.36	1.19
FB3: Observation forms (i. e. Mini-CEX) are used periodically to monitor my progress.	2.39	1.22
Cronbach's α = 0.76	2.52	1.20
4. Teamwork (TW)		
TW1: Attendings, nursing staff, other allied health professionals and residents work together as a team.	4.02	0.92
TW2: Nursing staff and other allied health professionals make a positive contribution to my training.	3.92	1.08
TW3: Nursing staff and other allied health professionals are willing to reflect with me on the delivery of patient care.	3.96	1.03
TW4: Teamwork is an integral part of my training.	4.28	0.86
Cronbach's α = 0.87	4.05	0.97
5. Peer Collaboration (PC)		
PC1: Residents work well together.	4.16	0.91
PC2: Residents, as a group, make sure the day's work gets done.	4.23	0.70
PC3: Within our group of residents it is easy to find someone to cover or exchange a call.	3.82	1.16
Cronbach's α = 0.74	4.07	0.92
6. Professional relations between attendings (PR)		
PR1: Continuity of care is not affected by differences of opinion between attendings.	3.60	1.12
PR2: Differences of opinion between attendings about patient management are discussed in such a matter that is instructive to others present.	3.50	1.12
PR3: Differences of opinion are not such that they have a negative impact on the work climate.	3.66	0.92
Cronbach's α = 0.74	3.59	1.05
7. Work is adapted to residents' competence (WA)		
WA1: The work I am doing is commensurate with my level of experience.	3.76	1.06
WA2: The work I am doing suits my learning objectives at this stage of my training.	3.78	1.04

WA3: It is possible to do follow up with patients.	3.52	1.28
WA4: There is enough time in the schedule for me to learn new skills.	2.76	1.27
Cronbach's α = 0.61	3.46	1.16
8. Attendings‘ role (AR)		
AR1: My attendings take time to explain things when asked for advice.	3.74	1.11
AR2: My attendings are happy to discuss patient care.	3.80	1.05
AR3: There is (are) NO attending physician(s) who have a negative impact on the educational climate.	2.62	1.20
AR4: My attendings treat me as an individual.	3.57	1.04
AR5: My attendings treat me with respect.	4.24	1.01
AR6: My attendings are all in their own way positive role models.	3.36	1.12
AR7: When I need a attending, I can always contact one.	3.89	1.12
AR8: When I need to consult a attending, they are readily available.	3.80	1.08
Cronbach's α = 0.86	3.63	1.09
9. Formal education (FE)		
FE1: Residents are generally able to attend scheduled educational activities.	4.09	1.08
FE2: Educational activities take place as scheduled.	4.53	0.90
FE3: Attendings contribute actively to the delivery of high-quality formal education.	3.43	1.25
FE4: Formal education and training activities are appropriate to my needs.	3.82	1.09
Cronbach's α = 0.74	3.97	1.08
10. Role of the specialty tutor (RT)		
RT1: The specialty tutor monitors the progress of my training.	3.42	1.12
RT2: The specialty tutor provides guidance to other attendings when needed.	3.28	1.10
RT3: The specialty tutor is actively involved in improving the quality of education and training.	3.64	1.03
RT4: In this rotation evaluations are useful discussions about my performance.	3.21	1.16
RT5: My plans for the future are part of the discussion.	3.04	1.08
RT6: During evaluations, input from several attendings is considered.	3.64	1.19
Cronbach's α = 0.80	3.37	1.11
11. Patient sign out (PS)		
PS1: When there is criticism of a management plan I have developed in consultation with my attending physician, I know the attending physician will back me up.	4.10	0.97
PS2: Sign out takes place in a safe climate.	3.70	1.12
PS3: Sign out is used as a teaching opportunity.	3.15	1.21
PS4: Attendings encourage residents to join in the discussion during sign out.	3.41	1.27
Cronbach's α = 0.76	3.59	1.14

* SD: Standard Deviation

The discrepancy between the residents that have no issues against the training program and those residents that have admitted to any dispute or have filed a complaint is

shown in Table 3. It shows that they were rating the climate scores significantly low than the other residents with the exception of the subscales Peer Collaboration and Work is adapted to residents 'competence.

Table 3: It shows the difference in D-RECT subscales of residents that admit to conflict with their program director or the training centre, and residents that do not admit such conflict.

D-RECT Subscales	**Participants that admit no conflict (N=74)**		**Participants that admit conflict (n=16)**		
	Mean	**SD***	**Mean**	**SD***	***p-value***
1. Supervision (SV)	3.53	1.06	2.23	1.09	*<0.01*
2. Coaching & Assessment (CA)	3.20	1.13	2.53	1.16	*0.03*
3. Feedback (FB)	2.67	1.19	1.79	0.93	*<0.01*
4. Teamwork (TW)	4.15	0.90	3.56	1.14	*0.03*
5. Peer Collaboration (PC)	4.11	0.85	3.85	1.21	*0.31*
6. Professional relations between attendings (PR)	3.74	0.95	2.85	1.19	*<0.01*
7. Work is adapted to residents' competence (WA)	3.55	1.08	2.99	1.40	*0.08*
8. Attendings' role (AR)	3.77	1.00	2.94	1.24	*<0.01*
9. Formal education (FE)	4.08	0.98	3.47	1.33	*0.04*
10. Role of the specialty tutor (RT)	3.53	1.03	2.66	1.22	*<0.01*
11. Patient sign out (PS)	3.70	1.04	3.06	1.40	*0.04*

* SD: Standard Deviation

The scores of D-RECT subscales for each level of training are shown in Table 4. There are no differences in the scores between the different levels of training of the residents.

Table 4: Mean and standard deviation of each D-RECT item for each residency level

D-RECT Subscales	**Year 1 (n=16)**		**Year 2 (n=25)**		**Year 3 (n=22)**		**Year 4 (n=27)**		
	Mean	SD*	Mean	SD*	Mean	SD*	Mean	SD*	*p-value*
1. Supervision (SV)	3.31	1.17	3.4	1.07	3.32	1.17	3.19	1.28	*0.94*
2. Coaching & Assessment (CA)	2.95	1.14	3.16	1.2	3.14	1.21	3.03	1.11	*0.93*
3. Feedback (FB)	2.57	1.18	2.57	1.2	2.62	1.34	2.34	1.1	*0.84*
4. Teamwork (TW)	4.03	1	3.91	1.04	4.1	1.02	4.13	0.86	*0.86*
5. Peer Collaboration (PC)	4.15	0.81	4	1	3.97	0.88	4.17	0.92	*0.84*
6. Professional relations between attendings (PR)	3.79	1.13	3.43	0.93	3.62	1.2	3.58	1	*0.76*
7. Work is adapted to residents' competence (WA)	3.52	1.22	3.19	1.17	3.43	1.18	3.68	1.06	*0.49*
8. Attendings' role (AR)	3.81	0.93	3.47	1.14	3.63	1.15	3.66	1.06	*0.8*
9. Formal education (FE)	4.03	1.2	3.79	1.12	4.22	1	3.9	1.05	*0.58*

10. Role of the specialty tutor (RT)	3.49	1.02	3.29	1.15	3.39	1.15	3.36	1.09	*0.95*
11. Patient sign out (PS)	3.96	0.7	3.46	1.16	3.5	1.2	3.58	1.26	*0.54*

* SD: Standard Deviation

4. Discussion

This is the first study to objectively assess the learning climate in the Saudi Emergency Medicine training program in Riyadh since it was formally started in the year 2000. It shows how far we have progressed in the development of the program and what are the next milestones needed to advance the training to the next level. The sample obtained seems to be a good representation of the three largest training sites in Riyadh and the results do not necessarily represent the other smaller training sites. There was a good sample of both genders and an equal distribution of all levels of training. There are also a relatively high number of residents that admitted to having a dispute with their training centre or program director. These residents seem to show lower scales in the climate scores. We believe that their proportion may be exaggerated as these residents were more likely to respond compared to other residents, as they searched for an outlet to express their disputes. In addition, they may have contributed to low overall scores of the D-RECT. However, The D-RECT scores of this study seem to be better than previously published climate measurements in Saudi Arabia [10].

Strengths found in this study should be enforced and encouraged as they reflect a good amount of effort and enthusiasm in the training centres. However, to improve the overall climate, efforts need to focus on the weaknesses identified by the D-RECT score. The weakness identified by the coaching and assessment item with special attention to the subscales ”My attendings take the initiative to explain their actions (CA3)” and “My attendings occasionally observe me taking a history (CA7)” can be resolved by faculty awareness of the problem and development of faculty needs to become primed educators in the clinical setting [11]. “There is enough time in the schedule for me to learn new skills (WA4)” may have scored low due to heavy schedules or it may be an attempt by the participants to influence the results of the survey towards decreasing workload. What may suggest this is that the subscale WA has the lowest Cronbach's alpha suggesting that this item is not correlated with the other items within the subscale that should be measuring similar concepts.

Giving proper feedback is challenging in the Emergency Department due to many factors. Time and privacy constraints make it difficult to observe every patient encounter effectively.

In addition, harmonizing between patient safety and giving feedback and the difficulty in arranging observation sessions with teaching faculty in a complex shift schedule adds to the complexity [12]. Unfortunately, our study showed that we are lagging behind in feedback showing weak results using the D-RECT Scale. Similar findings were also seen in a study conducted throughout Europe in gynecological oncology training and in the psychiatry program in Saudi Arabia 2.52, 2.7 and 2 respectively [10, 13]. Many methods were suggested to improve, standardize and modify feedback. One study talked about the possibility of implementing 360-degree feedback in Emergency Medicine [14]. Other studies suggested methods such as video recordings with debriefings [15], non-critical incident debriefing and using the return visits charts [16, 17]. Mini-CEX has been shown to work in the Emergency Department setting [18]. Bounds R, published an article showed that self-assessment generated goals by the trainee should be advocated while giving feedback [19]. Future studies should continue to measure the progress of residency training in all specialties and training centres in Saudi Arabia to create productive educational climates. We believe the D-RECT should be repeated on a large-scale national basis every two years to keep our educational standards high. The main limitation of our study is the low response rate, which may be due to the fear of repercussions. We hope our study will be a basis of developing trust inside the programs and the freedom to express resident's opinion for the purpose of improvement.

5. Conclusion

In conclusion, the Saudi Emergency Medicine training program in Riyadh seems to harbour a relatively good training climate with the need to improve significantly in observing and delivering feedback to its trainees.

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7. Ethical approval: Ethical approval has been granted by the IRB, King Abdullah International Medical Research Centre on 25 April 2019 with reference number IRBC/0564/19.

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9. Other disclosure: No potential conflict of interests.

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