The work place educational climate in gynecological oncology fellowships across Europe: the impact of accreditation.

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ABSTRACT

Background
A good educational climate/environment in the work-place is essential for developing high quality medical (sub)specialists. These data are lacking for gynecological oncology training.

Objective

This study aims to evaluate the educational climate in gynaecological oncology training throughout Europe and the factors affecting it.

Methods

A web-based anonymous survey sent to ENYGO members/trainees to assess gynaecological oncology training. This included socio-demographic information, details regarding training posts and a 50-item validated Dutch Residency Educational Climate Test (D-RECT) questionnaire, with 11 subscales (1-5 likert scale) to assess the educational climate. Chi-square test was used for evaluating categorical variables and Mann-Whitney (non-parametric) tests for continuous variables between two independent groups. Cronbach's-alpha assessed questionnaire reliability. Multivariable linear-regression assessed effect of variables on D-RECT outcome subscales.

Results

119 gynecological oncological fellows responded. The D-RECT questionnaire was extremely reliable for assessing the educational environment in gynaecological

oncology (subscales' Cronbach's-alpha= 0.82-0.96). Overall trainees do not appear to receive adequate/effective constructive feedback during training. The overall educational climate (supervision, coaching/assessment, feedback, teamwork, inter-consultant relationships, formal education, role of the tutor, patient handover and overall consultant attitude) was significantly better (p=0.001) in centres providing accredited training in comparison to centres without such accreditation. Multivariable regression indicated the main factors independently associated with a better educational climate were presence of an accredited training post and total years of training.

Conclusions

This study emphasizes the need for better feedback mechanisms and importance of accreditation of centers for training in gynecological oncology to ensure training within higher quality clinical learning climates.

Key Words:

Educational climate; D-RECT; gynaecological oncology training; accreditation; ENYGO

Introduction:

Training in the subspecialty of gynaecological oncology is complex, demanding and arduous. The importance of rigorous training is reflected in improved outcomes for patients with gynaecological cancer who are treated by appropriately trained gynaecological oncologists.[1, 2] We previously reported on the satisfaction and factors affecting training experience, some differences in training systems and current training needs for gynaecological oncology trainees across Europe.[3-5] Educational research has also highlighted the critical importance of the work place environment in imparting medical training.[6] Compared to the vast literature on undergraduate learning and teaching, data on post graduate learning environments are quite limited. Primary data on the work place environment/climate are completely lacking for trainees in gynaecological oncology.

Fellows in Gynecological Oncology are striving to master a multifaceted compound skill set and become better clinicians every day. However, some departments facilitate this learning more than other departments. It is valuable to evaluate how satisfied trainees are and which institutes according to trainees offer superior learning and which institutes fail to do so and, preferably, find factors to explain the difference. One way to examine the quality of training programmes for fellows in gynecological oncology is to evaluate learning climates. These climates inform us on the context that fellows participate in. Learning climates are constructed through interactions of learners and other healthcare workers and are influenced by organisational arrangements and artefacts.[7] Measurement of learning climates covers numerous components of the training environment and can serve as a broad indicator of a

department's educational functioning. . The European Network of Young Gynecological Oncologists (ENYGO) is a network for juniors and trainees in Gynecological Oncology and related subspecialties (www.enygo.org). It is the principal network, representing the needs and aspirations of all European trainees involved in the study, prevention and treatment of gynecological cancer. ENYGO is supported in all its activities by the European Society of Gynecological Oncology (ESGO). ENYGO represents trainees from 40 countries across Europe with each country having a national representative. In this paper we for the first time report on the training environment/ climate for European trainees in gynaecological oncology and assess the possible factors influencing it.

Materials and Methods:

The Dutch Residency Educational Climate Test (D-RECT) questionnaire developed by Boor et al[7, 8] is a validated instrument used to measure the quality of clinical learning climates. Though initially developed for Dutch residents undergoing post-graduate training, its items are also applicable to subspecialty training in gynecological oncological. D-RECT uses 50 items (on a 1-5 likert scale) to measure the educational climate on 11 subscales: supervision, coaching and assessment, feedback, teamwork, peer collaboration, professional relations between consultants, work is adapted to fellows' competence, consultants' attitudes, formal education, role of the specialty tutor and patient handover.[7, 8] The D-RECT questionnaire was part of a web based anonymous survey which was sent to trainees in gynaecological oncology. In order to maximise the ability to capture data from all people who may be undergoing some training in gynaecological oncology in Europe, the survey was sent to all ENYGO members (on the ENYGO data base) as well as trainee lists ascertained through formal and informal networks outside ESGO, via ENYGO

national representatives. Although, there is no official record of gynaecological oncology trainees or database to access in most individual European countries, where such a record existed for e.g., the UK and the Netherlands, all trainees were surveyed. The methodology for this survey has been described previously.[5] Trainees were asked to rate on a likert scale of 1 to 5 (1 indicates strong disagreement and 5 indicates strong agreement) how strongly they agreed or disagreed with each statement in the D-RECT questionnaire. Mean outcome scores were calculated for each D-RECT subscale by dividing the total score by the number of subscale questions. The "total D-RECT score" was calculated as a mean of all subscale scores (sum of all subscale scores divided by 11). The survey questionnaire also included basic socio-demographic information and general details regarding training: years of experience, country of training, type of training institute, annual salary, study leave, working hours, maternity and paternity leave, primary field of training, current post, whether training undertaken was in an accredited centre (center accredited/recognized for training in gynaecological oncology). Accredited centers included both centers accredited by ESGO-EBCOG as well as those accredited nationally or through their national specialist societies such as in the UK and The Netherlands.

Baseline characteristics were described using descriptive statistics. Chi-square test was used to compare categorical variables and the Mann-Whitney test was used to compare continuous variables (including D-RECT scores) between two independent samples. Spearmans Rho (non-parametric) test was used to test correlations between continuous independent variables. Cronbach's-alpha was used to evaluate questionnaire reliability. Multivariable linear regression models were used to evaluate

the effect of different variables on D-RECT subscales. Analyses were undertaken in SPSS-19.

Results:

298 responses were received from the 997 invitations sent of which 119 were currently undertaking training in gynaecological oncology. Data from 119 respondents undertaking a fellowship in Gynecological Oncology in 31 different European countries were used in this analysis. The mean age of fellows' was 37.4 (SD: 5.3) years and 66.0% were men. 78% of the fellows were living with a partner, 67% worked in a University/teaching hospital, 56% were in an accredited training programme and 66% were ESGO members. The baseline characteristics of the fellows have been reported earlier[5] and are described in supplementary table-S1. The number of responses by country of training and centre accreditation is given in Supplementary Table-S2.

The D-RECT questionnaire was found to be highly reliable for assessing the educational climate for fellows in gynaecological oncology, with Cronbach'-alpha for various subscales ranging from 0.82 to 0.96 (Table-1). The mean values for subscales describing different aspects of the educational climate in gynaecological oncology are given in Table-1. Feedback scored poorly with a mean of 2.7 (S.D 1.3). Coaching and assessment, formal education and role of the specialty tutor also scored lower overall at <3.5.

Table-2 compares educational climate (D-RECT) outcomes between accredited and non-accredited programmes. The overall educational climate was rated superior in accredited training centres (p=0.001) as compared to non-accredited centres. Supervision, coaching/assessment, feedback, teamwork, inter-consultant

8

relationships, formal education, role of the tutor, patient handover and overall consultant attitude, were significantly better in centres providing accredited training (Table-2). Trainees in accredited and non-accredited programmes did not differ by age, working hours, salary, years of training, annual leave, study leave, gender, marital status, overtime pay or ESGO/ ENYGO membership (Table-3). Trainees in accredited centres were more likely to be working in a University teaching hospital/ Cancer centre (p=0.04) and in countries with accredited programmes (P<0.0005) (Table-3). .

Table-4 shows multivariable regression models evaluating the association of different variables with various aspects of the educational climate (D-RECT) and Table-5 summarises these data. The presence of an 'accredited training post' affected 7 out of 11 aspects of the educational climate. The working relationship/ collaboration between trainees, work undertaken being commensurate with the experience and competence of trainees, patient handover and the attitude of consultants towards trainees was not influenced by the type of training post. Total years of training was independently associated with better coaching and assessment during training, feedback, work being commensurate with competence of trainees, consultants attitude, role of speciality tutor and patient handover and professional relation between consultants. The total D-RECT score was mainly affected by the training post being accredited for subspeciality training. The educational climate did not differ significantly by region and were similar between Western (score=3.71, SD 0.88) or Eastern (score=3.51, SD 0.81) European countries (p=0.164). However, scores did differ by country income, with higher income countries having apparently better overall educational climates than middle income European countries (p=0.016) (Table-6).

Discussion:

To the best of our knowledge this is the first study evaluating the training climate for fellows in Gynecological Oncology. The high Cronbach's-alpha values obtained for all D-RECT subscales in our analysis indicates it is highly reliable and helps validate its use for assessing training in gynaecological oncology.

Our data indicate that institutes accredited for subspecialty training provide a better training environment than those which have not gone through a rigorous accreditation process. Accreditation ensures that institutions maintain a minimal prescribed set of standards, case load, infrastructural and organizational processes to facilitate the needs of the trainee. This appears to translate into better supervision, coaching and assessment, feedback, team work, professional relationship between consultants, attitude of consultants towards trainees, formalized structured education, role of specialty tutors and patient handover practices as evidenced by the significantly higher D-RECT scores for these aspects of the training environment. The overall training programme appears to be more professionally and affectively organized in these institutes. These findings correlate well with the higher levels of satisfaction trainees perceive for different aspects of their curriculum within accredited training programmes.[5]

Places of work provide training and learning opportunities within the framework of delivering a clinical service. The presence of a poor educational environment along with poorer work life balance (long working hours, lack of overtime pay) have been stated as reasons obstetrics and gynaecology residents do not opt for training in the subspecialty of gynaecological oncology, leading the sub-specialty to be an infrequent career choice for most.[9] Training needs are often at conflict with clinical service commitments required by the institution and there is a fine balance to be

struck between the two. Learning can be disturbed by increased pressures at work and excessive workload makes it harder for residents to learn from practice.[6] A more conducive educational climate can help ameliorate work pressures and reduce tension and conflict to promote better quality learning. In the long run, higher quality training should lead to better gynaecological oncologists and translate to enhanced quality care for women with gynaecological malignancies.

ESGO has developed an accreditation system for training centres, with well defined programme, staff, equipment, and infrastructural requirements to facilitate well-structured training with a detailed curriculum.[10, 11] Despite this it is unfortunate that a large number of European countries still lack accredited centres for training and only two countries (the Netherlands and the UK), have nationally accredited gynaecological oncology training programmes,[3, 12] though few countries like Germany (through the 'Arztenkammern') provide regional accreditation. In 2013 in addition to UK and Dutch centres there were only 30 other ESGO accredited centres in 12 countries across Europe. There is an immense and urgent need to harmonise gynaecological oncology training across European countries and clearly an enormous gap exists that needs to be filled.

Our multivariate analysis showed that in addition to accredited centers, total years of training significantly influenced perception of the training environment. This might be caused by the fact that more experienced trainees, who have spent longer in training, are more assertive and/or adaptive to their environment. As a result they are able to obtain better handovers, more coaching, assessment, feedback and input from their tutors as well as work suiting their level of competence. This is also reflected in better

attitudes of consultants towards them compared to more junior trainees. The difference in training needs between junior and senior trainees may also be a factor influencing these outcomes. Our findings may also suggest that junior trainees who are at the steeper end of their learning curve need a far more supportive educational climate than senior trainees.

Feedback is an "informed, non-evaluative, and objective appraisal of performance intended to improve clinical skills,"[13] while 'evaluation', tells the trainee how he/she has performed. Giving affective feedback is essential for promoting learning and achieving defined goals.[14] Our data suggest that overall European trainers are not good at giving regular structured feedback to their trainees and monitoring progress. This is reflected in the particularly poor D-RECT scores for the 'feedback' subscale. This is despite most trainees being satisfied with the supervision they receive. Systematic reviews have shown that physicians have a limited ability to accurately self-assess their competence. Evaluation of the surgical teaching performance across 7 Dutch surgical subspecialties (excluding gynaecological oncology) using the SETQ scale showed poor correlation between surgeons/consultants own assessment of their teaching performance and the evaluation of their teaching performance by residents/trainees.[15] Others too have reported significant differences in perception between teachers and learners of both the amount and content of feedback given.[16, 17] Many teachers do not clearly distinguish between feedback and evaluation and a number of clinicians do not feel adequately prepared or trained to give effective feedback, and deal with strong emotions which may be expressed by trainees.[18] Other barriers preventing adequate feedback could include lack of time, reluctance to give negative feedback, fear of retribution, and a feeling that this may not change

behaviour.[19] Appropriate feedback is also dependent on the role of the trainee for self-assessment, and having adequate metacognitive capacity and ability to reflect, translate, interpret and assimilate the feedback information.[14] While teachers struggle with feedback, trainees also need to use reflection more effectively.[20]

Being appropriately trained in the art of giving feedback can help improve teaching performance and receiving constructive feedback can improve learning for the trainee. The efficacy of giving feedback has been shown to improve following teaching through brief interactive workshops[21] and focused educational interventions.[22] One type of such an intervention is attending a 'Training the Trainers' or 'Teaching the Teacher's' course, which is an essential requirement for being a sub-specialty trainer in the UK and the Netherlands. However, this has not yet been incorporated into the ESGO accreditation requirements, The advantage of this is evidenced by the 'feedback subscale' score for UK/Netherlands trainees in our survey being significantly higher at 3.8 (S.D 0.98) (p<0.001) and is consistent with 'feedback' scores reported for other Dutch surgical (non-gyanecological oncology) specialties.[15]

Aspects of the training climate directly related to educational activities such as coaching and assessment, formalised education and role of the tutor also score relatively lower than other components and also appear to be areas needing immediate attention (table-1). The lack of any significant difference in D-RECT subscale scores between Eastern and Western European countries, suggests that the overall training environment is similar in these regions. The training environment however, does vary according to country income (p=0.016) (Table-6), possibly

reflecting differential health care investment in these areas and the fact that most accredited centres are present in high income countries. This suggests that greater efforts need to be directed at improving the training environment in middle income countries.

Most gynaecological oncology working environments are optimized to delivering a clinical service. Each workplace has its own ethos and history, as a result of which they respond slowly towards any efforts directed at change. However, a determined and more focused effort is needed to make them more conducive to learning. Improving the training environment needs to involve bi-directional processes entailing give and take between both trainers and trainees. The strengths of our study include prospectively collected data, anonymised nature of the survey, representation of trainees from 31 European countries and the use of a rigorously developed validated instrument (D-RECT questionnaire) to assess the training climate. Although this study is limited by the lack of qualitative data, qualitative data have been incorporated into the rigorous development of the D-RECT questionnaire. Our data do provide an objective assessment which enables comparison of standards of the training environments within Europe. These data are therefore of benefit to training institutions, training programme organisers, educational tutors, nationalist specialist societies, ESGO, as well as trainees themselves. It permits institutions performing poorly to be made aware of the limitations of their performance in relation to their peers thus becoming a driver for change. At the same time, institutions with optimal learning climates can identify areas to further improve their functioning. Areas requiring change identified in this study can guide further resource allocation, policy changes and reorganisation to optimise training outcomes. This is of relevance given

the need for transparency and monitoring of the quality of gynaecological oncology

training. Our study re-emphasises the importance of training being undertaken only in

accredited centres within accredited programmes.

Ethics approval

The study was submitted for consideration and reviewed by the UCLH/UCL/RF Joint Biomedical Research Unit. As it aimed to assess the quality of existing training programmes (not all within the NHS), and make recommendations for improvements, it did not meet the requirements of a "research study" as defined by the National Research Ethics Service (NRES). Hence, it was deemed not to require a formal ethics approval (opinion received 12/01/2011).

Contribution to authorship

RM was responsible for literature search and design of the study. RM, JP, MB, KB, MH, JG, IZ, DH, DC, VK, NC, RV were involved in developing the interventional questionnaire. RM, MH, JG, DH, IZ, MB and JP were involved in running the study. RM, JP, MJ, were involved in data collection and analysis. RM, MJ, JP did the statistical analysis. JP, RM, prepared the tables. JP and RM prepared the initial draft of the manuscript. All authors critically contributed to and revised the manuscript and approved the final version.

Disclosure statement

The authors have declared no conflict of interest.

This paper has not been and will not be submitted simultaneously to another journal, in whole or in part, in any language. It reports previously unpublished work. All named authors have agreed to submit the paper to BJC in its present form and all the named as authors have made a sufficient contribution to the work to be considered as authors. If the paper is accepted, all the authors will observe the terms of the

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Table-1: Mean Scores and Reliability Analysis of Educational Climate (D-RECT) Sub-scales

D-RECT Questionnaire Sub-scales	Mean (S.D)	Cronbach's-α
Supervision	4.07 (0.96)	0.82
Coaching and Assessment	3.48 (0.99)	0.92
Feedback	2.7 (1.3)	0.86
Team Work	3.87 (1.05)	0.93
Peer Collaboration	3.95 (1.02)	0.88
Professional Relation between Consultants	3.68 (0.93)	0.83
Work Adapted to Fellows Competence	3.97 (0.88)	0.84
Consultants Attitudes	3.91 (1.01)	0.94
Formal Education	3.47 (1.10)	0.91
Role of Specialty Tutor	3.48 (1.14)	0.96
Patient Handover	3.78 (0.99)	0.94
Total D-RECT score	3.67 (0.86)	

S.D.- standard deviation

Table-2: Comparison of Educational Climate between accredited and non-accredited training programs.

Educational Climate D-RECT Questionnaire Sub-scales	Accredited Training	Non-Accredited Training	p Value
	Mean (S.D)	Mean (S.D)	(Mann Whitney)
Supervision	4.24 (0.99)	3.90 (0.77)	0.002
Coaching and Assessment	3.75 (1.0)	3.21 (0.84)	0.001
Feedback	3.22 (1.33)	2.1 (0.87)	<0.0005
Team Work	4.19 (1.0)	3.56 (0.97)	<0.0005
Peer Collaboration	4.10 (0.96)	3.85 (1.06)	0.178
Professional Relation between Consultants	3.91 (0.95)	3.37 (0.80)	<0.0005
Work Adapted to Fellows Competence	4.1 (0.94)	3.85 (0.78)	0.054
Consultants Attitudes	4.11 (1.03)	3.75 (0.92)	0.003
Formal Education	3.85 (1.04)	2.97 (0.98)	<0.0005
Role of Specialty Tutor	3.80 (1.14)	2.99 (1.02)	<0.0005
Patient Handover	3.96 (1.02)	3.53 (0.94)	0.023

Total DRECT Score	3.91 (0.87)	3.35 (0.75)	0.001

S.D.- standard deviation

Table-3- Comparison of accredited training posts and those outside accredited training programmes

		Accredited training post	Training posts outside accredited programmes	p value
Age	Mean Age in years (S.D)	36.8 (4.5)	38.1 (6.1)	0.725
Working Hours	Working hours / week	50.6 (10.9)	50.5 (14.9)	0.765
Salary	Salary in euros/month	2529.2 (1478.6)	2793.8 (1572.9)	0.222
Training	Number of years in training	8.4 (3.9)	7.8 (3.4)	0.369
Annual leave	Mean Annual leave in weeks (S.D)	29.6 (5.3)	31.3 (32.1)	0.055
	Median Annual leave in weeks (IQR)	30 (7)	28.5 (5)	
Study leave	Mean Study leave in days (S.D)	21 (40.7)	21.1 (52.8)	0.152
	Median Study leave in days (IQR)	10 (20)	10 (18)	
Gender	Male	44/66 (66.7%)	35/53 (66%)	0.942
	Female	22/66 (33.3%)	18/53 (34%)	
Marital Status	Married	46/65 (70.8%)	29/53 (54.7%)	0.339

	Living with Partner	7/65 (10.8%)	10/53 (18.9%)	
	Single	11/65 (16.9%)	13/53 (24.5%)	
	Divorced/Separated	1/65 (1.5%)	1/53 (1.9%)	
Institute of training	University/Teaching hospital Cancer Centre	51/66 (77.3%)	28/52 (53.8%)	0.04
	University/ Teaching Hospital	10/66 (15.2%)	18/52 (34.6%)	
	District General Hospital	3/66 (4.5%)	5/52 (9.6%)	
	Other	2/66 (3%)	1/52 (1.9%)	
Overtime Pay	Never	39/66 (59.1%)	30/53 (56.6%)	0.133
	Occasionally	10/66 (15.2%)	15/53 (28.3%)	
	Always	17/66 (25.8%)	8/53 (15.1%)	
Primary field of Work	Gynaecological Oncology	55/66 (83.3%)	44/53 (83%)	1.00
	Obstetrics and Gynaecology	11/66 (6.7%)	9/53 (7%)	
ESGO membehip	Yes	41/65 (63.1%)	36/52 (69.2%)	0.558

			16/52 (30.8%)	
	No	24/65 (36.9%)		
ENYGO membership	Yes	31/66 (47%)	21/53 (39.6%)	0.461
	No	35/66 (53%)	32/53 (60.4%)	
Country of training has accredited training programmes	Yes	55/66 (82.1%)	12/53 (22.6%)	<0.0005
	No	10/66 (15.2%)	37/53 (69.8%)	
	Don't Know	1/66 (1.5%)	4/53 (7.5%)	

Table 4: Multivariable Regression Models for Educational Climate (D-RECT) Subscales

	Model: Subscale 'Supervision'				Collinearity Stats		Model: Subscale 'Coaching and Assessment'				Collinearity Stats		Model: Subscale 'Feedback'				Collinearity Stats	
	B	Std. Error	t	Sig	Tolerance	VIF	B	Std. Error	T	Sig	Tolerance	VIF	B	Std. Error	t	Sig	Tolerance	VIF
Post Accredited SubSpec Training	0.391	0.186	2.103	**0.038**	0.972	1.029	0.556	0.183	3.030	**0.003**	0.967	1.034	1.042	0.220	4.737	**<0.0005**	0.983	1.017
Age	-0.001	0.020	-0.065	0.948	0.763	1.310	0.007	0.019	0.400	0.690	0.786	1.273	0.005	0.025	0.202	0.840	0.760	1.315
Gender	0.016	0.199	0.081	0.936	0.931	1.074	0.060	0.197	0.306	0.761	0.922	1.085	-0.015	0.236	-0.064	0.949	0.926	1.080
Total years of training	0.040	0.026	1.539	0.127	0.909	1.100	0.077	0.025	3.051	**0.003**	0.916	1.092	0.119	0.031	3.868	**<0.0005**	0.912	1.096
Marital status	0.154	0.237	0.650	0.517	0.870	1.150	0.331	0.230	1.443	0.152	0.887	1.127	0.477	0.279	1.711	0.090	0.867	1.154
Salary	0.000	0.000	2.052	**0.043**	0.939	1.065	0.000	0.000	0.959	0.340	0.938	1.066	8.739E-05	0.000	1.221	0.225	0.922	1.084
Summary (ANOVA)	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R
Regression	10.988	6	1.831	2.081	0.062	0.333	19.254	6	3.209	3.809	**0.002**	0.433	53.126	6	8.854	7.641	**<0.0005**	0.573
	Dependent Variable: Subscale Supervision						Dependent Variable: Subscale Coaching and Assessment						Dependent Variable: Subscale Feedback					

	Model: Subscale 'Teamwork'						Model: Subscale 'Peer Collaboration'						Model: Subscale 'Professional Relation between Consultants'					
	B		t	Sig	Collinearity Stats		B		T	Sig	Collinearity Stats		B		t	Sig	Collinearity Stats	

	B	Std. Error	t	Sig	Tolerance	VIF	B	Std. Error	t	Sig	Tolerance	VIF	B	Std. Error	t	Sig	Tolerance	VIF
Post Accredited SubSpec Training	0.630	0.191	3.294	**0.001**	0.975	1.026	0.240	0.201	1.192	0.236	0.990	1.010	.516	0.173	2.975	**0.004**	0.973	1.028
Age	-0.004	0.021	-0.187	0.852	0.784	1.276	0.032	0.027	1.186	0.239	0.697	1.434	-.005	0.019	-0.277	0.783	0.792	1.262
Gender	0.330	0.204	1.612	0.110	0.930	1.075	0.135	0.222	0.608	0.545	0.901	1.110	-.293	0.184	-1.594	0.114	0.934	1.071
Total years of training	0.049	0.027	1.838	0.069	0.912	1.097	0.009	0.028	0.319	0.750	0.870	1.149	.062	0.024	2.541	**0.013**	0.918	1.090
Marital status	0.124	0.241	0.513	0.609	0.886	1.129	0.396	0.253	1.564	0.121	0.868	1.152	.079	0.216	0.364	0.717	0.888	1.126
Salary	0.000	0.000	1.785	0.077	0.932	1.073	3.877E-06	0.000	0.059	0.953	0.919	1.088	6.081E-05	0.000	1.067	0.289	0.927	1.078
Summary (ANOVA)	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R
Regression	20.389	6	3.398	3.677	**0.002**	0.427	4.735	6	.789	.796	0.575	0.219	16.814	6	2.802	3.751	**0.002**	0.432
	Dependent Variable: Subscale 'Teamwork'						Dependent Variable: Subscale 'Peer Collaboration'						Dependent Variable: Subscale 'Professional Relation between Consultants'					

	Model: Subscale 'Work Adapted to Fellow's Competence'						Model: Subscale 'Consultants Attitudes'						Model: Subscale 'Formal Education'					
					Collinearity Stats						**Collinearity Stats**						**Collinearity Stats**	
	B	Std. Error	t	Sig	Tolerance	VIF	B	Std. Error	T	Sig	Tolerance	VIF	B	Std. Error	t	Sig	Tolerance	VIF
Post Accredited	0.182	0.168	1.082	0.282	0.975	1.026	0.366	0.192	1.911	0.059	0.984	1.016	0.786	0.204	3.857	**<0.0005**	0.975	1.026

	B	Std. Error	t	Sig	Tolerance	VIF	B	Std. Error	t	Sig	Tolerance	VIF	B	Std. Error	t	Sig	Tolerance	VIF
SubSpec Training																		
Age	0.038	0.019	2.047	**0.043**	0.784	1.276	0.005	0.022	0.227	0.821	0.754	1.327	0.008	0.023	0.333	0.740	0.784	1.276
Gender	0.017	0.180	0.094	0.926	0.930	1.075	0.196	0.205	0.953	0.343	0.929	1.077	0.067	0.218	0.307	0.759	0.930	1.075
Total years of training	0.048	0.023	2.054	**0.043**	0.912	1.097	0.074	0.027	2.763	**0.007**	0.905	1.105	0.045	0.028	1.585	0.116	0.912	1.097
Marital status	0.111	0.212	0.526	0.600	0.886	1.129	0.304	0.246	1.238	0.219	0.869	1.151	0.178	0.256	0.695	0.489	0.886	1.129
Salary	3.297E-05	0.000	0.596	0.553	0.932	1.073	9.546E-05	0.000	1.524	0.131	0.931	1.074	6.011E-05	0.000	0.896	0.372	0.932	1.073
Summary (ANOVA)	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R
Regression	9.870	6	1.645	2.305	**0.04**	0.35	15.367	6	2.561	2.814	**0.014**	0.385	21.198	6	3.533	3.371	**0.005**	0.412
	Dependent Variable: Subscale 'Work Adapted to Fellow's Competence'						Dependent Variable: Subscale: 'Consultants Attitudes'						Dependent Variable: Subscale 'Formal Education'					

	Model: Subscale 'Role of Specialty Tutor'						Model: Subscale 'Patient Handover'						Model: 'Total DRECT Score'					
	B	Std. Error	t	Sig	Collinearity Stats		B	Std. Error	T	Sig	Collinearity Stats		B	Std. Error	t	Sig	Collinearity Stats	
					Tolerance	VIF					Tolerance	VIF					Tolerance	VIF
Post Accredited SubSpec Training	0.719	0.222	3.245	**0.002**	0.983	1.017	0.336	0.195	1.725	0.088	0.988	1.013	0.519	0.196	2.640	**0.010**	0.986	1.015
Age	0.021	0.031	0.667	0.507	0.655	1.526	0.004	0.022	0.179	0.858	0.740	1.352	0.009	0.021	0.402	0.689	0.742	1.348
Gender	0.169	0.247	0.684	0.496	0.861	1.161	0.008	0.211	0.039	0.969	0.920	1.087	0.028	0.191	0.147	0.884	0.929	1.077

Total years of training	0.064	0.032	2.014	**0.047**	0.848	1.179	0.055	0.027	2.001	**0.048**	0.880	1.137	0.049	0.026	1.899	0.061	0.866	1.155
Marital status	0.084	0.273	0.306	0.760	0.864	1.157	0.078	0.248	0.312	0.755	0.873	1.146	0.139	0.235	0.590	0.557	0.888	1.126
Salary	8.149E-05	0.000	1.132	0.261	0.927	1.079	0.000	0.000	1.672	0.098	0.944	1.060	7.429E-05	0.000	1.195	0.236	0.920	1.087
Summary (ANOVA)	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R	Sum of Sq	df	Mean Sq	F	Sig.	R
Regression	23.702	6	3.950	3.464	**0.004**	0.429	10.954	6	1.826	1.960	0.079	0.33	10.032	6	1.672	2.631	**0.023**	0.412
	Dependent Variable: Subscale 'Role of Specialty Tutor'						Dependent Variable: Subscale: 'Patient Handover'						Dependent Variable: 'Total DRECT Score'					

Predictors: (Constant), Current Training Post Accredited Sub-Specialty Training, Age, Gender, Total years of training, Marital Status, Salary

Table-5: Summary of Factors affecting Educational Climate outcomes on multivariate regression

Factors significantly affecting outcomes* of different DRECT sub-scales on multivariate regression analysis	Post accredited for sub specialty training	Age	Gender	Total years of training	Marital status	Salary
Sub-Scale Supervision	Y	–	–	–	–	Y
Sub-Scale Coaching and Assessment	Y	–	–	Y	–	–
Sub-Scale Feedback	Y	–	–	Y	–	–
Sub-Scale Team Work	Y	–	–	–	–	–
Sub-Scale Peer Collaboration	–	–	–	–	–	–
Sub-Scale Professional Relation between Consultants	Y	–	–	Y	–	–
Sub-Scale Work Adapted to Fellows Competence	–	Y	–	Y	–	–
Sub-Scale Consultants Attitudes	–	–	–	Y	–	–
Sub-Scale Formal Education	Y	–	–	–	–	–
Sub-Scale Role of Specialty Tutor	Y	–	–	Y	–	–
Sub-Scale Patient Handover	–	–	–	Y	–	–
Total DRECT Score	Y	–	–	–	–	–

*$p<0.05$

Y= Yes (p<0.05); – = Not Significant

Table-6: Comparison of Educational Climate (D-RECT Scores) between Western and Eastern European countries and High and Middle Income countries

D-RECT SubScale	Western European Countries	Eastern European Countries	p Value	High Income Countries	Middle Income Countries	p Value
	Mean (S.D)	Mean (S.D)	(Mann Whitney)	Mean (S.D)	Mean (S.D)	(Mann Whitney)
Supervision	4.18 (0.91)	3.88 (0.94)	0.108	4.22 (0.89)	3.71 (0.97)	0.036
Coaching and Assessment	3.58 (0.97)	3.42 (1.05)	0.422	3.63 (0.95)	3.25 (1.07)	0.162
Feedback	2.91 (1.29)	2.41 (1.31)	0.253	2.97 (1.29)	2.17 (1.17)	0.017
Team Work	3.98 (1.04)	3.76 (1.00)	0.291	4.08 (0.96)	3.42 (1.12)	0.029
Peer Collaboration	3.94 (1.04)	4.14 (0.85)	0.73	4.03 (0.97)	3.83 (1.11)	0.401
Professional Relation between Consultants	3.74 (0.98)	3.54 (0.76)	0.215	3.81 (0.92)	3.29 (0.86)	0.014
Work Adapted to Fellows Competence	4.03 (0.91)	3.91 (0.88)	0.234	4.04 (0.96)	3.86 (0.76)	0.215
Consultants Attitudes	4.03 (1.02)	3.75 (0.95)	0.105	4.06 (0.96)	3.61 (1.08)	0.083
Formal Education	3.54 (1.1)	3.4 (1.13)	0.305	3.6 (1.1)	3.17 (1.08)	0.203

Role of Specialty Tutor	3.51 (1.16)	3.35 (1.18)	0.446	3.59 (1.11)	3.08 (1.27)	0.084
Patient Handover	3.86 (1.01)	3.54 (0.99)	0.191	3.93 (0.96)	3.29 (1.02)	0.005
Total D-RECT Score	3.71 (0.88)	3.51 (0.81)	0.164	3.75 (0.86)	3.32 (0.81)	0.016

S.D.- standard deviation

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