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Learning climate and quality of Italian training courses in gynecology and obstetrics

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ABSTRACT

Objectives: To evaluate the learning climate (LC) and quality of training in postgraduate training courses in gynecology and obstetrics in Italy, as essential element to improve the training quality of future medical specialists.

Study Design: Web-based anonymous survey sent to all Italian trainees in gynecology and obstetrics to assess LC and quality of postgraduate training courses. This included sociodemographic information, details regarding training positions, and a 50-item validated Dutch Residency Educational Climate Test (D-RECT) questionnaire with 11 subscales (1–5 Likert scale). At the same time, the 24-items Fifth Year Training Questionnaire (FYT-Q) was submitted to all trainees at the fifth year of training to assess quality of life (burnout and depression), quality of training and final achieved competency level. Descriptive statistics were used to describe the main characteristics of the study population and for the D-RECT and the FYT-Q results.

Results: One hundred seventy-eight trainees' responses were included from 13 departments, yielding a department response rate of 33%. The mean composite score of the D-RECT was 3.185 (SD 0.305). The subscales "Formal education" and "Role of specialty tutor" scored a mean of 2.751 (SD 0.123) and 2.757 (SD 0.130), respectively. Sixty-four FYT-Q evaluations were completed. The 33% of trainees reported more than 56 weekly working hours. At least one burnout episode during the training was reported by 61% of the trainees, and the 45% of them reported one or more episode of depression. More than 50% of trainees reported adequate autonomy for gynecologic ultrasound, obstetrics first level ultrasound, hysteroscopy,

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and cesarean section. In FYT-Q adequacy of training, teaching, surgical teaching, and tutoring values resulted equal to or less than 3 in a 1–5 Likert scale.
Conclusions: D-RECT and FYT-Q questionnaires show a training that requires improvement, although the results do not seem to be completely consistent. D-RECT emphasizes the need for a better formal teaching and specialty tutors to ensure training with better LC. Interventions are needed to improve LC and quality of training in postgraduate training courses in gynecology and obstetrics in Italy.

Introduction

Quality assurance and continuous quality improvement of postgraduate medical education (PGME) received considerable attention by governments, institutions, and medical training boards [1–4]. An important factor and indicator of PGME quality is the learning climate (LC) [5–7]. LC is a theoretical construct that relates to multiple aspects of training. LC underlines trainees' daily experiences, including the formal and informal context in which training takes place [8], the perceived atmosphere of a department [9], and perceptions of practices, procedures and policies [10]. Healthy LC contributes to the use of effective learning approaches [11], trainee wellbeing [12] and training satisfaction [13], influencing trainees' perceptions of their own competencies [14], professional development [15] and resulting professional identity. Furthermore, healthy LC improves the quality of patient care during the training period and thereafter [16,17].

LC cannot be measured directly, but relies and can be measured through trainees' daily experiences [5]. Based on a previous qualitative study, Boor et al. [5] developed the Dutch Residency Educational Climate Test (D-RECT), a psychometric multi-factorial questionnaire with 50 items and eleven domains. The use of the D-RECT may provide insight into a department's educational LC [7], that might trigger improvements and initiatives aimed to enhancing the quality of training programs [5].

Training in gynecology and obstetrics is complex and demanding, considering the complexity of the specialty that, particularly on duty, exposes trainees to stressful and high-risk situations that require immediate decision with evidence-based approach. However, primary data on the PGME quality and related LC are lacking for trainees in gynecology and obstetrics. Moreover, to the best of our knowledge, the trainees' perceptions of their own competencies, professional development, overall training satisfaction, and quality of life were never evaluated so far. Considering the critical importance of LC on PGME quality, the final training level on the subsequent patient care, and quality of life during training, the aim of this study was to evaluate the LC and trainees' own perceptions about training among Italian trainees in gynecology and obstetrics [18].

Materials and methods

The D-RECT questionnaire

The D-RECT uses 50 items rated on 5-point Likert scale (1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree) to measure the LC, covering 11 constructs (subscales) [5,19]. The subscale reliability (Cronbach's α) ranged from 0.64 to 0.85. Generalizability analysis showed that the evaluations of 11 trainees were needed to reliably evaluate all subscales and three for the overall score [5,20]. Overall scores of 3 or lower are considered a cause for concern. This questionnaire also records data on gender, age, year of training and site of training.

Fifth year training questionnaire (FYT-Q)

The Italian training program in gynecology and obstetrics last five years. Therefore, we developed a questionnaire to assess trainee perceptions about personal competences, personal training level and satisfaction at the end of training [18]. This questionnaire was discussed in an expert group of two teaching medical doctors and two specialty tutors. Additionally, four trainees, two specialty tutors, and three medical educationalists checked the items for face validity and made suggestions for amendments. Duplicate or unclear items were removed. Two items recorded data on gender and age. Five items invited agreement on a 5-point Likert scale (1 = totally disagree and 5 = totally agree). Nine items investigated specific topic with dichotomous style (yes or no questions). Eight items investigated specific topics with multichoice or interval style questions. The survey questionnaire resulted in 24 items, including information and general details regarding training [18]. Furthermore, we included evaluation of burnout using the 22-item Maslach Burnout Inventory (MBI) [21], which is considered the reference instrument for burnout evaluation [22]. Consistent with convention and as previously proposed [23,24], we measured burnout using two single-item measures adapted from the full MBI (emotional exhaustion and depersonalization) [25,26]. Finally, FYT-Q included the two-item PRIME-MD (Primary Care Evaluation of Mental Disorders), which investigated about anhedonia and feelings of being down, depressed, or hopeless [27,28].

Data collection

The D-RECT questionnaire was submitted to all Italian trainees in gynecology and obstetrics between June and September 2018. At the same time, the FYT-Q questionnaire was submitted to all Italian trainees in gynecology and obstetrics at the fifth year of training. The number of trainees differed per residency training department from different academic hospitals (providing top clinical care, scientific research and PGME as well as coordinating PGME for affiliated hospitals). The questionnaires were submitted in English. D-RECT and FYT-Q evaluations were completed via a web-based platform, and participants were reminded up to three times by e-mail to participate in the online D-RECT/FYT-Q evaluation.

Data analysis

Descriptive statistics and frequencies were used to describe the main characteristics of the study population and for the D-RECT and the FYT-Q outcomes. For the D-RECT, the mean outcome scores were calculated for each subscale by dividing the total score by the number of subscale questions. An average composite score representing the overall LC was computed for the 50 items of the D-RECT as a mean of all subscale scores (sum of all subscale scores divided by 11). D-RECT evaluations with more than 50% of the items missing were excluded from the analysis. For evaluations with less than 50% missing, data were assumed to be missed at random and imputed using the expectation–maximization technique. Departments with less than three trainee evaluations were excluded from the analysis since at least three evaluations are

needed for a reliable mean total score of the D-RECT [20]. Conversely, in FYT-Q analysis no exclusion criteria were used, and descriptive statistics and frequencies were reported.

Baseline characteristics were described using descriptive statistics. Descriptive statistics were showed for variables with normal distribution as mean ± SD, for non-normal distribution variables as the median and min–max range, for the nominal variables as the number of cases and percent. Data analysis was performed using SPSS V.21.0 (IBM Corporation, Armonk, NY).

Ethics and methodological standards

The study did not require approval by an independent Institutional Review Board (IRB), because no patients were included, nor intervention was performed by the investigator on the study cohort. Each enrolled trainee gave informed consent, using the web-based platform, for D-RECT and FYT-Q data collection and analysis for research purpose. Participation was anonymous and voluntary for all trainees. The included PRIME-MD investigates about anhedonia and feelings of being down, depressed, or hopeless. Therefore, it was able to identify trainees with possible ongoing mental health problems. On that basis, although the questionnaires were anonymous and the investigators were not able to identify the trainees, the anonymous results were provided to each training center to improve and plan interventions aimed to provide anonymous and free psychological support. Moreover, each trainee received the result of its own questionnaire and was informed of possible symptoms of depression. The study was not advertised, and no remuneration was offered to enter or complete the study. Written permission was asked and granted from each training department.

Results

Between June and September 2018, a total of 183 D-RECT evaluations were completed and included, consistently with the criterion of less than 50% of missed items. Twenty-six out of 39 departments were excluded because they had less than three D-RECT evaluations, yielding a department response rate of 33%. Therefore, 178 evaluations from 13 departments of 13 academic teaching hospitals were included. The mean age of trainees was 29.4 (SD 4.3) years and 82.0% of them were women. The mean composite score, representing the overall LC for the 50 items of the D-RECT, was 3.185 (SD 0.305). The mean values of the subscales describing different aspects of the LC in gynecology and obstetrics are reported in Table 1. The subscales "Formal education" and "Role of specialty tutor" scored a mean of 2.751 (SD 0.123) and 2.757 (SD 0.130), respectively, that is lower than the cut-off value of 3. The highest scored subscales were "Teamwork", "Peer collaboration", and "Feedback" and the means were 3.453 (SD 0.127), 3.614 (SD 0.095) and 3.658 (SD 0.181), respectively. No subscales nor items reported a mean higher than 4.

Table 1
Mean scores of learning climate (D-RECT) subscales.

D-RECT questionnaire subscale	Mean	SD
Supervision	3.197	0.179
Coaching and assessment	3.109	0.055
Feedback	3.658	0.181
Teamwork	3.453	0.127
Peer collaboration	3.614	0.095
Professional relations between attendings	3.028	0.118
Work is adapted to residents' competence	3.007	0.203
Attendings' role	3.435	0.141
Formal education	2.751	0.123
Role of the specialty tutor	2.757	0.130
Patient sign out	3.169	0.173

D-RECT: Dutch Residency Educational Climate Test; SD: Standard deviation.

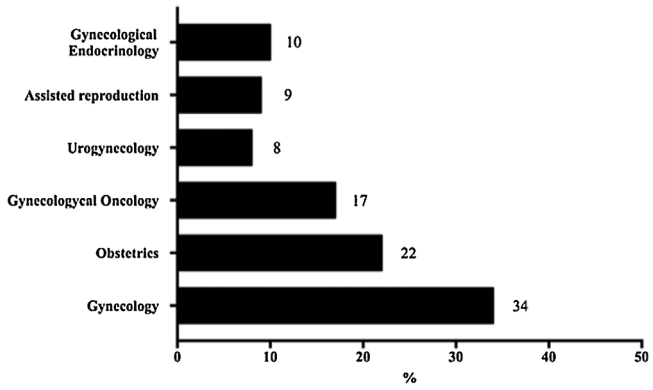

Fig. 1. Primary field of interest reported by trainees of the fifth year of training.

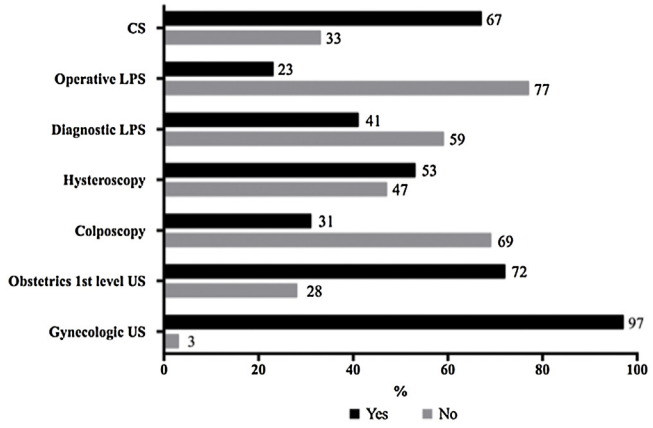

Fig. 2. Auto evaluated level of autonomy achieved in different procedures at the fifth year of training. CS: Cesarean Section; LPS: Laparoscopy; US: Ultrasound.

Between June and September 2018, a total of 64 FYT-Q evaluations were completed. The mean age of trainees was 31.3 (SD 3.8) years, and 86.0% of them were women. Fig. 1 shows the reported primary field of interest.

At the fifth year of training, the 48% of trainees perceived their competence not adequate for a duty in delivery room, and the 33% would made one more year of training. Fig. 2 shows auto-evaluated level of achieved autonomy in different procedures at the fifth year of training. More than 50% of the trainees reported adequate autonomy for gynecologic ultrasound, obstetrics first level ultrasound, hysteroscopy, and cesarean section. Only 26% of the trainees reported more than 40 cesarean section performed during training as first operator, and 42% of them did not perform a laparotomy for gynecological surgery. Furthermore, only 34% of them reported laparoscopic training with pelvic trainers and simulators.

Table 2
Mean scores about levels of adequacy of 5 aspects of the training courses in gynecology and obstetrics (FYT-Q).

FYT-Q questionnaire - levels of adequacy	Mean	SD
Teaching	2.875	1.303
Surgical teaching	2.922	1.418
Multidisciplinary teaching	3.141	1.180
Tutoring	3.031	1.297
Personal development	3.766	1.257

FYT-Q: Fifth year training questionnaire.

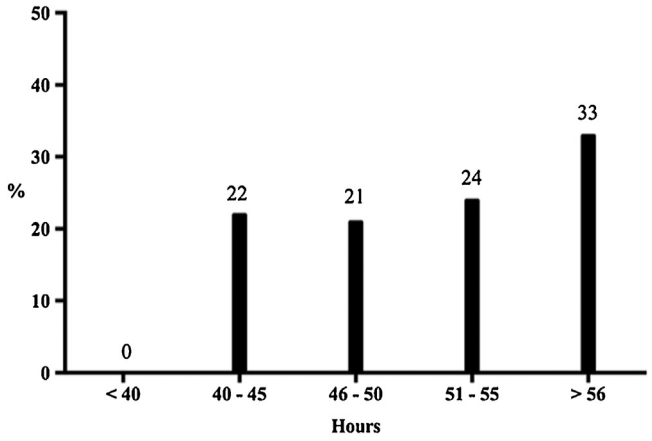

Fig. 3. Workload: average weekly working hours.

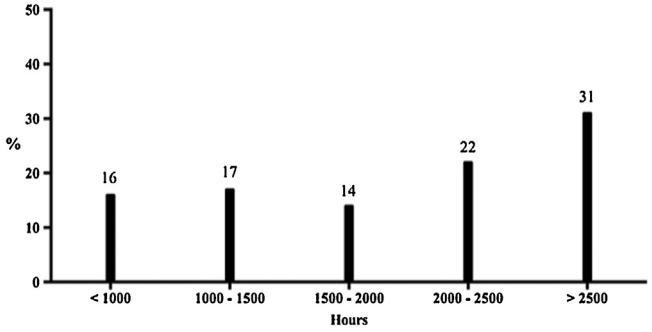

Fig. 4. Workload: total amount of yearly working hours on duty at delivery room.

The mean values for the 5 items investigated with a 5-point Likert scale, describing the perceived level of adequacy of the training courses, are reported in Table 2. As far as training period at other specialty training courses is concerned, general surgery and general medicine training was considered useful by 96.9% and 71.9% of the trainees, respectively; conversely, only 38.8% of the trainees reported useful the training at the general first aid service. Internship in a foreign country was reported only by 14% of the trainees, and the 55% of them had less than 3 peer reviewed publications; 41% of trainees was not a member of a scientific society, and only 28% of them was member of the "Italian Association of University Gynecologists" (Associazione Italiana Ginecologi Universitari - AGUI).

About the work load, Figs. 3 and 4 show, respectively, the average weekly working hours and the total amount of yearly working hours on duty in delivery room: 33% of the trainees reported more that 56 weekly working hours at the department, and 31% of them spent more than 2500 hours per year on duty in delivery room. At least one burnout episode during the training was reported by 61% of the trainees, and 45% of them reported one or more episode of depression. Finally, 56% of the trainees did not report working prospective soon after the end of training, and the 86% of them were interested in a fellowship thereafter.

Discussion

To the best of our knowledge, this is the first study evaluating the LC of training courses in gynecology and obstetrics of a European Country. The mean composite score of D-RECT, representing the overall LC, was 3.185 (SD 0.305), a value near the cut-off of 3, that should be considered a cause for concern [29]. Furthermore, our overall D-RECT score resulted lower than the overall D-RECT score of 3.86 (SD 0.33) reported by Silkens et al. [7] in a national-based investigation on LC of PGME programs in Netherlands, although the study comprised all the specialty training courses. Moreover, our overall D-RECT score resulted lower than the value of 3.67 (SD 0.86) reported by Piek et al. [30], who evaluated the LC of fellows in gynecological oncology with a European-based survey. Although our study is not completely comparable with others, our overall D-RECT score may be a cause of concern and suggests the necessity to improve the LC in the Italian gynecology and obstetrics training courses.

About D-RECT, our data show low scores for the "Formal education" and "Role of the specialty tutor" subscales, that are consistent with the FYT-Q results, reporting "Teaching", "Surgical teaching", and "Tutoring" mean values equal or less than 3.

Nevertheless, the score in teaching of FYT-Q and the score in "Role of the specialty tutor" subscale of D-RECT are apparently in contrast with the "Feedback" subscale score of D-RECT. Indeed, feedback is essential for promoting learning and achieving defined goals, and efficacy of giving feedback has resulted related to an improved teaching [31,32]. This could be explained by the fact that all specialists participate in the supervision of training and teaching, which is one of the duties of all clinicians working in a training hospital [33]; conversely, the role of specialty tutor, responsible of the individual trainee, is lacking probably because it has not a clearly structured role in our study setting.

The low "Formal education" subscale score of D-RECT might be explained by the results reporting that trainees are not generally able to attend scheduled educational activities: indeed, in some cases educational activities are not scheduled at all, and formal education and training activities are not always appropriate to for trainees' needs. This lack of formal education may further explain the low level of training adequacy and the own perceived competences reported by trainees in the FYT-Q questionnaire.

Interestingly, the 48% of trainees reporting their competence as not adequate for a duty in delivery room does not seem consistent with the more than 50% of trainees reporting adequate autonomy to perform a caesarean section and more than 2000 hours per year on duty in the labour ward. Nevertheless, these worrying results may suggest that the time spent in the labor ward and the number of performed cesarean section are of paramount importance but not enough to be self-assured. On that basis, with an improvement of training in labor ward and in cesarean section performance, an appropriate formal education and simulation courses in obstetric emergencies, particularly instrumental delivery, could represent a further strategy [34,35].

Finally, our data show a burnout prevalence of 61%, and 45% of the trainees reported one or more episode of depression. Our results are consistent with the literature, that shows a prevalence of burnout symptoms ranging from 18% to 82% [22,25,26,36,37]. The development of distress and symptoms of burnout was related to a high level of work-home interference and a high professional and educational demands [36,38], consistent with the 33% of trainees reporting more than 56 working hours per week. However, a strict compliance with the European Working Time Directive (EWTD), limiting the working hours to 48 per week, does not sufficient to prevent burnout and depression. Compliance to EWTD needs a better quality of LC in order to improve emotional well-being and to reduce symptoms of burnout [29,39]. Indeed, not only high workload, long and irregular working hours [36], but even organizational and educational factors, such as lack of autonomy and lack of social and supervisory support, have been associated with distress and burnout in trainees [37,40].

Strength and limitations

We were able to use the widely accepted and well researched D-RECT to assess the LC of gynecologic and obstetrics training courses

in Italy [6,20]. Although D-RECT was initially developed for Dutch trainees undergoing postgraduate training, it was found applicable to trainees undergoing postgraduate training in other Countries [30,41]. Furthermore, using the FYT-Q questionnaire, that included elements from both the MBI and the PRIME-MD, we were able to compare D-RECT results with the burnout and depression assessment and the overall perceived training level. However, the 33% department response rate can be a source of potential bias that should be considered for a proper data interpretation. Nevertheless, data for the psychometric analyses were prospectively collected from 178 trainees of 13 different departments, with the minimum of 11 evaluations from each of them. Therefore, although a comprehensive national-based evaluation of training courses is limited by the low number of included departments, our study could be considered a reliable judgment of LC and training course satisfaction. Noteworthy, the training program in Italy is conducted for the majority of time at the academic hospital, with a possible (optional) limited time period at a local district general hospitals. Therefore, the data can be considered a homogeneous evaluation of the training programs conducted at academic institutions, although the lack of information regarding the time spent at other institutions can be an additional source of potential bias.

Conclusions

Our D-RECT and FYT-Q results show a postgraduate training in gynecology and obstetrics in Italy that requires improvement, although the results do not seem to be completely consistent. Our study provides an objective assessment that may be of benefit, allowing departments to be made aware of the areas needing improvement, becoming a driver for change and guiding further resource allocation and reorganization. Moreover, our results can be compared (Wilcoxon signed-rank test) with those obtained in further studies on the same population after specific interventions, in order to identify and to evaluate any change and improvement in the postgraduate training courses. Different proposed interventions could help to improve PGME quality and LC, such as educational interventions both for trainers and trainees [32], hospital-wide education committees [42], and rigorous accreditation process by national or international societies such as the European Board College of Obstetrics and Gynecology (EBCOG) and the European Society of Gynecological Oncology (ESGO) [30,33], that ensures institutions to maintain a minimal prescribed set of standards, case load, infrastructures, and organizational processes to facilitate the needs of the trainees [30]. In this regard, a clearly defined and standardized training curriculum for the trainees and a standard and formal assessment of trainees' progression through training, such as those provided by the Royal College of obstetrics and Gynecology, represent an useful strategies [43,44]. On that basis, the Project for Achieving Consensus in Training of EBCOG (EBCOG-PACT) led to the development of a new European curriculum for trainees in obstetrics and gynecology aiming to ensure a standardized quality of training across Europe [45–47].

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Disclosure of interests

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