



Italian Journal of
Gynæcology & Obstetrics

September 2018 - Vol. 30 - N. 3 - Quarterly - ISSN 2385 - 0868

Learning climate and quality of postgraduate training in gynecology and obstetrics should be assessed in italian training courses

Enrico Sartori¹, Fabio Ghezzi², Antonella Cromi², Rebecca Miscioscia¹, Antonio Simone Laganà², Simone Garzon³, Ricciarda Raffaelli³, Massimo Candiani⁴, Jvan Casarin², Andrea Ciavattini⁵, Rossana Di Paola³, Pantaleo Greco⁶, Secondo Guaschino⁷, Diego Marchesoni⁸, Rodolfo Milani⁹, Nicola Rizzo¹⁰, Pier Luigi Venturini¹¹, Fulvio Zullo¹², Elena Valente¹, Enrico Vizza¹³, Giovanni Scambia¹⁴, Massimo Franchi³.

On behalf of the Italian Society of Gynecology and Obstetrics (SIGO).

¹ Department of Gynecology and Obstetrics, University of Brescia, Brescia, Italy

² Department of Obstetrics and Gynecology, "Filippo Del Ponte" Hospital, University of Insubria, Varese, Italy

³ Department of Obstetrics and Gynecology, AOUI Verona, University of Verona, Verona, Italy

⁴ Department of Obstetrics and Gynecology, IRCCS San Raffaele Hospital, Vita-Salute San Raffaele University, Milan, Italy

⁵ Woman's Health Sciences Department, Gynecologic Section, AOU Ospedali Riuniti Ancona, Polytechnic University of Marche, Ancona, Italy

⁶ Department of Morphology, Surgery and Experimental Medicine, Section of Obstetrics and Gynecology, Azienda Ospedaliero-Universitaria S. Anna, University of Ferrara, Ferrara, Italy

⁷ Institute for Maternal and Child Health, IRCCS Burlo Garofolo, University of Trieste, Trieste, Italy

⁸ Department of Experimental Clinical and Medical Science, DISM, Clinic of Obstetrics and Gynecology, University Hospital of Udine, University of Udine, Udine, Italy

⁹ Department of Obstetrics and Gynecology, San Gerardo Hospital, University of Milano-Bicocca, Monza, Italy

¹⁰ Department of Obstetrics and Gynecology, Sant'Orsola- Malpighi University Hospital, University of Bologna, Bologna, Italy

¹¹ Department of Neurosciences, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DiNOGMI), Academic Unit of Obstetrics and Gynecology, Ospedale Policlinico San Martino, University of Genoa, Genoa, Italy

¹² Department of Neuroscience, Reproductive Sciences and Dentistry, School of Medicine, University of Naples "Federico II", Naples, Italy

¹³ Department of Experimental Clinical Oncology, Gynecologic Oncology Unit, IRCCS - Regina Elena National Cancer Institute, Rome, Italy

¹⁴ SIGO President. Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Catholic University of the Sacred Heart, Rome, Italy

Corresponding Author: Massimo Franchi

massimo.franchi@univr.it

Copyright 2018, Partner-Graf srl, Prato

DOI: 10.14660/2385-0868-95

ABSTRACT

Training in obstetrics and gynecology plays a pivotal role in the development of future specialists and clearly affects the quality of care provided. Despite the importance of the topic, data on the training quality and adequacy are lacking: considering this point, we would like to investigate it with a survey. Learning climate (LC) is an important factor and indicator of training quality, and it is related to symptoms of burnout, career dissatisfaction, and depression. We propose to investigate LC with Dutch Residency Educational Climate Test (D-RECT) that will be submitted to all the Italian trainees in gynecology and obstetrics. In order to assess trainee perceptions about personal competences, personal training level, professional development and overall satisfaction at the end of training, we developed a structured questionnaire of 24 items, the Fifth-Year Training Questionnaire (FYT-Q), that will be submitted with D-RECT only to trainees at the fifth year. The aim is to describe the state of the art in obstetrics and gynecology training in Italy. This could be the first step to allow departments to be made aware of the limitations of their training, to identify areas needing improvement, thus becoming a driver for change and improvement.

Key words: Learning climate, D-RECT, obstetrics and gynecology, training, trainees.

SOMMARIO

La formazione specialistica in Ginecologia e Ostetricia svolge un ruolo fondamentale nello sviluppo dei futuri specialisti e nel determinare la qualità dell'assistenza che forniranno. Nonostante la sua importanza, mancano dati sulla qualità e l'adeguatezza della formazione specialistica italiana in Ginecologia e Ostetricia. Per questa ragione, proponiamo uno studio finalizzato a valutarne le caratteristiche e la qualità. Il "Learning climate" (LC) è un indicatore importante di qualità della formazione specialistica ed è risultato correlato a sintomi di burnout, insoddisfazione di carriera e depressione. Lo studio proposto è finalizzato ad indagare il LC mediante il questionario validato "Dutch Residency Educational Climate Test" (D-RECT) che sarà sottoposto agli specializzandi italiani in ginecologia e ostetricia. Inoltre, al fine di valutare le percezioni degli specializzandi in merito alle proprie competenze, al livello di formazione, allo sviluppo professionale e alla soddisfazione generale raggiunti alla fine della formazione, abbiamo sviluppato il "Fifth-Year Training Questionnaire" (FYT-Q), che verrà presentato con il D-RECT solo agli specializzandi del quinto anno. L'obiettivo è quello di descrivere lo stato dell'arte nella formazione specialistica italiana, che potrebbe essere il primo passo per consentire alle Scuole di specialità di individuare i limiti della loro formazione e di identificare le aree che necessitano un miglioramento.

INTRODUCTION

Practicing obstetrics and gynecology is complex and demanding. This specialty, particularly when the physician is on call, expose to stressful, high-risk and sometimes life-threatening situation that require precise, accurate and immediate clinical/surgical decision⁽¹⁾. Practicing obstetricians-gynecologists have low levels of career satisfaction: according to published reports, 27.5% of surveyed obstetricians-gynecologists were either somewhat or very dissatisfied with their careers⁽²⁾.

Compared with other specialties, obstetricians and gynecologists were 40th among 42 specialties in terms of career satisfaction⁽³⁾. Obstetricians and gynecologists may also be at risk for burnout, with a prevalence higher than 50% and associated work satisfaction below 40%⁽⁴⁾. Among practicing physicians from all specialties, burnout rates range from 30% to 70%, and an increased rate in the prevalence of burnout was observed over the last years with a substantial erosion in satisfaction⁽⁴⁾.

Burnout is a psychological syndrome with persistent negative work-related state of mind that involves a prolonged response to chronic interpersonal stressors on the job. The three key

dimensions of this response are overwhelming exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment. It occurs most frequently in occupations necessitating intense involvement with people, such as teachers, social workers, and physicians^(5,6). Distinct from career satisfaction and burnout, depression is characterized by a global, clinical syndrome pervading all aspects of a person's life, with a prevalence in the general population of 5% to 10% for men and 10% to 20% for women. Interestingly, physicians seems to have an increased risk to develop depressive symptoms compared to the general population⁽⁷⁾.

Furthermore, physician affected by depressive symptoms would seem to be at higher risk for burnout, higher risk for career dissatisfaction, and less able to maintain healthy personal or professional relationships⁽⁸⁾.

Depressive symptoms, burnout, and career dissatisfaction have highly correlation each other. Furthermore, burnout and major depression overlap in terms of symptoms and in the three-dimensional concept of burnout⁽⁹⁾. All these aspects

of works and general quality of life have an high impact on clinical practice, and may lead to higher risk of medical errors and malpractice suits⁽¹⁰⁾.

Burnout has been associated with impaired job performance, poor mental and physical health, deterioration in relationships with family and friends, self-care, and suboptimal patient care, safety-related quality of care and educational motivation^(6,11,12).

All these factors influence obstetrician and gynecologists' clinical practice and are more prevalent in young physicians, particularly during residency. Indeed, trainees are more exposed to occupational stressors and have to cope with "intense work demands, limited control and a high degree of work-home interference"⁽¹³⁾. Between 20.9% and 43.2% of trainees screened positive for depression or depressive symptoms during residency, with an increase in depressive symptoms over time⁽¹⁴⁾. Furthermore, a high prevalence of burnout syndrome up to 83% was reported in trainees of obstetrics and gynecology⁽¹⁵⁾. Because the development of depression has been linked to a higher risk of future depressive episodes and greater long-term morbidity, these findings may affect the long-term health of trainees⁽¹⁶⁾. Furthermore, depression, burnout and career dissatisfaction among trainees may also affect patients' health outcomes, considering the established association between them and low-quality care^(10,12,17). These findings highlight an important issue in post-graduate medical education, that influence level of training, quality of care provided by the trainees, with finally safeguard patient care during training period and thereafter^(18,19).

On that basis, throughout the modernizations of postgraduate medical education (PGME), quality assurance and continuous quality improvement of PGME received considerable attention worldwide by governments, regulators, and medical training boards⁽²⁰⁻²³⁾.

Considering the role of training in gynecology and obstetrics on present and future development of specialist and subsequent patient care, and that primary data on the PGME quality and adequacy are lacking, we would like to investigate these elements with a survey. The aim will be to describe the state of the art in gynecologic and obstetrics training in Italy, providing an objective assessment that may be of benefit to training institutions, training program organizers, educational tutors, national specialist societies, and trainees themselves. This could be the first step to allow departments to be made aware of the

limitations of their performance, to identify areas needing improvement, thus becoming a driver for change and improvement.

MATERIALS AND METHODS

Learning climate and D-RECT

An important factor and indicator of PGME quality is the learning climate (LC)⁽²⁴⁻²⁶⁾.

Department's LC is a theoretical construct that relates to multiple facets of trainees' training. LC underline trainees' daily experiences, including the formal and informal context in which learning takes place⁽²⁷⁾, and incorporating the perceived atmosphere of a department⁽²⁸⁾ as well as common perceptions of policies, practices and procedures⁽²⁹⁾. Healthy LC contributes to the use of effective learning approaches⁽³⁰⁾, trainee wellbeing⁽³¹⁾ and training satisfaction⁽³²⁾, influencing trainees' perceptions of their own competencies⁽³³⁾, professional development⁽³⁴⁾ and resulting professional identity and behavior. Furthermore, healthy LC benefits the quality of care provided by the trainees, which is known to influence a variety of trainees' outcomes, such as training satisfaction and the use of knowledge, and finally safeguard patient care improving high quality patient care during training period and thereafter^(18,19).

An inadequate LC is related to symptoms of burnout, career dissatisfaction, and depression symptoms. Indeed, although development of distress and symptoms of burnout was related to a high level of work-home interference and a high professional and educational demands^(35,36), a strict compliance with the European Working Time Directive (EWTD), limiting the working week to 48 hours, is not enough to prevent burnout and depression. Strict compliance to EWTD needs a better quality of the clinical LC to improve emotional well-being and to reduce symptoms of burnout, that increases if trainees perceive little reciprocity in the relationship with their supervisors^(37,38). Indeed, not only high workloads, long and irregular working hours⁽³⁵⁾, but even organizational and educational factors such as lack of autonomy, lack of social and supervisory support have been associated with distress and burnout in trainees^(39,40).

In order to assess the LC in gynecologic and obstetrics training courses we plan to use the widely accepted Dutch Residency Educational Climate Test (D-RECT)^(25,41). LC is a theoretical construct that cannot be measured immediately. What can be measured immediately are trainees'

daily experiences reflecting an underlying construct, that of a LC⁽²⁴⁾. Based on a previous qualitative study, Boor et al. developed the D-RECT⁽²⁴⁾: this questionnaire 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) as follows: supervision, coaching and assessment, feedback, teamwork, peer collaboration, professional relations between consultants, work adapted to fellows' competence, consultants' attitudes, formal education, role of the specialty tutor, and patient handover^(24,42). The subscale reliability (Cronbach's α) ranged from 0.64 to 0.85. Generalizability analysis showed that 11 trainee evaluations were needed to reliably evaluate all subscales and three for the overall score^(24,41). Scores 3 or lower are considered a cause for concern. This questionnaire also records data on gender, age, year of training and site of training. Although D-RECT was initially developed for Dutch trainees undergoing postgraduate training, it could be considered applicable also to trainees undergoing postgraduate training in other countries^(43,44).

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, professional development and overall satisfaction at the end of training. In the same questionnaire, we included evaluation of burnout symptoms and depression.

We developed a questionnaire that was discussed in an expert group of two teaching medical doctors (Sartori E and Franchi M), and two specialty tutors (Miscioscia R and Raffaelli R) (**Table 1**). Additionally, four trainees, two specialty tutors, and three medical educationalists checked the items for validity and made suggestions for removal or rewording. Duplicate or unclear items were removed. Two items record data on gender and age. Five items investigated agreement on a 5-point Likert scale (1 = totally disagree and 5 = totally agree). Nine items investigated specific topic with dichotomous-styled yes or no questions. Eight items investigated specific topic with multichoice or interval-styled questions. The survey questionnaire resulted in 24 items including information and general details regarding training as follows: gender, age, average weekly working hours, yearly working hours spent on duty in delivery room, primary field of interest

(gynecology, obstetrics, oncology, urogynecology, assisted reproduction, endocrinology), internship in a foreign country, number of peer reviewed publications, achieved procedure with adequate training level (gynecologic ultrasound, obstetrics first level ultrasound, colposcopy, hysteroscopy, diagnostic laparoscopy, operative laparoscopy, caesarean section), number of caesarean sections performed, number of laparotomies performed, use of pelvic trainers, adequate training level perceived for delivery room duties, utility of internship in other specialties, membership within scientific societies, interest in a fellowship, the perceived necessity of a potential additional year (or more) of training, work opportunities after the end of training, and the five questions on a 5-point Likert scale regarding teaching, surgical teaching, multidisciplinary teaching, tutoring, and personal development.

Maslach Burnout Inventory (MBI)

In the FYT-Q questionnaire, we included evaluation of burnout using the 22-item Maslach Burnout Inventory (MBI)⁽⁵⁾, which is considered the reference instrument for the evaluation of burnout in the medical literature⁽¹³⁾ and contains three subscales (emotional exhaustion, depersonalization, and sense of personal accomplishment). Consistent with widely accepted convention^(11,45), we considered those who scored high on either the emotional exhaustion (score of 27 or higher) or depersonalization (score of 10 or higher) domain of burnout to have at least one indicator of professional burnout. Indeed, although the full MBI is the gold standard for measuring burnout, its length limits its utility in large surveys. Thus, as previously proposed⁽¹¹⁾, we measured burnout using two single-item measures adapted from the full MBI: these single items (emotional exhaustion and depersonalization) have been shown to stratify the risk of burnout^(46,47).

Primary Care Evaluation of Mental Disorders (PRIME-MD)

In the FYT-Q, we included the two-item Primary Care Evaluation of Mental Disorders (PRIME-MD), which asks about anhedonia and feelings of being down, depressed, or hopeless. This measure has a sensitivity of 86% to 96% and a specificity of 57% to 75% for a major depressive disorder^(48,49).

Data collection

The D-RECT questionnaire will be submitted to all Italian trainees in gynecology and obstetrics

of 39 academic teaching hospitals departments. At the same time, the FYT-Q questionnaire will be submitted to all Italian trainees in gynecology and obstetrics at the fifth (final) year of training. The number of trainees will be differing per residency training department from different academic hospitals. The questionnaires will be submitted in English. D-RECT and FYT-Q evaluations will be completed through a web-based platform, and participants will be reminded up to three times by e-mail to participate in the online D-RECT/FYT-Q evaluations.

Data analysis

Descriptive statistics and frequencies will be 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 will be calculated for each subscale by dividing the total score by the number of subscale questions. An average composite score representing the overall LC will be 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 will be excluded from the analysis. For evaluations with less than 50% missing, data will be assumed to be missing at random and imputed using the expectation-maximization technique. In order to be able to differentiate between trainee and department D-RECT level evaluations, departments with less than three trainee evaluations will be excluded from the analysis, since at least three evaluations are needed for a reliable mean total score of the D-RECT⁽⁴¹⁾. Conversely, in FYT-Q analysis no exclusion criteria will be used, and descriptive statistics and frequencies will be reported.

Ethics and methodological standards

The study does not require approval by an independent Institutional Review Board (IRB) because no patients will be included. Informed consent will be required to each enrolled trainee using the web-based platform, for D-RECT and FYT-Q data collection and analysis for research purpose. Participation will be anonymous and voluntary for all trainees.

DISCUSSION

An optimal LC is characterized by a daily work in continuation with training, with trainees able to make choices in the content of their work in

relation to their personal learning needs. LC also is based on a good interaction with other healthcare personnel, with an optimal integration of work and training tailored to individual trainees' needs⁽²⁴⁾.

The use of the D-RECT may provide insight into a department's educational LC and repeated use may provide learning performance⁽²⁶⁾. Ultimately, the results of a D-RECT evaluation might trigger quality improvements initiatives aimed at enhancing the quality of the LC⁽²⁴⁾. The same aim has the FYT-Q evaluation of burnout and depression symptoms, and of trainees' perceptions about their own competencies, professional development, overall training satisfaction, and quality of life.

Providing an objective assessment of training courses in gynecology and obstetrics, we will also provide a guide for interventions. Indeed, different interventions were proposed to improve PGME quality, such as educational interventions both for trainers and trainees⁽⁵⁰⁾, hospital-wide education committees with the aim to monitor continuous quality assurance and to improve initiatives aimed at achieving high quality PGME and LC⁽⁵¹⁾, and rigorous accreditation process by national or international societies such as European Board & College of Obstetrics and Gynecology (EBCOG) and European Society of Gynecological Oncology (ESGO)^(43,52), that ensures institutions to maintain a minimal prescribed set of standards, case load, infrastructural, and organizational processes to facilitate the needs of the trainees⁽⁴³⁾.

Our study has the aim to allow departments to be made aware of the limitations of their performance, to identify areas needing improvement, thus becoming a driver for change and improvement guiding further resource allocation, policy changes, and reorganization.

Funding

The study will be not funded.

DISCLOSURE OF INTERESTS

The authors have no proprietary, financial, professional or other personal interest of any nature in any product, service or company. The authors alone are responsible for the content and writing of the paper.

All the authors conform the International Committee of Medical Journal Editors (ICMJE) criteria for authorship, contributed to the intellectual content of the study and gave approval for the final version of the article.

Table 1.
Fifth Year Training Questionnaire (FYT-Q).

- 1) Male Female
- 2) How old are you?
- 3) How many average hours do you work in a week? < 40 40 - 45 46 - 50 51 - 55 > 56
- 4) How many average hours do you work on duty in delivery room in a year? < 1000 1000-1500 1500-2000 2000-2500 >2500
- 5) Which is your primary field of interest?
 gynaecology obstetrics oncology
 urogynaecology
 assisted reproduction endocrinology
- 6) How many peer reviewed publications have you published? < 3 4 - 5 6 - 9 > 10
- 7) In which of these procedures did you achieve adequate training level to have autonomy?
 gynaecologic ultrasound obstetrics first level ultrasound colposcopy hysteroscopy
 diagnostic laparoscopy
 operative laparoscopy caesarean section
- 8) How many caesarean sections did you perform? < 10 11 - 20 21 - 30 31 - 40 41 - 50 > 50
- 9) How many laparotomies did you perform? 0 1 - 3 4 - 5 6 - 10 > 10
- 10) Are you a member of scientific societies? How many? No 1 2 3 4
- 11) Have you done an internship in a foreign country? Yes No
- 12) Have you been trained with pelvic trainers? Yes No
- 13) Do you think you have achieved adequate training level to be autonomous for delivery room duties? Yes No
- 14) Are you interested in a fellowship after your training program? Yes No
- 15) Do you think you need one or more years of training? Yes No
- 16) Do you already have work opportunities at the end of training? Yes No
- 17) Did you find useful the internship (tronco comune) in general surgery? Yes No
- 18) Did you find useful the internship (tronco comune) in general medicine? Yes No
- 19) Did you find useful the internship (tronco comune) in first aid? Yes No

Answer to the next items with a 5-point Likert scale (1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree).

- 20) The training program that you have attended has an adequate level of teaching. 1 2 3 4 5
- 21) The training program that you have attended has an adequate level of surgical teaching. 1 2 3 4 5
- 22) The training program that you have attended has an adequate level of multidisciplinary teaching. 1 2 3 4 5
- 23) The training program that you have attended has an adequate level of tutoring. 1 2 3 4 5
- 24) The training program that you have attended is adequate to achieve a complete development of your professional skills and adequate personal development. 1 2 3 4 5

REFERENCES

- 1) Sfregola G, Laganà AS, Granese R, Sfregola P, Lopinto A, Triolo O. **Work load and management in the delivery room: changing the direction of healthcare policy.** *Journal of Obstetrics and Gynaecology: The Journal of the Institute of Obstetrics and Gynaecology*, 2017; 37(2):185-190.
- 2) Kravitz RL, Leigh JP, Samuels SJ, Schembri M, Gilbert WM. **Tracking career satisfaction and perceptions of quality among US obstetricians and gynecologists.** *Obstetrics and Gynecology*, 2003; 102(3):463-470.
- 3) Leigh JP, Tancredi DJ, Kravitz RL. **Physician career satisfaction within specialties.** *BMC Health Services Research*, 2009; 9:166.
- 4) Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, West CP. **Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014.** *Mayo Clinic Proceedings*, 2015; 90(12):1600-1613.
- 5) Maslach C, Jackson S, Leiter M. **Maslach Burnout Inventory: Manual.** 3rd Ed. Palo Alto, CA: Consulting Psychologists Press, 1996.
- 6) Maslach C, Leiter MP. **New insights into burnout and health care: Strategies for improving civility and alleviating burnout.** *Medical Teacher*, 2017; 39(2):160-163.
- 7) Ferrari AJ, Somerville AJ, Baxter AJ, Norman R, Patten SB, Vos T, Whiteford HA. **Global variation in the prevalence and incidence of major depressive disorder: a systematic review of the epidemiological literature.** *Psychological Medicine*, 2013; 43(3):471-481.
- 8) Becker JL, Milad MP, Klock SC. **Burnout, depression, and career satisfaction: Cross-sectional study of obstetrics and gynecology residents.** *American Journal of Obstetrics and Gynecology*, 2006; 195(5):1444-1449.
- 9) Wurm W, Vogel K, Holl A, Ebner C, Bayer D, Mörkl S, Szilagyi I-S, Hotter E, Kapfhammer H-P, Hofmann P. **Depression-Burnout Overlap in Physicians.** *PLoS ONE*, 2016; 11(3):1-15.
- 10) Fahrenkopf AM, Sectish TC, Barger LK, Sharek PJ, Lewin D, Chiang VW, Edwards S, Wiedermann BL, Landrigan CP. **Rates of medication errors among depressed and burnt out residents: prospective cohort study.** *BMJ : British Medical Journal*, 2008; 336(7642):488-491.
- 11) Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, West CP, Sloan J, Oreskovich MR. **Burnout and Satisfaction With Work-Life Balance Among US Physicians Relative to the General US Population.** *Archives of Internal Medicine*, 2012; 172(18):1377-1385.
- 12) Dewa CS, Loong D, Bonato S, Trojanowski L. **The relationship between physician burnout and quality of healthcare in terms of safety and acceptability: a systematic review.** *BMJ Open*, 2017; 7(6):e015141.
- 13) Thomas NK. **Resident burnout.** *JAMA*, 2004; 292(23):2880-2889.
- 14) Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Angelantonio ED, Sen S. **Prevalence of Depression and Depressive Symptoms Among Resident Physicians A Systematic Review and Meta-analysis.** *JAMA*, 2015; 314(22):2373-2383.
- 15) Moradi Y, Baradaran HR, Yazdandoost M, Atrak S, Kashanian M. **Prevalence of Burnout in residents of obstetrics and gynecology: A systematic review and meta-analysis.** *Medical Journal of the Islamic Republic of Iran*, 2015; 29(4):235-240.
- 16) Clarke DM, Currie KC. **Depression, anxiety and their relationship with chronic diseases: a review of the epidemiology, risk and treatment evidence.** *The Medical Journal of Australia*, 2009; 190(7 Suppl):S54-60.
- 17) West CP, Tan AD, Habermann TM, Sloan JA, Shanafelt TD. **Association of Resident Fatigue and Distress With Perceived Medical Errors.** *JAMA*, 2009; 302(12):1294-1300.
- 18) van der Leeuw RM, Lombarts KM, Arah OA, Heineman MJ. **A systematic review of the effects of residency training on patient outcomes.** *BMC Medicine*, 2012; 10:65-75.
- 19) Chang Y, Mark B. **Moderating Effects of Learning Climate on the Impact of RN Staffing on Medication Errors.** *Nursing research*, 2011; 60(1):32-39.
- 20) Nasca TJ, Philibert I, Brigham T, Flynn TC. **The next GME accreditation system--rationale and benefits.** *The New England Journal of Medicine*, 2012; 366(11):1051-1056.
- 21) Wall D, Goodyear H, Singh B, Whitehouse A, Hughes E, Howes J. **A new tool to evaluate postgraduate training posts: the Job Evaluation Survey Tool (JEST).** *BMC Medical Education*, 2014; 14:210-218.
- 22) Niekerk JPDV van, Christensen L, Karle H, Lindgren S, Nystrup J. **WFME Global Standards in Medical Education: status and perspectives following the 2003 WFME World Conference.** *Medical Education*, 2004; 37(11):1050-1054.
- 23) Aabakke AJM, Kristufkova A, Bune LT, Lemanska A, Jan Ž, Laganà AS. **European trainees support the new European curriculum in Obstetrics and Gynaecology.** *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, 2016; 203:335-336.
- 24) Boor K, Van Der Vleuten C, Teunissen P, Scherpbier A, Scheele F. **Development and analysis of D-RECT, an instrument measuring residents' learning climate.** *Medical Teacher*, 2011; 33(10):820-827.
- 25) Silkens MEWM, Arah OA, Scherpbier AJJA, Heineman MJ, Lombarts KMJM. **Focus on Quality: Investigating Residents' Learning Climate Perceptions.** *PLoS ONE*, 2016; 11(1):1-9.
- 26) Silkens MEWM, Lombarts KMJM, Scherpbier AJJA, Heineman MJ, Arah OA. **Towards healthy learning climates in postgraduate medical education: exploring the role of hospital-wide education committees.** *BMC Medical Education*, 2017; 17:241-247.
- 27) Roff S, McAleer S. **What is educational climate?** *Medical Teacher*, 2001; 23(4):333-334.
- 28) Genn JM. **AMEE Medical Education Guide No. 23 (Part 2): Curriculum, environment, climate, quality and change in medical education - a unifying perspective.** *Medical Teacher*, 2001; 23(5):445-454.
- 29) Lombarts KMJM, Heineman MJ, Scherpbier AJJA, Arah OA. **Effect of the Learning Climate of Residency Programs on Faculty's Teaching Performance as Evaluated by Residents.** *PLoS ONE*, 2014; 9(1):e86512.

- 30) Delva MD, Kirby J, Schultz K, Godwin M. **Assessing the relationship of learning approaches to workplace climate in clerkship and residency.** *Academic Medicine: Journal of the Association of American Medical Colleges*, 2004; 79(11):1120-1126.
- 31) Tsai J-C, Chen C-S, Sun I-F, Liu K-M, Lai C-S. **Clinical learning environment measurement for medical trainees at transitions: relations with socio-cultural factors and mental distress.** *BMC Medical Education*, 2014; 14:226-234.
- 32) Daugherty SR, Baldwin DC, Rowley BD. **Learning, satisfaction, and mistreatment during medical internship: a national survey of working conditions.** *JAMA*, 1998; 279(15):1194-1199.
- 33) Busari JO, Verhagen EAA, Muskiet FD. **The influence of the cultural climate of the training environment on physicians' self-perception of competence and preparedness for practice.** *BMC medical education*, 2008; 8:51.
- 34) Brown J, Chapman T, Graham D. **Becoming a new doctor: a learning or survival exercise?** *Medical Education*, 2007; 41(7):653-660.
- 35) Prins JT, Gazendam-Donofrio SM, Tubben BJ, Heijden FMMAVD, Wiel HBMVD, Hoekstra-Weebers JEHM. **Burnout in medical residents: a review.** *Medical Education*, 2007; 41(8):788-800.
- 36) Geurts S, Rutte C, Peeters M. **Antecedents and consequences of work-home interference among medical residents.** *Social Science & Medicine*, 1999; 48(9):1135-1148.
- 37) van Vendeloo SN, Brand PLP, Verheyen CCPM. **Burnout and quality of life among orthopaedic trainees in a modern educational programme: importance of the learning climate.** *The Bone & Joint Journal*, 2014; 96-B(8):1133-1138.
- 38) Prins JT, Gazendam-Donofrio SM, Dillingh GS, Wiel HBMVD, Heijden FMMAVD, Hoekstra-Weebers JEHM. **The relationship between reciprocity and burnout in Dutch medical residents.** *Medical Education*, 2008; 42(7):721-728.
- 39) Prins JT, Hoekstra-Weebers JEHM, Gazendam-Donofrio SM, Wiel HBMVD, Sprangers F, Jaspers FCA, Heijden FMMA van der. **The role of social support in burnout among Dutch medical residents.** *Psychology, Health & Medicine*, 2007; 12(1):1-6.
- 40) Dyrbye L, Shanafelt T. **A narrative review on burnout experienced by medical students and residents.** *Medical Education*, 2016; 50(1):132-149.
- 41) Silkens MEWM, Smirnova A, Stalmeijer RE, Arah OA, Scherpbier AJJA, Van Der Vleuten CPM, Lombarts KMJMH. **Revisiting the D-RECT tool: Validation of an instrument measuring residents' learning climate perceptions.** *Medical Teacher*, 2015; 21(1):1-6.
- 42) Boor K, Scheele F, van der Vleuten CPM, Scherpbier AJJA, Teunissen PW, Sijtsma K. **Psychometric properties of an instrument to measure the clinical learning environment.** *Medical Education*, 2007; 41(1):92-99.
- 43) Piek J, Bossart M, Boor K, Halaska M, Haidopoulos D, Zapardiel I, Grabowski J, Kesic V, Cibula D, Colombo N, Verheijen R, Manchanda R. **The Work Place Educational Climate in Gynecological Oncology Fellowships Across Europe: The Impact of Accreditation.** *International Journal of Gynecological Cancer*, 2015; 25(1):180-190.
- 44) Pinnock R, Welch P, Taylor-Evans H, Quirk F. **Using the DRECT to assess the intern learning environment in Australia.** *Medical Teacher*, 2013; 35(8):699.
- 45) Schaufeli WB, Bakker AB, Hoogduin K, Schaap C, Kladler A. **On the clinical validity of the maslach burnout inventory and the burnout measure.** *Psychology & Health*, 2001; 16(5):565-582.
- 46) West CP, Dyrbye LN, Sloan JA, Shanafelt TD. **Single Item Measures of Emotional Exhaustion and Depersonalization Are Useful for Assessing Burnout in Medical Professionals.** *Journal of General Internal Medicine*, 2009; 24(12):1318.
- 47) West CP, Dyrbye LN, Satele DV, Sloan JA, Shanafelt TD. **Concurrent Validity of Single-Item Measures of Emotional Exhaustion and Depersonalization in Burnout Assessment.** *Journal of General Internal Medicine*, 2012; 27(11):1445-1452.
- 48) Spitzer RL, Williams JB, Kroenke K, Linzer M, deGruy FV, Hahn SR, Brody D, Johnson JG. **Utility of a new procedure for diagnosing mental disorders in primary care. The PRIME-MD 1000 study.** *JAMA*, 1994; 272(22):1749-1756.
- 49) Whooley MA, Avins AL, Miranda J, Browner WS. **Case-finding instruments for depression.** *Journal of General Internal Medicine*, 1997; 12(7):439-445.
- 50) Salerno SM, O'Malley PG, Pangaro LN, Wheeler GA, Moores LK, Jackson JL. **Faculty Development Seminars Based on the One-Minute Preceptor Improve Feedback in the Ambulatory Setting.** *Journal of General Internal Medicine*, 2002; 17(10):779-787.
- 51) Karle H. **Global Standards and Accreditation in Medical Education: A View from the WFME.** *Academic Medicine*, 2006; 81(12):S43.
- 52) The European Board and College of Obstetrics and Gynaecology (EBCOG). **Recommenda-tions for postgraduate training and assessment in Obstetrics and Gynecology.** 2005.