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10.4103/jehp.jehp\_145\_23

# Identifying and prioritizing the stressors of obstetrics and gynecology residents

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## Abstract:

**BACKGROUND:** Studies have shown that the obstetrics and gynecology residents face severe burnout and a large number of stressors, and excessive stress could adversely affect performance and quality of patient care. Thus, the current study attempts to identify and prioritize the stressors of obstetrics and gynecology residents at Isfahan University of Medical Sciences.

**MATERIALS AND METHODS:** A cross-sectional descriptive-analytical study was conducted on 62 residents and faculty members in the department of obstetrics and gynecology at Isfahan University of Medical Sciences in 2022. Respondents were selected by census method. The stressors of obstetrics and gynecology residents were investigated using a researcher-made, 37-item questionnaire. The questionnaire was prepared based on a literature review and respondents' opinions, then its validity and reliability were confirmed. Collected data were analyzed using the SPSS 20, non-parametric Friedman's test, and descriptive statistics methods.

**RESULT:** This study included 46 respondents (74%), 16 faculty members, and 30 residents, who were asked to rate each stressor of the given questionnaire. The residents and their teachers believed that the main stressors were heavy workloads, lack of personal time, long shifts, financial problems, sleep deprivation, and compassion fatigue. Insufficient study time, study workload, and inappropriate assessment systems for residents were among the high-priority stressors, according to the residents. However, the faculty members reported medical errors, unreasonable expectations from residents, and residents' multiple responsibilities as high-priority stressors. According to the Friedman's test, there was a significant difference in rates received from both the faculty members and medical residents ( $P$  value  $<0/001$ ).

**CONCLUSION:** The stressors due to the nature of obstetrics and gynecology, medical care, residency training, and medical resident assessment are the highest priority. The findings of this study could be beneficial to the officials in residency training programs to take the necessary corrective actions.

## Keywords:

Medical residents, residency, stress, stressors

## Introduction

Stress and its consequences have received increasing attention among the physicians. The medical society has also raised an awareness concerning this issue.<sup>[1]</sup> Stress is the body's natural response to a real or perceived threat. The nervous system reacts by pumping stress hormones (such as cortisol and adrenaline/epinephrine) in

the case of a potential threat.<sup>[2]</sup> Cambridge Dictionary defines *stress* as "great worry caused by a difficult situation, or something that causes this condition." It also defines a *stressor* as "something that causes stress".<sup>[3]</sup> *Stress* is "a condition or feeling experienced when a person perceives that demands exceed the personal and social resources of an individual is able to mobilize," according to the American Institute of Stress.<sup>[4]</sup> Although a small amount of stress could be beneficial, excessive stress and stressors

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**How to cite this article:** Mirzaei A, Jamshidian S, Movahedi M, Haghani F. Identifying and prioritizing the stressors of obstetrics and gynecology residents. *J Edu Health Promot* 2023;12:373.

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Received: 01-02-2023

Accepted: 25-03-2023

Published: 31-10-2023

could adversely affect an individual's physiological and mental health. Therefore, chronic stress results in low-quality care, medical errors, and many others.<sup>[5,6]</sup>

The residency training period in medical professions can be a time of significant stress. Residents find that it is challenging to carry the heavy burden of responsibility toward patients. Long shifts and heavy workloads are among the factors that cause them stress. Moreover, they must acquire specialized skills and simultaneously provide various services to the patients.<sup>[7]</sup>

Studies have shown that the obstetrics and gynecology residency training can cause severe burnout, and the residents are exposed to many stressors.<sup>[8,9]</sup> Also, a study was conducted at Medical College of Wisconsin to evaluate the incidence of secondary traumatic stress in the obstetrics and gynecology. Most respondents (73%) identified involvement in adverse medical events and symptoms of traumatic stress. The most frequently reported symptoms were anxiety (81%), guilt (62%), and disrupted sleep (58%).<sup>[10]</sup> Another study in Jordan showed that the obstetrics and gynecology residency have the highest prevalence of burnout among the all specialties (surgery, internal medicine, pediatrics, radiology, anesthesia, obstetrics and gynecology, orthopedics, and others) with an average of  $23.6 \pm 5.43$ .<sup>[9]</sup>

According to Malek *et al.*,<sup>[11]</sup> obstetrics and gynecology residents were ranked second among the 19 specialties, following neurosurgery, with an average stress score of 163.79. Besides, in Ebrahimi and Kargar's study, the highest average stress score belonged to gynecology (177.7) among the other 15 specialties.<sup>[12]</sup> Another survey concerning the prevalence of burnout syndrome among the residents at Isfahan University of Medical Sciences reported that the obstetrics and gynecology residents had the highest level of burnout among the studied fields.<sup>[13]</sup> Anxiety and burnout stemming from prolonged exposure to medical practice and training stressors have been linked to an increased absenteeism and job turnover, early retirement, increased costs, decreased patient satisfaction, low-quality care, and increased medical errors.<sup>[14]</sup> Moreover, chronic stress is a well-known risk factor for developing mental disorders, including addiction such as drug use and alcohol, and even suicide.<sup>[15,16]</sup> The impact of stress on the physical and mental health, well-being, and productivity of individuals is one of the growing concerns of organizations of medical sciences; since, severe stress ultimately has a negative impact on both the work performance and patient care, including medication errors, suboptimal care, clinical errors, and patient dissatisfaction. Residents reported that their working conditions led to short attention spans, decreased empathy, reduced concern and sensitivity, and increased irritability.<sup>[9,17]</sup> Obstetrics and gynecology

residents are highly at risk of these mental disorders due to constant exposure to many stressors.<sup>[8,9,12,13]</sup> The stressors of the residency training period have been investigated and categorized in the studies, including clinical and non-clinical, background, training, financial, workload, career uncertainty, family issues, and work environment.<sup>[11,18-20]</sup> However, most investigations have focused on the stress level of obstetricians and gynecologists and, in some cases compared with other fields.<sup>[12,21-23]</sup> So far, no study has specifically identified and prioritized stressors in obstetrics and gynecology residents. It could be stated that the first step to come up with an effective intervention is to cover all aspects of stress.

According to many studies, stress has been one of the main reasons for absenteeism and changing fields.<sup>[23,24]</sup> Many studies have emphasized the need for proper intervention concerning residents' stress.<sup>[8]</sup> It can be said that the first step to design and implement an effective intervention in order to reduce the stress of obstetrics and gynecology residents is to identify the different aspects of the issue and its effective factors. Therefore, the present study aims to identify and prioritize the Obstetrics and gynecology residents' stressors at Isfahan University of Medical Sciences.

## Materials and Methods

### Study design and setting

This cross-sectional descriptive-analytical study was a part of action research. It was conducted in department of obstetrics and gynecology at Isfahan University of Medical Sciences in 2022. This study was performed in three stages: Identifying the stressors, preparing a questionnaire to identify the stressors of obstetrics and gynecology residents, and performing the questionnaire. Therefore, some online sources, including Scopus, ProQuest, PubMed, Eric, SID, Ganj/Irandoc, Magiran, and Google scholar, were utilized in this respect. We also restricted the search results to the past ten years (2013-2022). Eventually, 89 stressors were extracted from the research. Accordingly, some faculty members and obstetrics and gynecology residents were asked to list the most critical stressors based on their experience. Therefore, Google Forms was used to create response questions. A list of stressors was obtained from literature review (89 items), faculty members' points of view (73 items), and residents' opinions (31 items); Then, repeated and unrelated items were eliminated from the list. Based on the list obtained from the previous steps, a 37-item questionnaire was designed to identify and prioritize the residents' stressors.

### Study participants and sampling

Twenty three faculty members and 39 residents were

selected by census method from department of obstetrics and gynecology at Isfahan University of Medical Sciences.

### Data collection tool and technique

The primary tool used in the present study was a researcher-made questionnaire with 37 items. The detailed preparation of this questionnaire will be presented in the following: The obtained list from the previous steps was applied to construct an initial questionnaire (69 items) to identify and prioritize stressors. Two qualitative and quantitative methods were used for the content validity of the questionnaire. The qualitative method consists of medical education professionals' opinions, as well as obstetricians' and gynecologists' opinions (research team members). However, to quantify the expert's opinions and judgments, two indices have been discussed in this study; content validity ratio (CVR) and content validity index (CVI). Then, the items of the initial questionnaire were assessed in regard to two aspects: relevance and necessity. Each of the 69 items was indicated on a four-point Likert scale to assess relevancy (1 = unrelated, 2 = somehow related, 3 = related, and 4 = completely related). The necessity aspect was also assessed on a three-point Likert scale (1 = necessary, 2 = useful but unnecessary, and 3 = unnecessary). Then, the questionnaire was completed by 15 medical education professionals, teachers, and residents in the field of obstetrics and gynecology. The responses were calculated with Lawshe's formula to determine the content validity ratio and matched with the relevant table; items with a rate of 0/49 or higher were included in the questionnaire.<sup>[25,26]</sup> Moreover, to calculate the content validity index, the degree of correlation was calculated with the mentioned formula; items with a rate higher than 0/79 were accepted to be included in the questionnaire.<sup>[27,28]</sup> Consequently, 37 items out of 69 were accepted and included in the questionnaire. The questionnaire was composed of two parts; the first part consisted of three questions tailored specifically and distinctively for the faculty members and residents. To put it in another way, each group's questionnaire differed in respect to demographics; the questionnaire designed for the residents included age, year of residency, and geographic location. However, the faculty members' questionnaire was related to work experience, age, and academic rank. The 37 items (stressors) were placed in the second part of the questionnaire. The respondents were asked to rate them on a scale of 0 to 4 (0 = not much, 4 = very much). Then, Cronbach's alpha coefficient was used to measure the reliability of the questionnaire (0/98). Eventually, the paper- or web-based questionnaire was given to faculty members (23 individuals) and the residents with experience of at least one year and a half in the obstetrics and gynecology department (39 individuals).

The completed questionnaires were analyzed using SPSS 20, descriptive statistics, and non-parametric Friedman's test. Friedman's test was used to rank or identify high-priority stressors.

### Ethical consideration

Ethical approval was granted from the research committee at Isfahan University of Medical Sciences with the ethics code of IR.ARI.MUI.REC.1400.092. The respondents were made fully aware of the nature and purpose of this research, and their anonymity and confidentiality were preserved.

### Findings

Only 74% (46 individuals) of the research respondents thoroughly completed the questionnaire. Thirty five percent (16 individuals) were faculty members, and 65% (30 individuals) were obstetrics and gynecology residents. All the respondents were female, with an average age of 36/4.

Seven faculty members had one-to-five work experience, five had six -to- ten work experience, and four of them had 11 or more years of experience. Among the residents, eight were in the second year of their residency, 12 were in their third year, eight were in their fourth year, and two did not specify their academic year. Table 1 represents the high-priority stressors divided into two groups: Teachers and residents.

According to the Friedman's test, there was a significant difference in rates received from both the teachers and medical resident groups ( $P$  value  $<0/001$ ). That is, the questionnaire items were not of equal importance, and there was a statistically significant difference between the two groups' items. For instance, "insufficient study time" received the highest average rank in the residents' questionnaire. Therefore, it was of the highest importance to the residents [Table 2]. Table 1 shows the difference in ranking between the two groups (residents and teachers). These two groups had seven items in common out of the top ten. So, three of the top ten priorities in the residents' list were not seen among the first ten priorities of the teachers: Number one, six, and eight. However, "workload" has been both groups' top ten concerns. "Insufficient study time" has been the residents' number one stressor and the teachers' number seventeen. And the sixth stressor mentioned by the residents, "study workload," has achieved a rank of twenty among the teachers. Moreover, the "inappropriate assessment system" was the residents' eighth stressor, and the teachers' fifteenth priority. The two groups had only three items in common among the next ten priorities. To provide more details, "character assassination in the morning meetings" was the residents' eleventh stressor and the teachers' twenty-sixth concern. Also,

**Table 1: Prioritizing the stressors of obstetrics and gynecology residents (based on teachers' and residents' opinions)**

Teachers' opinions			Residents' opinions		
Priority	Mean rank	Stressors	Priority	Mean rank	Stressors
1	29/53	Heavy workload (hardship conditions, long hours, and the amount of responsibility)	1	29/05	Insufficient study time
2	28/56	Stressful nature of obstetrics and gynecology (providing care and safety of patients: Mother and fetus)	2	26/66	Heavy workload (hardship conditions, long hours, and the amount of responsibility)
3	26/50	Lack of personal time	3	26/12	Stressful nature of obstetrics and gynecology (providing care and safety of patients: Mother and fetus)
4	25/03	Long shifts	4	25/43	Lack of personal time
5	23/78	Concerns about medical negligence/medical errors	5	25/40	Financial problems
6	23/16	Financial problems	6	25/14	Study workload
7	23/09	Sleep deprivation	7	25/05	Long shifts
8	22/72	Compassion fatigue	8	23/97	Inappropriate assessment system for residents
9	22/31	Irrational expectations from residents (focusing more on therapeutic tasks than educational ones)	9	22/67	Compassion fatigue
10	21/59	Multiple responsibilities (to patients, family, and as a learner)	10	22/34	Sleep deprivation
11	21/31	Dealing with aggressive and violent patients/ patient companions)	11	22/21	Character assassination in the morning reports
12	21/22	Inappropriate well-fare facilities for residents at the workplace	12	22/14	Irrational expectations from residents (focusing more on therapeutic tasks than educational ones)
13	21/13	Treatment of critically ill patients	13	21/60	Concerns about medical negligence/medical errors
14	20/47	Fear of medical error exposure	14	21/33	Medical leadership in times of emergency
15	20/34	Inappropriate assessment system for residents	15	21/28	Unpleasant work environment
16	20/00	Fear of exam failure	16	20/84	Multiple responsibilities (to patients, family, and as a learner)
17	19/47	Insufficient study time	17	20/45	Unhealthy lifestyle
18	19/03	Medical leadership in times of emergency	18	20/38	Inappropriate behavior of senior residents toward junior residents
19	18/97	Delivering bad news to patients/their companions	19	20/24	Inappropriate well-fare facilities for residents at the workplace
20	18/91	Study workload	20	19/72	Treatment of critically ill patients
21	18/66	Simultaneous patients care	21	19/24	Strict teachers
22	18/31	Disrespectful behavior of nurses and other personnel toward residents	22	19/16	Insufficient theoretical training at the beginning of residency (presence at the patient's bedside and in the operating room with no prior training)
23	18/09	Lack of time management skills	23	19/09	Unnecessary and cumbersome rules
24	17/94	Residents' non-cooperation and extra burden on others	24	18/86	Dealing with aggressive and violent patients/ patient companions)
25	17/69	Not prepared to deal with challenges (consequences of poor decision-making in relation to career selection)	25	17/40	Fear of exam failure
26	17/44	Character assassination in the morning meetings	26	16/02	Not prepared to deal with challenges (consequences of poor decision-making in relation to career selection)
27	16/84	Disproportionate reprimand of residents	27	14/81	Residents' non-cooperation and extra burden on others
28	15/91	Lack of psychological support from family	28	14/69	Delivering bad news to patients/their companions
29	15/28	Strict teachers	29	14/47	Lack of time management skills
30	15/13	Healthy lifestyle	30	14/33	Simultaneous patients care
31	13/59	Unnecessary and cumbersome rules	31	14/24	Early work allocation (when a resident is not ready to take responsibility)
32	13/31	Early work allocation (when a resident is not ready to take responsibility)	32	14/00	Disrespectful behavior of nurses and other personnel toward residents
33	12/75	Lack of interest in the field of study	33	13/10	disproportionate reprimand of residents

Contd...

**Table 1: Contd...**

Teachers' opinions			Residents' opinions		
Priority	Mean rank	Stressors	Priority	Mean rank	Stressors
34	11/97	Difficulty communicating with patients and their companions	34	11/47	Difficulty communicating with patients and their companions
35	11/63	Inappropriate behavior of senior residents toward junior residents	35	9/21	Fear of medical error exposure
36	11/50	Insufficient theoretical training at the beginning of residency (presence at the patient's bedside and in the operating room with no prior training)	36	5/52	Lack of interest in the field of study
37	9/84	Unpleasant work environment	37	5/40	Lack of psychological support from family

**Table 2: The result of Friedman's test regarding the significance of differences in the priority of the residents' stressors based on the opinions of teachers' residents**

No.	Group	Variable	n	Chi-square	df	Sig
1	Obstetrics and gynecology teachers	Priority of stressors	16	133/9	36	/000*
2	Obstetrics and gynecology residents	Priority of stressors	29	333/6	36	/000*

\*There was a significant difference regarding the priority of the stressors according to the two groups

the "unpleasant work environment" was the teachers' last priority and the residents' fifteenth. Finally, "inappropriate behavior of senior residents" has received a rank of eighteen among the residents and a rank of thirty-five among the teachers.

Among the two groups' lowest priorities (Table1, priorities 21-37), both had thirteen stressors in common among their lowest priorities (from 21 to 37) except for one, which was not very different priority-wise. The "insufficient theoretical training at the beginning of residency" was the twenty-second item on the residents' list. However, it achieved a thirty-six rank among the teachers, indicating a significant difference.

## Discussion

Residency is exhausting in most medical fields, and residents face many stressors.<sup>[29]</sup> Residents' and gynecologists' anxiety is one of the most critical factors influencing patients' well-being and health. Gynecologists must consider two people, a mother and her fetus, which is a great responsibility. Therefore, patients expect obstetricians and gynecologists to be in the right state of mind and free from any anxiety. On the contrary, studies show an increasing rate of suicide, depression, anxiety, burnout, absenteeism, and dropping out during training years and thereafter.<sup>[9,23,30]</sup> Apparently, if the stressors are not managed appropriately, they can increase the risk of serious medical errors and negative impacts on patient care.

The present study identified and prioritized the most critical stressors concerning obstetrics and gynecologist residents of Isfahan University of Medical Sciences. Here are the top priority stressors for both groups: Heavy workload, the stressful nature of this field, insufficient personal time, long shifts, sleep deprivation, compassion

fatigue, and financial problems. In addition, concerns about medical negligence, irrational expectations from residents, and multiple responsibilities were among the top-ten priority stressors of the teachers. And insufficient study time, study workload, and inappropriate assessment systems are among the top-ten stressors of residents.

According to the findings, most top ten stressors are related to tensions due to the nature of this field, medical care, training, and assessment. These stressors have been identified and evaluated in other studies. Referring to the findings of a study, the majority of medical residents in five Jordanian hospitals, stress was associated with a higher workload, sleep deprivation, income, and dissatisfaction in their relationship with colleagues.<sup>[9]</sup> Mian *et al.*<sup>[31]</sup> also conducted a study concerning the residents' stressors. Sleep deprivation, lack of personal time, compassion fatigue, long-distance family relationship, and financial problems are reported stressors. According to Ricky Cik *et al.*,<sup>[32]</sup> the most important stressors of residents are heavy workloads, excessive working hours per week, long shifts, and working on days off.<sup>[33]</sup> In another study regarding the mental health of residents during obstetrics and gynecology training in Thailand, 106 residents have reported the top priority stressors as sleep deprivation, a large number of difficult patients, heavy workload, obstetrics and gynecology board certification exam, conference attendance, grand rounds, compassion fatigue, financial problems, family issues, and filing complaints against doctors.<sup>[21]</sup> Comparing the stressors based on the opinions of residents and professors showed a difference in some items. The difference was predictable because professors have come a long way and are more experienced. As a result, they are involved with different kinds of stressors. A study regarding the well-being of trainee and faculty physicians in the United States of America revealed that the trainees were more negative

than faculty for most questions. Questions focusing on work satisfaction (for example, pride in work) were more negative for residents compared to fellows and for fellows compared to faculty.<sup>[34]</sup> As a result, it can be stated that the residents are probably more negative and more realistic than the professors because they have been directly involved with the stressors and have really struggled with the stressors. Also, some of the low-priority stressors of professors were related to the performance of faculty members, especially training performance. Thus, it looks like there are some differences between the professors' self-evaluation of performance and the evaluation of residents, which may require further consideration.

### Limitation and suggestion

Residents' stressors were restricted to a specific time frame, and changes in these stressors over time have not been shown. The difference between the mentioned stressors was not illustrated in different years of residency. In the future, more longitudinal studies are needed to extend beyond a single moment in time to provide more detailed information regarding the stressors and their effects in different years of residency.

The other limitation is that the present study is restricted to the obstetrics and gynecology residency of Isfahan University of Medical Sciences. However, it provides valuable insights for all obstetrics and gynecology residents and authorities in this field. There has been no similar investigation so far. This study is the first one regarding obstetrics and gynecology residents as one of those groups at a high risk of stress-related injuries. Residency training programs would benefit from this investigation's findings to fill the voids in training systems. Moreover, providing information on the current research could be beneficial to authorities in the field of obstetrics and gynecology in order to manage residents' stressors.

### Conclusion

Several factors cause stress in obstetrics and gynecology residents of Isfahan University of Medical Sciences. The stressors are related to medical care, residents' training, and their assessment, in addition to the stressors related to the nature of this field. Since these stressors can probably be managed, their identification can be a benefit to the departments of residency training programs. In other words, it could help department officials to come up with an appropriate solutions to reduce these stressors.

### Acknowledgment

The current study is based on a Ph.D. thesis with the ethics code of IR.ARI.MUI.REC.1400.092 and thesis No. 3400931. We would like to express our gratitude

to all who contributed to this research, especially the residents, staffs, and faculty members of the obstetrics and gynecology department of Isfahan University of Medical Sciences, working at Shahid Beheshti and Al-Zahra Hospitals.

### Financial support and sponsorship

This study conducted with the funding support of Isfahan University of Medical Sciences Research Council.

### Conflicts of interest

There are no conflicts of interest.

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