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GENERAL GYNECOLOGY

Gender-based workplace assessment in gynecology and obstetrics in Germany: results from the iCEPT Study

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Abstract
Purpose In the field of gynecology and obstetrics, studies exploring the workplace situation are important. We conducted this study with the overall aim to assess the subjective perception of working conditions of OB/GYNs in German hospitals. Since gender ratios are changing among German physicians in general and among OB/GYNs in particular, a special focus was put on gender-based differences.
Methods This study uses data from the iCEPT Study ($n = 7090$). From this database, data from physicians working in the field of gynecology and obstetrics ($n = 381$) were analyzed. The iCEPT questionnaire was based upon established questionnaires.
Results 92.1 % (95 % CI 89.2–95.3) of respondents stated to be often under time pressure and 89.8 % (95 % CI 87.6–93.3) stated frequent disturbances during work time. Women felt significantly more often under time pressure than men (OR = 2.73; 95 % CI 1.25–5.92; $p = 0.009$). Moreover, only about every third respondent stated to be in control of his or her work. Feedback about their work was received by 27.6 % (95 % CI 23.4–32.1) of respondents. However, male physicians got significantly more often feedback with an odds ratio of OR = 2.03 (95 % CI 1.21–3.41; $p = 0.007$). In regard to job satisfaction, about one in two (55.1 %; 95 % CI 50.4–60.2) stated to be satisfied with his or her job. However, men seemed more often satisfied than women with an OR = 1.98 (95 % CI 1.18–3.32; $p = 0.009$). No significant gender difference was seen in the analysis of the social climate and the social support.
Conclusions It is important to be aware of the documented gender differences regarding perception of working conditions. In order to sustain the gender diversity in the specialty of OB/GYNs these differences should be resolved. Special attention should be drawn to the improvement of job demands and control of employees.

Keywords Gynecology · Obstetrics · Workplace · Gender · Perception

Abbreviations

95 % CI	95 % confidence interval
JDS	Job diagnostic Survey
KFZA	German for "Kurz-Fragebogen zur Arbeitsanalyse"
OB/GYNs	Obstetrician–gynecologists
OR	Odds ratio
OSCE	Objective structured clinical examination
SD	Standard deviation

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Background

In the field of medicine, the assessment of the workplace becomes more and more important. Many physicians perceive their working environment as disadvantageous due to

distress associated with high job demands, less control over their work, lacking rewards or suboptimal social support and climate. The consequences of these circumstances are manifold: the physician employees feel their work–life balance and job satisfaction are negatively affected leading to deteriorating mental and physical health, burn-out and increasing numbers of sick days [1]. Additionally, a negative relationship between physician dissatisfaction and patient care, safety and health outcomes is well documented [2]. As a common long-term effect, numerous studies reported the shortage of healthcare providers in the German system due to physicians pursuing other career paths or to a decreased recruitment of students into the field of medicine [3, 4].

Obstetrician–gynecologists (OB/GYNs) are a subgroup of physicians prone to experience unfavorable working conditions: they have an uncontrollable lifestyle due to their demanding and unpredictable work schedules [5]. 90 % of them work overtime [6]. The majority states dissatisfaction with their current work–life balance [6] and to be less satisfied with their careers than primary care physicians [5, 7]. Also, the risk is high for OB/GYNs to experience litigations linked to common scenarios such as fetal distress, uterine rupture, shoulder dystocia and misdiagnosis of breast cancer [8]. Influence on working conditions for OB/GYNs has been shown for several factors including social support [9], subspecialty within OB/GYN [10], oncological care [11, 12].

However, the situation of women in the healthcare workforce—and particularly for OB/GYNs—has been understudied, although the numbers of female physicians increased steadily. In Germany, an exceptional high ratio (62.3 %) of female OB/GYNs was reported for 2013; the rate of female physicians getting board certification in 2013 was stated even higher with 83.4 % [13]. Further, the increasing number of female medical students projects even higher quotas for the future [14] with implications regarding expectations towards appropriate working conditions [15]. The increasing number of female students and physicians can be accounted for by strict enrollment regulations for academic medical education in Germany that emphasizes on high school marks. Since a stable female advantage in school marks has been shown in several studies [16], this could explain the increasing absolute number of female physicians. In 2013 in Germany, 30.4 % of all female physicians worked part-time, on the other hand 11.8 % of male physicians worked part-time [17]. This indicates that there must be a causal factor explaining these differing numbers.

In regard to mental strain, female physicians have a 60 % higher burnout rate compared to their male peers [18]. Hereby 'control over schedule and work hours" was shown to predict burnout [19].

As reported by Hancke et al. [6], 47 % of female OB/GYNs were not satisfied with their work–life balance, 54 % felt stressed by the lack of appreciation demonstrated by their department chair and only 25 % were satisfied with their salary. Further, women among OB/GYNs seem to be inadequately represented in leadership positions and experience a significant lower promotion rate [20]. Furthermore 73.9 % of American OB/GYNs documented to be "very" or "somewhat" satisfied with their jobs [21].

In this context, studies exploring the workplace situation of OB/GYNs—and of female providers in particular—are lacking. Therefore, we conducted this study with the overall aim to assess the workplace perception for this specialty regarding stress factors as well as overall job satisfaction, collaboration amongst colleagues, social support and negative social climate. Since gender related factors also influence the perception of working conditions, we also wanted to answer the question if gender is a relevant factor concerning the assessment of the physicians' workplace. We focused on female OB/GYNs since they represent the majority of OB/GYNs and therefore findings are more relevant and have greater impact on the overall workplace of OB/GYNs. These data are needed to implement targeted interventions otherwise the field could loose many skilled physicians (especially in terms of full-time equivalents) and could encounter a lack of specialists in the future.

Methods

Study design

This cross-sectional study is based on data collected in the iCEPT Study ($n = 7090$) [22, 23]. We conducted the iCEPT Study (iCEPT: neologism of "perception") from January to February 2013. All participants were recruited among members of the labor union 'Marburger Bund'. The 'Marburger Bund' describes itself as 'the largest organization of physicians practicing in all different specialties with non-mandatory membership in Europe [24] and had 114,179 members in 2013 (including medical students). Only physicians were included in this study. They represented almost exclusively residents and board certified physicians (active and retired) providing hospital-based care. The survey was sent out to the participants via e-mail with a link to the survey. Study data were collected and managed using the online survey tool "2ask" recommended by the Leibniz institute for social science [25]. 2ask is a secure, web-based application designed to support data capture for research studies, providing (1) an intuitive interface for validated data entry; (2) audit trails for tracking data manipulation and export procedures; (3)

automated export procedures for seamless data downloads to common statistical packages.

Survey

For the iCEPT Study, we used an anonymous questionnaire consisting of 20 items and seven scales (Tab.1). The survey was composed of the following preexisting and validated tools: (1) modified "short questionnaire for work assessment" (KFZA) [26, 27], (2) short version of the effort-reward imbalance (ERI) questionnaire [28], (3) "Job Diagnostic Survey" (JDS) [29]. We chose a four-point Likert scale (fully disagree, disagree, agree, fully agree) for the answer mode instead of a five-point Likert scale because of higher reported response rates without any interference with the results [28, 30].

Variables

Participants provided data on demographics and professional status. We collected data in seven defined scales (Table 1), which were tested scales of the above mentioned questionnaires: In the scale "job demands", outcome data such as time pressure, heavy workload, high demands regarding complexity and concentration, work interruptions and physically demanding work were collected. We assessed the scale "control" by asking about control over the work process, the work content and work planning. In the scale "rewards" data were assessed regarding appreciation from supervisor, colleagues and unfair treatment. We measured variables such as heavy competition and burdensome social climate in the scale "social climate", active cooperation and objective feedback in the scale "collaboration" as well as support from colleagues and supervisors and social cohesion in the department in the scale "social support". The item high job satisfaction evaluated the category "overall job satisfaction". By means of these scales a workplace assessment was performed focusing on gender-based differences. All items used in this study comprised of subjective statements and perceptions of the respondents. So no absolute values were measured and conclusions were restricted to relative values.

Table 1 Scales and items (short description) of the questionnaire

Scale	Item
Job demands	QN1: time pressure
	QN2: heavy workload
	QL1: high demands (complexity)
	QL2: high demands (concentration)
	ERI2: many interruptions during work
	ERI5: physically demanding work
Control	HS4: control over work process
	HS5: control over work content
	HS6: control over work planning
Rewards	ERI7: rewards from supervisor
	ERI8: rewards from colleagues
	ERI10: unfair treatment
Social climate	SK1: heavy competition
	SK2: burdensome social climate
Collaboration	ZU2: active cooperation
	ZU3: objective feedback
Social support	SR1: support from colleagues
	SR2: support from supervisor
	SR3: social cohesion in the department
Job satisfaction	JS1: high job satisfaction

Statistical analysis

The statistical analysis of de-identified data was performed with IBM SPSS Statistics Version 22. Besides descriptive analysis the odds ratio (OR) with respective 95 % confidence intervals (95 % CI) were calculated to determine significant differences in the assessed outcomes related to gender. In addition, the Chi-square test was used for testing of significant differences between categorical characteristics.

Results

Of the 114,179 members of the 'Marburger Bund in 2013 (including medical students) only physicians were eligible. Of those, 39,052 were contacted for the purpose of this study. 7090 completed the iCEPT Study survey (response rate of 18.2 %). From the iCEPT database, we extracted data of OB/GYNs ($n = 381$) for this analysis. Overall results are displayed in Table 2.

Demographic characteristics

78.7 % female OB/GYNs participated. The proportion of women was higher than the reported proportion of all female OB/GYNs working in hospitals in Germany in 2013 (61.0 %) but lower than the rate of female physicians getting board certification in 2013 (84.3 %) [13]. In 2013 49 % of the 'Marburger Bund' members were female. For technical reasons, the exact ratio of OB/GYNs within the 'Marburger Bund' could not be obtained. However, the female ratio in the study sample seems to be relatively high. The average sample age was at 38.2 years [width 24–67; standard deviation (SD) 8.6]. In comparison, the average age of physicians working in German hospitals was 41.2 years in 2013 [13]. Basic demographic data are shown in Table 3.

Table 2 Results by item

Item	Total (%) $n = 381$	Female (%) $n = 300$	Male (%) $n = 81$	OR	95 % CI	p value
QN1: time pressure	92.1	94.0[a]	85.2	2.73	1.25–5.92	**0.009**
QN2: heavy workload	79.8	81.0[a]	75.3	1.40	0.78–2.5	0.258
QL1: high demands (complexity)	42.5	46.0[a]	29.6	2.02	1.19–3.43	**0.008**
QL2: high demands (concentration)	37.3	40.0[a]	27.2	1.79	1.04–3.07	**0.046**
ERI2: many interruptions during work	89.8	91.3[a]	84.0	2.02	0.98–4.13	0.052
ERI5: physically demanding work	77.2	79.3[a]	69.1	1.71	0.99–2.96	0.052
HS4: control over work process	37.5	33.3	53.1[a]	2.26	1.36–3.72	**0.001**
HS5: control over work content	26.2	18.7	54.3[a]	5.18	3.06–8.76	**<0.001**
HS6: control over work planning	34.1	30.3	48.1[a]	2.13	1.29–3.52	**0.003**
ERI7: rewards from supervisor	31.5	29.0	40.7[a]	1.68	1.01–2.80	**0.044**
ERI8: rewards from colleagues	66.1	64.3	72.8[a]	1.49	0.86–2.56	0.151
ERI10: unfair treatment	72.4	68.70	86.4[a]	2.90	1.47–5.74	**0.002**
SK1: heavy competition	41.5	43.3[a]	34.6	1.45	0.87–2.42	0.155
SK2: burdensome social climate	34.1	36.0[a]	27.2	1.51	0.88–2.60	0.136
ZU2: active cooperation	81.9	83.3[a]	75.5	1.53	0.84–2.78	0.159
ZU3: objective feedback	27.6	24.3	39.5[a]	2.03	1.21–3.41	**0.007**
SR1: support from colleagues	81.6	82.0[a]	80.2	1.12	0.6–2.09	0.718
SR2: support from supervisor	63.5	63.0	65.4[a]	1.11	0.66–1.86	0.687
SR3: social cohesion in the department	69.8	68.70	74.1[a]	1.30	0.75–2.27	0.347
JS1: high job satisfaction	55.1	51.7	67.9[a]	1.98	1.18–3.32	**0.009**

[a] Reference value for OR

The significance level is $p < 0.05$ (bold entries)

Scale "job demands"

Job demands were perceived as high among OB/GYN's: 92.1 % (95 %CI 89.2–95.3) of respondents stated to work under time pressure, 79.8 % (95 % CI 76.1–84.8) reported a heavy workload and 89.8 % (95 % CI 87.6–93.3) stated to be often interrupted during their work. The demands concerning complexity and concentration were considered as too challenging for 42.5 % (95 % CI 38.1–48.9) and 37.3 % (95 % CI 32.4–42.6) of all respondents respectively. Women rated their job demands higher than their male colleagues: 94.0 % of female OB/GYNs (95 % CI 91.2–97.5) and 85.2 % of male OB/GYNs (95 % CI 77.8–93.1) stated to be under time pressure, which corresponded with an odds ratio of OR = 2.73 (95 % CI 1.25–5.92; $p = 0.009$). Furthermore, women stated more often than men to encounter an excessive demand due to work related complexity (OR = 2.02; 95 % CI 1.19–3.43; $p = 0.008$) as well as due to necessary concentration (OR = 1.79; 95 % CI 1.04–3.07; $p = 0.046$).

No significant gender differences were seen for the item workload (QN2; $p = 0.258$). Gender differences related to occurrence of interruptions and physical demands were marginally significant (for both $p = 0.052$). We display the results of the category "job demands" in Fig. 1.

Table 3 Basic demographic data

	Participants	
	(n)	(%)
Female	300	78.7
Male	81	21.3
Residents	168	44.1
Board certified	213	55.9
<35 years	160	42.0
35–59 years	208	54.6
>59 years	13	3.4

Scale "control"

Influence on work process, work planning and work content is a crucial part analyzing the employees control at work: In general, every third respondent stated to have control over his or her work. In more detail, 37.5 % (95 % CI 33.2–42.3) reported to have control over the work process, 26.2 % (95 % CI 22.1–31.2) stated having control over work content and 34.1 % (95 % CI 29.7–38.9) indicated having control of planning their work.

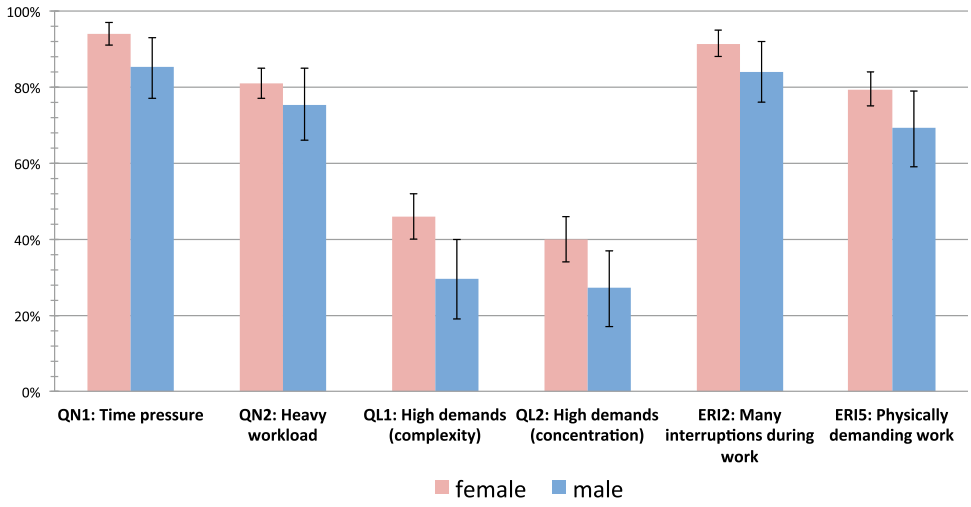

Fig. 1 Agreement of respondents to items of scale "job demands", by gender with 95 % CI

Compared with other scales, the "control" scale showed the most significant gender differences: Every second male physician stated to be in control of work in general, among women every third. In detail this corresponded with a calculated odds ratio of OR = 2.26 (95 % CI 1.36–3.72; $p = 0.001$) for work process, OR = 5.18 (95 % CI 3.06–8.76; $p < 0.001$) for work content and OR = 2.13 (95 % CI 1.29–3.52; $p = 0.003$) for work planning. Figure 2 depicts the results of the category "control".

Scale "rewards"

Independent of gender, colleagues among themselves appreciated each other's work effort more often (66.1 %; 95 % CI 61.2–71.6) than their supervisors (31.5 %; 95 % CI 27.6–36.2). Male OB/GYNs received significantly more often appreciation for their work from their supervisor than female OB/GYNs, with an odds ratio of OR = 1.68 (95 % CI 1.01–2.80; $p = 0.044$). Unfair treatment was experienced by 72.4 % (95 % CI 68.1–76.9) of all respondents. Male OB/GYNs experienced unfair treatment significantly more often than female with an odds ratio of OR = 2.90 (95 % CI 1.47–5.74; $p = 0.002$). We summarize the results of the scale "rewards" in Fig. 2.

Scale "social climate"

The analysis of the scale "social climate" showed no significant gender differences (Item SK1: $p = 0.155$; Item SK2: $p = 0.136$). In general, 41.5 % (95 % CI 37.3–47.1) of all respondents experienced heavy competition in their department. Furthermore, every third respondent (34.1 %; 95 % CI 29.4–39.2) perceived a burdensome social climate.

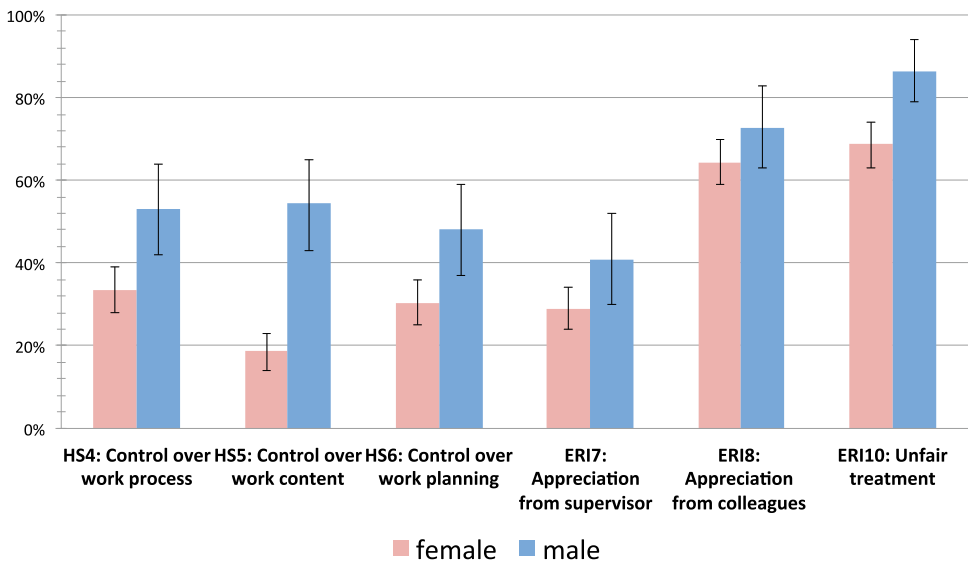

Fig. 2 Agreement of respondents to items of scale "control" and "reward", by gender with 95 % CI

Fig. 3 Agreement of respondents to items of scale "social climate" and "collaboration", by gender with 95 % CI

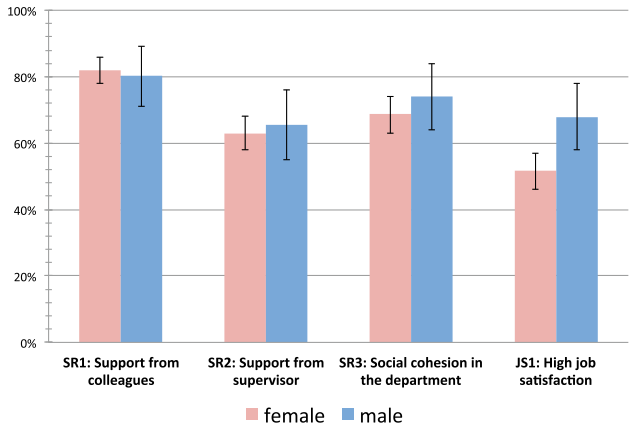

Fig. 4 Agreement of respondents to items of scale "social support" and "job satisfaction", by gender with 95 % CI

Scale "collaboration"

81.9 % (95 % CI 78.2–86.9) of all respondents considered the collaboration amongst members of their department as active and friendly. The consent to this statement showed no significant gender difference ($p = 0.159$).

In total 27.6 % (95 % CI 23.4–32.1) of respondents received qualitative and objective feedback about their work performance. Feedback was received significantly more often by men than by women with an odds ratio of OR = 2.03 (95 % CI 1.21–3.41; $p = 0.007$). The results of the scale "social climate" and "collaboration" are displayed in Fig. 3.

Scale "social support"

In total 81.6 % (95 % CI 78.8–86.5) of all respondents stated to receive support from their colleagues. Support from their supervisors received 63.5 % (95 % CI 59.4–6.87). The social cohesion (colloquial the "team spirit") in their department was judged as "good" by 69.8 % (95 % CI 65.2–74.2) of all respondents.

Male and female OB/GYNs reported a similar perception regarding the social support: this finding applied to the support from colleagues ($p = 0.718$), the support from supervisors ($p = 0.687$) and the perceived social cohesion ($p = 0.347$). Data are shown in Fig. 4.

Scale "job satisfaction"

Among all respondents every second OB/GYNs (55.1 %; 95 % CI 50.4–60.2) stated to be satisfied with his or her job. However, male respondents seemed to be more often satisfied than their female colleagues with a significant odds ratio of OR = 1.98 (95 % CI 1.18–3.32; $p = 0.009$).

Discussion

As a central result, the majority of German OB/GYNs participating in our study reported unfavorable workplace conditions. They described a heavy load of physically demanding work that needed to be executed under time pressure and with workflow interruptions. Most participants stated not being in control over the work they were conducting. Commonly, they felt underappreciated since the majority reported unfair treatment and lacking support by their supervisors. In contrast, the participants were experiencing satisfactory social support, climate and active cooperation amongst their colleagues. This finding is congruent with a study conducted in 35 breast cancer centers in Germany. Here, the OB/GYN's ($n = 348$) rated their social support from colleagues also mainly positive (mean = 2 on a scale from 0 to 3) [9]. However, since our study sample consisted of mainly female OB/GYNs (78.7 %) and gender had a significant influence on the outcome measures, these overall results were likely to have a gender bias. These gender-related differences will be discussed in more detail in the upcoming sections.

We can deduce from our findings that the working environment for German OB/GYNs has to change, otherwise the consequences might be manifold: Taking the data of Keeton et al. [5] into account, we can assume a negative impact of the reported working conditions on physicians' work–life balance. This statement can be supported by the findings of Hancke et al. [6], who sampled 1036 OB/GYNs in German Hospitals. Over 50 % of participants were not satisfied with their current work–life balance. The majority stated to often neglect their social life and families. So family and career were hardly compatible. Also, the study reported that only less than half of participants (41 % of women and 48 % of men) felt appreciated by the head of the department, yet around 70 % felt well respected by

their colleagues. These data align with our findings: While only 32 % of our participants noticed appreciation by their supervisor, 66 % felt well respected by their colleagues. It is concerning that two out of three respondents stated to lack control over working conditions. Multiple studies have shown that "control over schedule and work hours" strongly predicted burnout [5, 19]. Hence, we hypothesize that our participants could be at risk for burnout if exposure to the described working conditions continues without a personal or a system change. In a study among 1301 OB/GYNs in Japan, lack of control, long working hours and heavy workload were also independent risk factors for mental conditions. 8.4 % of the respondents suffered from depression and/or anxiety disorders [31]. Taking into account that a heavy workload was perceived by 80 % of iCEPT participants (81 % of females), and over 60 % of respondents (nearly 70 % of females) stated to lack control over work process, content, and planning, we can deduce that many German OB/GYNs may be at risk for depression and/or anxiety disorders.

High work strain, however, does not necessarily correlate with a low job satisfaction: In the iCEPT Study, 55.1 % of respondents stated to be generally satisfied with their job. Compared to European and international physicians, this is a lower percentage. 81 % of Dutch medical specialists [32] reported to be highly satisfied with their job, and 73.9 % of American OB/GYNs documented to be "very" or "somewhat" satisfied with their jobs [21]. Compared to other specialties, OB/GYNs commonly report more personal accomplishment and career satisfaction than general surgeons [5] but less than primary care physicians [7]. Amongst iCEPT participants, men were statistically more often (67.9 %) satisfied with their job than woman (51.7 %). This is in contrast to the results of Emmons et al. [33], who reported gender did not affect job satisfaction. In their dataset of 248 male and female OB/GYNs from urban, rural and academic practices in the United States, no difference in rating career satisfaction was documented. This difference might be partly due to the lack of division between different subspecialties within OB/GYNs workload in hospitals: patient-centered work environment versus surgery or research as main points, or obstetrics versus oncology and/or reproductive medicine, ambulatory workload versus mere administration or work with stationary patients day by day in rounds.

Also, the practice environment does not seem to influence career satisfaction: In the study by Bell et al. [34] no significant difference was found between OB/GYNs working in an academic versus a private practice setting. More relevant for job satisfaction is the particular branch of work within the specialty: Working in the obstetric branch correlated with lower job satisfaction because of higher workload and less control compared to the gynecology branch [10]. Studies suggest that especially oncological aspects of gynecology are associated with demanding work environments: 35.7 % of OB/GYNs involved in oncological care in Australia suffered from emotional exhaustion [11]. Furthermore 42.9 % were willing to change their occupation while 57.1 % would like to reduce their working hours and 28.6 % favored an early retirement. Similar findings were seen among OB/GYNs in Canada [12]. However, the iCEPT Study did not differentiate between the subspecialties within the specialty of OB/GYNs. Further investigation is needed to fully understand the impact of sub-specialization on the workplace perception.

We want to point out that the "control" scale of the iCEPT Study was also the scale with the most significant gender differences with an odds ratio up to OR = 5.18 (95 % CI 3.06–8.76; $p < 0.001$) for "control over work content". Since employees' control in the workplace is a strong predictor for burnout and work-life balance we can deduce that female OB/GYNs are at particular risk for negative impacts on their life, wellness and health. This corresponds with the findings that female physicians have a 60 % higher burnout rate compared to their male peers [18] and almost 50 % female OB/GYNs in Germany stated the preference to work less than they currently do [6]. In addition to females perceiving more lack of control over work than men, we documented significant gender differences between the perceptions of job demands (e.g., time pressure, workload and complexity). On the other hand, more men than woman experienced unfair treatment. At the same time, women reported to receive less often objective feedback.

Gender differences of workplace perception have already led to an unbalanced gender ratio among employees with female OB/GYNs being in majority. According to Buddeberg-Fischer et al. [35] the consequence of an unbalanced gender ratio is "horizontal segregation" meaning gender differences could lead to female physicians working exclusively in patient-centered work environments, whereas male physicians cover the surgical and research field. We want to underscore that it is important to be aware of existing gender differences in workplace perception in order to sustain a gender balanced diversity in the field of OB/GYNs in Germany. Since female OB/GYNs have been shown [6] to work significantly more often part-time, less overtime and would prefer to work less than male providers did, the specialty of OB/GYNs has to put special focus on improving working conditions compared to other specialties. Otherwise the already occurring withdrawal of OB/GYNs (especially female) from the workplace will proceed [6].

The role of the physicians' gender is also very important for patient satisfaction [33]. Studies have shown that

35–57 % of female patients prefer female OB/GYNs [36, 37] and furthermore these patients are more satisfied if treated by female OB/GYNs [38]. This gets even more obvious if religious aspects are taken into account (e.g., Muslim patients [39]). Therefore, we have to be aware that any imbalances regarding the gender distribution amongst providers in OB/GYN could also have an impact on care and satisfaction of patients.

As stated at the beginning of the discussion, gender had a significant influence on our outcome measures: Female OB/GYNs perceived (1) more time pressure (2) higher demands, (3) less control, (4) less rewards, (5) less objective feedback and (6) less unfair treatment. Except for the latter, all other aspects are associated with a negative working environment. Therefore, the overall results had tendencies towards a more negative workplace evaluation due to a greater ratio of female OB/GYNs comprising our study sample (78.8 %) compared to the reference ratio among OB/GYNs in Germany in 2013 (61.0 %). However, since the number of female medical students is rising, more female OB/GYNs are likely to occur and therefore our results—despite maybe overrating nowadays perception of working conditions—could be seen as challenging prospects for the field of OB/GYNs.

Interventions are needed to increase work-life balance and decrease the risk of physician burnout. Since provider dissatisfaction have been long time proven to correlate with high job turnover [40], patient dissatisfaction [41] and patient non-compliance [7, 42], the improvement of job satisfaction amongst German OB/GYNs should also be focused on. Taking our data into account, interventions should target reducing quantitative (e.g., work load and time pressure) as well as qualitative work demands while increasing work control. We could deduce that the most suitable parameter for increasing work control would be control over work planning. This could be achieved by ensuring a greater flexibility and predictability of schedules [5] or by a more active involvement of physicians in the scheduling process. Also, supervisors and department chairs should be aware of their important role. By providing their employees with feedback and rewards they can make a significant positive difference in the perception of the workplace and contribute to job satisfaction.

Limitations

The iCEPT Study focused on the subjective perception of workplace conditions. We did not collect objective data such as actual hours worked per week or departmental patient capacity that could be used to compare individual perceptions to actual work requirements aiming to objectify our results. The response rate of 18.2 % must be considered relatively low compared to other online surveys [43]. However, online surveys among physicians reported similar low response rates such as Henry et al. with a response rate of 20 % [44]. This could be explained by the fact that participants (1) were approached only once, (2) had expired or wrong e-mail addresses and (3) file or spam filters were activated. Also, a 'self' selection-bias cannot be ruled out and therefore it is likely that more physicians with a negative perception of their work environment decided to take part in this study. The relative high proportion of female physicians compared to national statistics must be seen as a limitation too. The manner of recruitment (receiving an e-mail, clicking on the provided link and answering an online questionnaire) should not have created a gender bias, since fulfilling the technical and/or personal requirements should be considered independent of gender. In addition, the relatively high ratio of females in combination with the low response rate further amplifies the limitation of this study by decreasing the representative status. Since the questionnaire was dependent on self-reported variables, a response-bias cannot be excluded. Further, we assume that physicians who joined the labor union "Marburger Bund" are more conscious of their rights as employees than average. This might have established a more critical view regarding their working conditions. Also, we did not distinguish half- and fulltime working physicians or if providers were working mostly in gynecology, oncology or obstetrics.

Conclusions

In general, German OB/GYNs do not seem satisfied with their hospital working environment. Also, our gender-based sub-analysis has shown a differing gender depended perception of specific workplace characteristics. Although this did not apply to the perception of social aspects (which could be interpreted as a gender-independent social workplace perception), we need to implement new flexible practice models that promote satisfaction and avoid burnout. The focus of interventions should include a reduction of quantitative (e.g., work load and time pressure) as well as qualitative work demands. At the same time control over work should be increased. We can deduce that the most suitable parameter for increasing work control would be control over work planning. Since satisfaction of physicians and quality of care go hand in hand, improving work conditions for OB/GYNs will translate into safer and better patient care in the future.

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Compliance with ethical standards

Ethical approval This study was approved by the local ethics committee.

Informed consent Informed consent was provided by participation.

Conflict of interest The authors declare that they have no competing interests. JB has full control of all primary data.

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