

# Exploring Undergraduate Medical Students' Perceptions and Career Choices in Obstetrics and Gynecology

## Erforschung der Wahrnehmungen und Berufswünsche von Studierenden der Medizin in Bezug auf Geburtshilfe und Gynäkologie



### Authors

Lina Duhm<sup>1†</sup>, Agnes Wittek<sup>1†</sup>, Ruben Plöger<sup>1</sup>, Nicolas Haverkamp<sup>2</sup>, Milka Marinova<sup>3</sup>, Brigitte Strizek<sup>1</sup>, Florian Recker<sup>1</sup> 

### Affiliations

- 1 Department of Obstetrics and Prenatal Medicine, University Hospital of Bonn, Bonn, Germany
- 2 Office of the Dean of Studies, Faculty of Medicine Bonn, Rhenish-Friedrich-Wilhelms-University Bonn, Bonn, Germany
- 3 Department of Nuclear Medicine, University Hospital Bonn, Bonn, Germany

### Correspondence

Florian Recker, MD, MME  
Department of Obstetrics and Prenatal Medicine  
University Hospital of Bonn  
Venusberg Campus 1  
53 127 Bonn, Germany  
florian.recker@ukbonn.de

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### ABSTRACT

#### Introduction

There is a global shortage of obstetricians and gynecologists (OB/GYN), raising concerns about patient care and workforce sustainability. Germany faces a particularly acute shortage, exacerbated by the impending retirement of many senior consultants. This study explores the career perceptions of graduate-entry medical students at the University of Bonn, focusing on their attitudes toward a career in OB/GYN.

#### Methods

A cohort of fifth year medical students (n = 213) participated in this study. Surveys were administered directly via QR codes at two points in the 10th semester: pre-rotation (pre-clerkship) and post-rotation, at the time of the OSCE (OSCE = objective structured clinical examination) in OB/GYN. The questionnaires assessed multiple dimensions of students' career preferences, understanding of the specialty, and the impact of clinical exposure on their perceptions. Statistical analyses, including McNemar's test, were performed to evaluate changes in students' perspectives.

#### Results

The findings revealed that prior to clinical exposure, only 32% of students expressed interest in a career in OB/GYN. After completing the rotation, this interest remained unchanged. Notably, concerns about night shifts increased sig-

† These authors contributed equally.

nificantly post-rotation, with 75% of students citing it as a key deterrent. Furthermore, financial considerations gained importance, with 54% of students highlighting future income as a critical factor post-rotation compared to 43% pre-rotation. Despite improved understanding of OB/GYN following hands-on experience, concerns about workload and stress persisted.

### Discussion

While clinical exposure increased students' knowledge of OB/GYN, it did not significantly affect their interest in the specialty, likely due to concerns about work-life balance and the demanding nature of the field. The study underscores the need for reforms in OB/GYN training and practice environments to address these deterrents and improve recruitment into this essential specialty.

## ZUSAMMENFASSUNG

### Einleitung

Es gibt einen weltweiten Mangel an Geburtshelfer\*innen und Gynäkolog\*innen (OB/GYN), was Anlass zur Sorge über die künftige Patientinnenversorgung und personelle Nachhaltigkeit gibt. Deutschland steht vor einem besonders akuten Mangel, der durch die bevorstehende Pensionierung vieler Chefärzt\*innen noch verstärkt wird. In dieser Studie wurden die Berufsvorstellungen von Medizinstudent\*innen im Hauptstudium an der Universität Bonn untersucht, wobei der besondere Schwerpunkt auf den Einstellungen gegenüber einer medizinischen Laufbahn im Fachgebiet OB/GYN lag.

### Methoden

An der Studie nahm eine Kohorte von Studierenden der Medizin im 5. Studienjahr (n = 213) teil. Die Umfragen wurden direkt mithilfe von QR-Codes an 2 verschiedenen Zeitpunk-

ten im 10. Semester durchgeführt: vor der klinischen Rotation und nach der klinischen Rotation zum Zeitpunkt der OSCE (OSCE = Objective Structured Clinical Examination). Die Fragebogen untersuchten mehrere Aspekte der Berufswünsche der Studierenden, darunter auch ihr Verständnis vom Fachgebiet sowie die Auswirkungen der klinischen Praxiserfahrung auf ihre Perzeption des Fachgebiets. Statistische Analysen einschließlich McNemar-Tests wurden durchgeführt, um Änderungen in den Perspektiven der Studierenden auszuwerten.

### Ergebnisse

Die Ergebnisse zeigen, dass vor der praktischen klinischen Erfahrung nur 32% der Studierenden Interesse an einer Karriere im Fachgebiet OB/GYN bekundeten. Nach Beendigung der klinischen Rotation blieb das Interessenniveau gleich. Auffallend war, dass nach der Rotation Bedenken hinsichtlich der Nachtschichten signifikant zugenommen hatten, und dass 75% der Studierenden sie als ein wichtiges Abschreckungsmittel nannten. Hinzu kam noch, dass finanzielle Erwägungen an Bedeutung gewannen. Nach der Rotation gaben 54% der Studierenden an, dass das zukünftige Einkommen ein kritischer Faktor für sie sei verglichen mit 43% vor der Rotation. Trotz des besseren Verständnisses von OB/GYN nach der Praxiserfahrung blieben die Bedenken über Arbeitsbelastung und Stress bestehen.

### Diskussion

Während die praktische klinische Erfahrung das Wissen der Studierenden über das Fachgebiet OB/GYN vergrößerte, hat die praktische Erfahrung das Interesse an dem Fachgebiet nicht maßgeblich beeinflusst, wahrscheinlich wegen den Bedenken hinsichtlich der Vereinbarkeit von Arbeit und Familie sowie den anspruchsvollen Anforderungen des Fachgebiets. Die Studie unterstreicht die Notwendigkeit für Reformen beim OB/GYN-Training und in der Praxis, um gegen solche negativen Perzeptionen vorzugehen und die Rekrutierung neuer Fachärzt\*innen für dieses wichtige medizinische Fachgebiet zu verbessern.

## Introduction

Challenges in identifying adequately trained obstetricians and gynecologists have been documented globally, including in the United States, Oman, and Saudi Arabia. Inadequate staffing can lead to overworked personnel, endangering women and their infants. Mahha et al. [1] identified this as a significant factor contributing to poorer patient outcomes, including maternal and neonatal mortality. The issue of staffing shortages is a multifaceted problem that has ramifications not only for the immediate availability of medical care but also for the long-term sustainability of healthcare systems. Overworked staff are more prone to errors,

burnout, and reduced job satisfaction, which can further exacerbate the shortage as more professionals leave the field.

In Germany, the shortage of properly trained consultant obstetricians and gynecologists [2] has been recognized for many years [3]. For example, the ratio in Germany is comparable to Ireland's 3.6 per 100 000, significantly lower than in other developed countries such as England (4.6), Scotland (4.7), Australia (6.6), and New Zealand (6.2) [4]. This low ratio is a concern because it suggests that Germany may not be able to meet the demand for obstetric and gynecological services, leading to longer wait times and potentially poorer outcomes for patients.

In Germany, there is a significant shortage of inpatient doctors, including in the field of obstetrics and gynecology. This shortage, particularly in hospital settings, leads to increased workloads, longer shifts, and greater stress for existing staff, which can negatively impact the quality of care provided during high-risk deliveries and emergencies. As Schmidt and Gresser note, this lack of staffing in inpatient care settings exacerbates the challenges faced by obstetricians and gynecologists, further straining an already overburdened healthcare system.

Currently, 40% of consultants in this specialty in Germany are aged 55 years or older. This demographic trend suggests that without a substantial increase in the number of new trainees entering the field, the shortage will worsen in the near future. Projections for consultant needs up until 2028 and the necessary training pipeline suggest that a 50% increase in the current number of obstetricians and gynecologists will be required to meet anticipated demand. Meeting this demand will require significant investment in medical education and training programs, as well as efforts to make the specialty more attractive to medical students.

Retention also poses a significant challenge. A survey revealed that 71.5% of doctors in training for obstetrics and gynecology (OB/GYN) had considered leaving the specialty. This high level of attrition indicates that there are underlying issues within the training programs and the work environment that need to be addressed. Factors such as workload, work-life balance, and job satisfaction are critical to retaining professionals in this field.

In the UK, the Centre for Workforce Intelligence reported a 53% increase in the consultant workforce between 2003 and 2013. Despite this growth, a 2017 report indicated that “88% of obstetric units experienced difficulties in filling middle-grade rotas” [5, 6]. More recently, Ismail and Kevelighan [7] described the specialty as facing a “recruitment crisis,” with fewer than 1 in 30 medical school graduates choosing obstetrics and gynecology as their first career choice. These figures suggest that while there has been some progress in increasing the workforce, the recruitment pipeline remains insufficient to meet ongoing demands.

Thus, recruitment remains a critical issue for the profession in various jurisdictions, not least because of patient safety concerns. The attractiveness of the specialty to graduates and the availability of training programs are crucial. Research indicates that the number of individuals pursuing careers in obstetrics and gynecology is low both nationally and internationally. This is a concerning trend, as it suggests that without intervention, the shortage of qualified professionals will continue to grow.

Beyond recruitment challenges, a recent study by the Royal College of Obstetricians and Gynecologists highlighted concerns about high attrition rates from training programs and early retirement or departure from practice by specialists [8]. High attrition rates suggest that there are significant challenges within the training programs that are causing trainees to leave. These could include issues such as inadequate support, high stress levels, and lack of career development opportunities.

Given this backdrop, this study aimed to explore for the first time the perspectives of graduate-entry medical students in Germany on choosing obstetrics and gynecology as a career and the factors influencing their decision-making process. Understanding the views of medical students is critical to developing effective

strategies to attract and retain future professionals in this essential field. By addressing the issues that deter students from choosing obstetrics and gynecology, and by improving the training and working conditions for those who do, it is possible to build a more robust and sustainable workforce.

## Methods

This study explores the perceptions of obstetrics and gynecology (OB/GYN) among graduate-entry medical students at the end of their clinical training in Germany. Unlike traditional programs that combine undergraduate and graduate pathways, graduate-entry students bring prior academic experience and focused career aspirations, particularly as they approach the Practical Year, a key stage of hands-on clinical experience. The research aims to uncover factors that influence these students' specialty choices, locating their views within the broader context of German-speaking medical schools, where OB/GYN is often covered later in training. By focusing on students nearing completion of their studies, this study provides insights into how advanced clinical exposure shapes career considerations in OB/GYN, adding to our understanding of specialty preferences among German medical students.

### Educational context

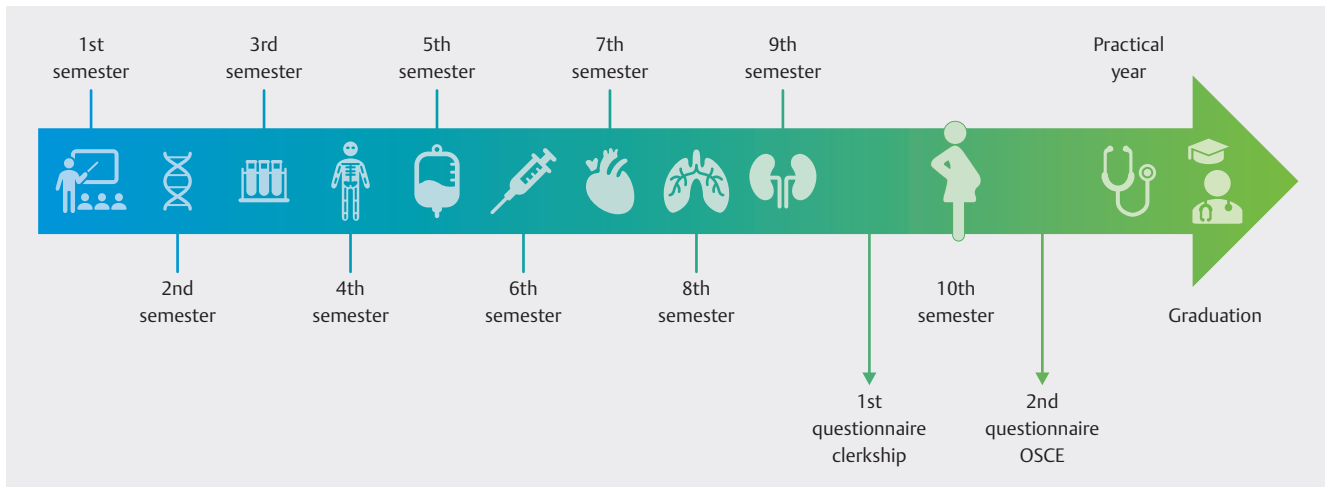
At the University of Bonn, final-year medical students are required to undertake an intensive one-week teaching rotation in obstetrics and gynecology at University Hospital Bonn. This hospital serves as the primary provider of obstetric, midwifery, and neonatology services in the region and plays a crucial role in the training of future medical professionals. In 2021, University Hospital Bonn recorded 3030 live births, highlighting its significant contribution to regional healthcare. Specialization in obstetrics and/or gynecology in Germany necessitates comprehensive training in both fields, reflecting the dual focus of the specialty.

### Participants

The study involved all fifth-year graduate-entry medical students at the University of Bonn (n = 213, 65% female). These students were personally invited to participate in the study at two distinct time points: the first day of their rotation (clerkship) and at the end of the term, after completing their rotation and their OSCE in obstetrics and gynecology at University Hospital Bonn (► **Fig. 1**). They were given a QR code to the digital surveys on the platform Evasy, which is frequently used for various evaluations to improve the medical education at the University of Bonn. Moreover, not participating in the study did not lead to any disadvantages. This longitudinal approach aimed to capture any changes in perceptions and attitudes resulting from the hands-on rotation experience.

### Measures

Researchers (residents, medical students, and data analysts) at the University of Bonn developed two digital surveys specifically for this study: a 12-item pre-rotation questionnaire and a 17-item post-rotation questionnaire.



► **Fig. 1** Timeline of the medical school at the University of Bonn. Questionnaires were handed out during the 10th semester, when the clinical rotations include Obstetrics and Gynecology. The icons used in this figure are symbolic and do not represent the accurate content of each semester.

The questionnaire consists mostly of dichotomous (yes/no) questions that assess various factors influencing career choices, such as interest in OB/GYN, work-life balance, future income, and family compatibility. There are also multiple-choice questions on preferred subspecialties, positive and negative attributes of the specialty, and one rating scale question where students evaluate the educational value of their clerkship on a scale from one to ten.

The first questionnaire was administered before they commenced their clinical clerkship and the second after completion of their Objective Structured Clinical Examination (OSCE). The interval between these two surveys ranged from 2 to 10 weeks.

The OB/GYN clerkship at the University of Bonn is a one-week, full-time course designed to provide students with a comprehensive overview of the specialty. While the schedule varies depending on the subspecialties each student encounters, the goal is to ensure exposure to essential aspects of obstetrics and gynecology. It is a priority for the attending doctors to ensure that every student has the opportunity to observe a delivery, engage in basic gynecological care, participate in oncology-related tasks, and witness prenatal scans. Students spend their days at the hospital from 7 a.m. to 2 p.m., attending lectures on reproductive medicine, attending natural childbirth, and familiarizing themselves with the German system of tracking gestational development through a booklet that includes prenatal exams, vaccinations, and maternal vitals, while also learning vaginal examination techniques as part of their clinical training.

The design of these surveys was informed by existing literature and some previously validated questions, given the lack of pre-existing surveys addressing the specific domains of interest at the time. The surveys covered a range of topics, including demographic information, views on a career in obstetrics and gynecology, perceived merits and demerits of the specialties, and the impact of regulatory and medico-legal cultures on career choices. To ensure consistency and enable comparison, both surveys were broadly similar. However, four additional questions were added to the post-rotation survey to capture the full breadth of the place-

ment experience. By exploring the views of graduate-entry medical students at the University of Bonn regarding a career in obstetrics and gynecology, this study seeks to identify key factors influencing their career choices and to understand how an intensive rotation might impact their perceptions and aspirations in this vital medical specialty.

### Ethical approval

Ethical approval for this study was obtained from the Faculty of Medicine Research Ethics Committee at the University of Bonn (EP 309/23). To maintain confidentiality and integrity, a gatekeeper was employed to distribute, collect, and anonymize any identifying data before the researchers involved in supervision and grading accessed it. This process ensured that the study adhered to ethical standards and protected participant anonymity.

### Statistical analysis

Categorical variables are summarized using counts and percentages. Numeric data were tested for normality and the median (range) was used for non-normal distributions. McNemar's test was employed to test for differences in paired nominal data pre- and post-rotation. To compare the answers of clerkship and OSCE students, we performed Chi-square tests to explore statistical significance. To determine the statistical relevance of significant comparisons, effect sizes were calculated in terms of the phi coefficient ( $\phi$ ) [9]. A 5% level of significance was used for all statistical tests with no adjustment for multiple testing. All analyses were conducted using SPSS for Windows Version 25.

### Results

A total of 407 students participated in the study, with the number of clerkship ( $n = 194$ ) and OSCE ( $n = 213$ ) students added together. Responses were analyzed for statistical significance to identify both trends and shifts in attitudes toward OB/GYN as a specialty. Due to varying response rates across different questionnaire items,

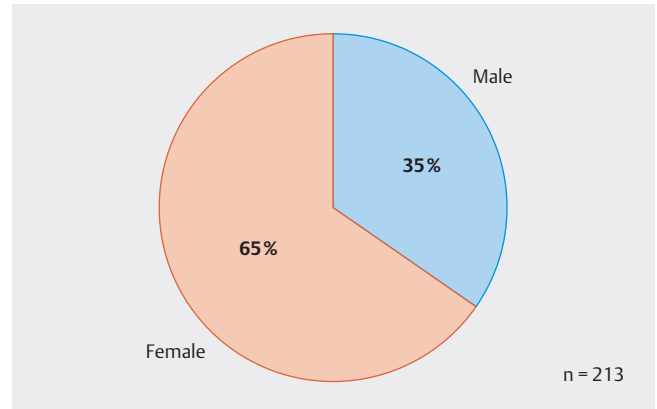
the total number of participants (n) may differ slightly for each question. Of the OSCE participants, 65% were female (133 out of 204), with a median age of 25 years, an average age of 26.1 years (SD = +/- 3.83), and an age range from 21 to 42 years (► Fig. 2 and ► Fig. 3). Despite this variation in age and gender distribution, no significant differences were observed in career decisions based on these factors.

### Night shifts in OB/GYN

A prominent theme that emerged from the study was the influence of night shifts on career decisions. In the pre-clerkship questionnaire, 122 out of 195 students (62%) reported that the frequency of night shifts was a significant consideration in their choice of a medical specialty. Interestingly, this concern became more pronounced following the students' OSCE, with 160 out of 212 respondents (75%) indicating that night shifts played a crucial role in their specialty selection ( $p < 0.01$ ;  $\phi = 0.140$ ) (► Fig. 4). The increase in concerns about night shifts following the OSCE suggests that direct clinical exposure, which typically includes practical experience in hospital settings, may amplify students' awareness of the realities of working in specialties like OB/GYN.

### Influence of future income on career choice

The second key finding from the study was the role of future income in career decision-making. In the pre-clerkship questionnaire, 84 out of 195 students (43%) reported that future income was a decisive factor in their choice of a medical specialty (► Fig. 5). Following the OSCE, this percentage increased to 115

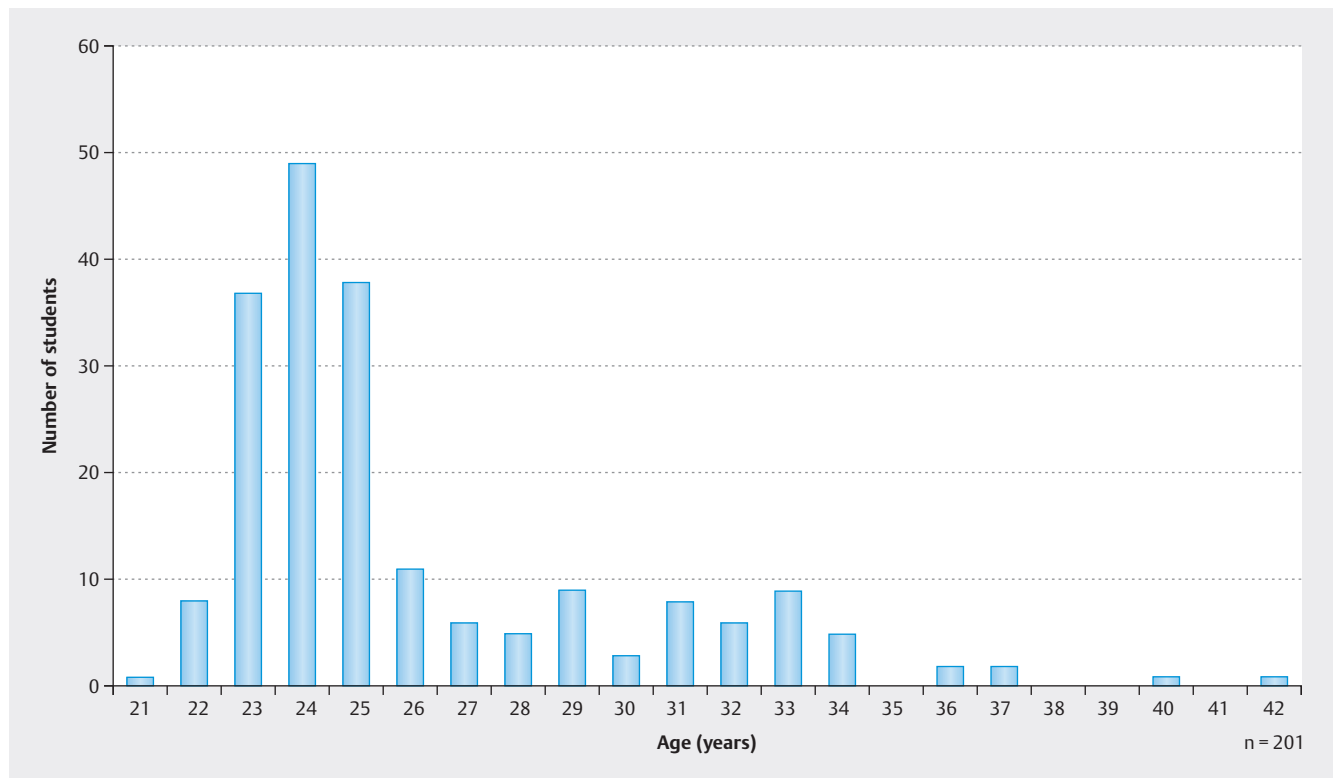


► Fig. 2 Gender distribution at the time of the OSCE (65% identifying as female; 35% identifying as male).

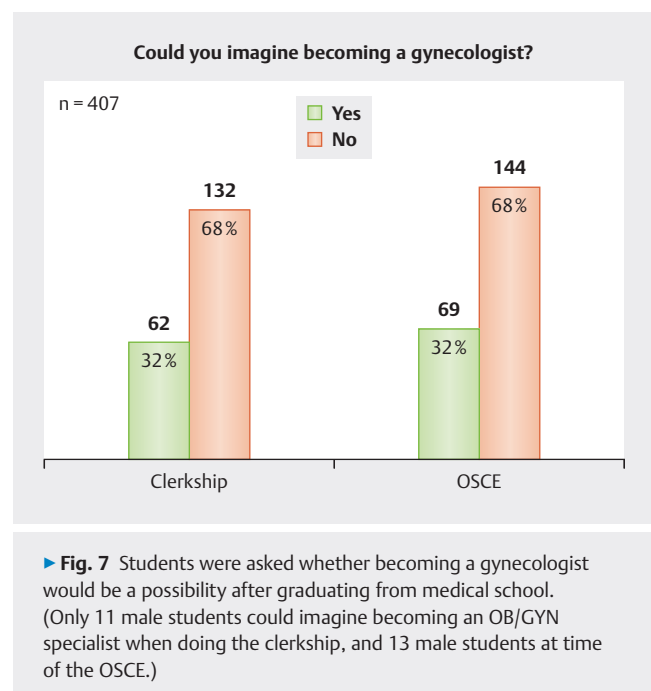
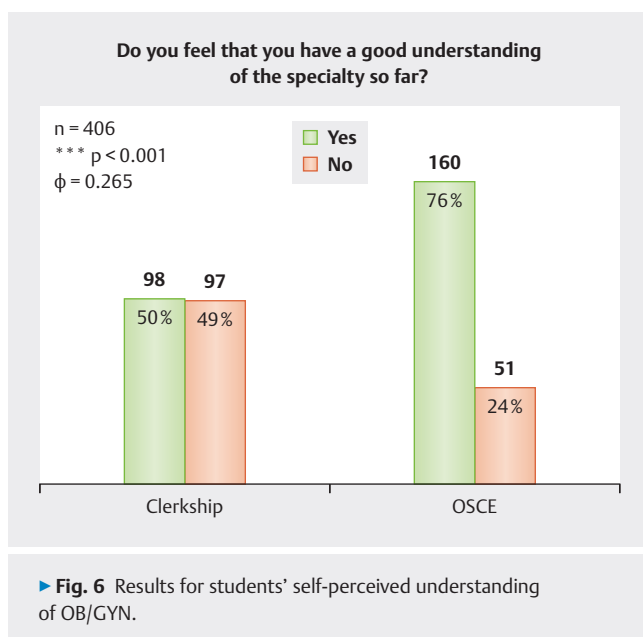
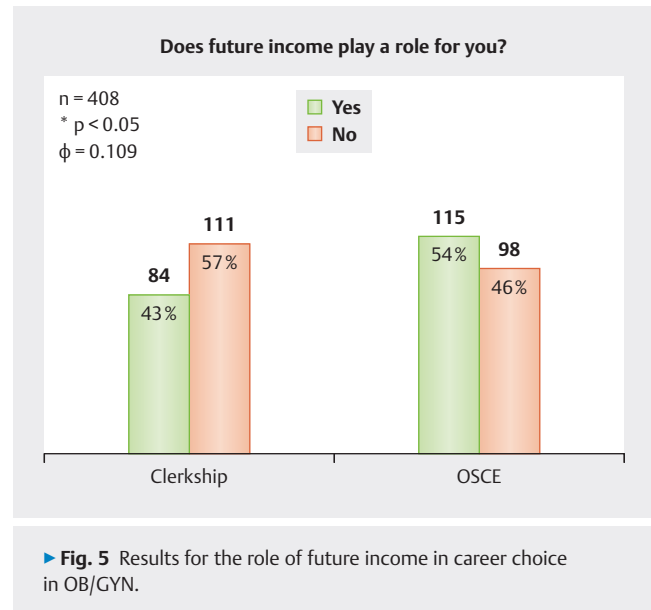
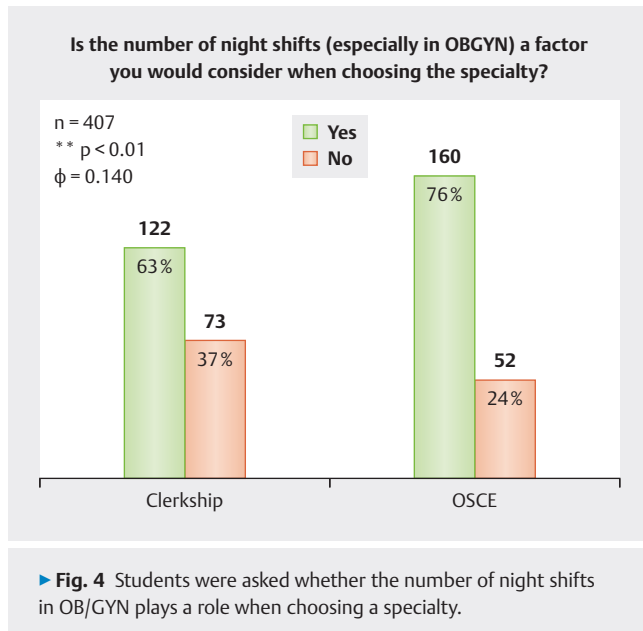
out of 211 respondents (54%). This increase was statistically relevant ( $p < 0.05$ ;  $\phi = 0.109$ ).

### Students' self-perceived understanding of the OB/GYN specialty

Another significant finding related to students' self-perceived understanding of the OB/GYN specialty. In the initial survey, administered before the clerkship, only 98 out of 195 respondents (50%) felt that they had a good understanding of what OB/GYN entails. This indicates that many students began their clinical rotations



► Fig. 3 Students' age at time of the OSCE (median of 25 years; average of 26.1 years. Ages ranged from 21 to 42).



with limited knowledge of the specialty, a common issue given the broad scope of medical education and the diverse array of specialties students are exposed to during their training. However, after completing the OSCE, this number increased substantially to 160 out of 211 respondents (76%) with a high level of statistical relevance ( $p < 0.001$ ;  $\phi = 0.265$ ) (► **Fig. 6**).

### Interest in pursuing a career in OB/GYN

In the initial questionnaire, 62 out of 195 respondents (32%) indicated that they could imagine pursuing a career in OB/GYN. After the OSCE, this figure remained largely unchanged, with 69 out of 213 respondents (32%) indicating a similar interest. This suggests that while the clerkship and OSCE experience improved students' understanding of the specialty, it did not significantly influence their overall interest in pursuing it as a career (► **Fig. 7**).

Furthermore, only 23 out of 194 respondents (12%) in the first questionnaire, and 24 out of 213 respondents (11%) in the second indicated that they were specifically interested in pursuing a career in OB/GYN (► Fig. 8).

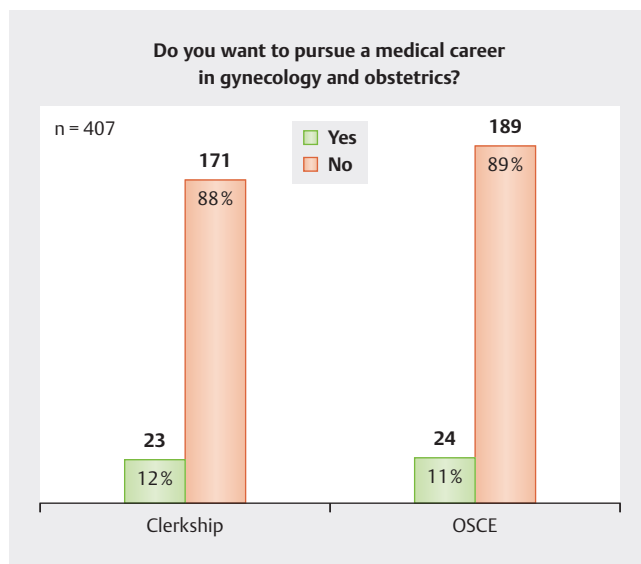
### Positive and negative perceptions of OB/GYN

In the second questionnaire, administered after the OSCE, students were asked to evaluate both the positive and the negative aspects of the OB/GYN specialty (► Fig. 9). Multiple selections were allowed, enabling respondents to provide a comprehensive view of their perceptions. For the positive aspects, 75% of students rated OB/GYN as “interesting,” indicating a high level of engagement with the specialty. Additionally, 55% of respondents found OB/GYN to be “fulfilling,” reflecting the perceived rewarding nature of the field. Other positive attributes included “exciting” (45%) and “demanding” (37%), with 54% highlighting the “wide variety of diseases” that OB/GYN encompasses.

For the negative aspects, 72% of students indicated that OB/GYN involved “working hours that were too long,” while 61% perceived the specialty as “too stressful.” Other concerns included the specialty being “too demanding” (37%), having “too much responsibility” (41%), and being “not family-friendly” (11%).

### Students’ interests in OB/GYN subspecialties

In addition to these findings, the questionnaire also assessed students’ interest in specific OB/GYN subspecialties. The most favored subspecialty was Obstetrics (44%), with the largest percentage of respondents expressing an interest in this field (► Fig. 10). Reproductive Medicine (29%) followed, while Surgical Gynecology and Gynecologic Oncology also attracted a notable portion of students (18% each). Other subspecialties, such as Basic Medical Care, Endocrinology, Senology, and Urogynecology, received lower levels of interest.

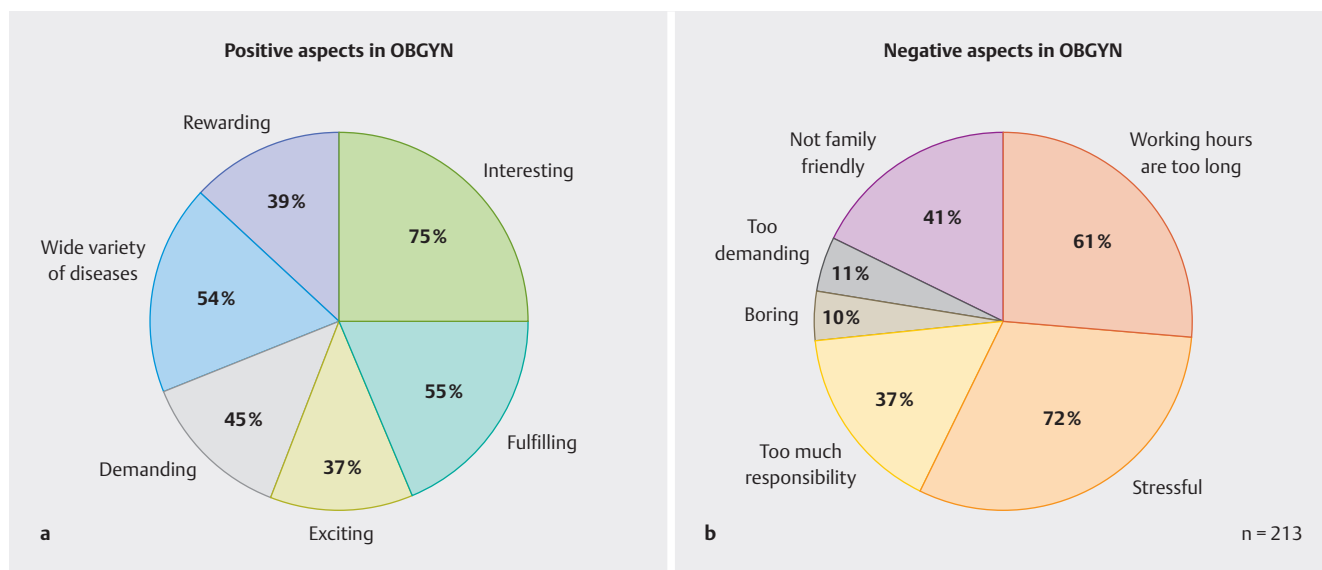


► Fig. 8 Students were asked whether they were determined to pursue a career in OB/GYN after medical school. (Only one male student was set on becoming an OB/GYN specialist when doing the clerkship, and three male students at time of the OSCE.)

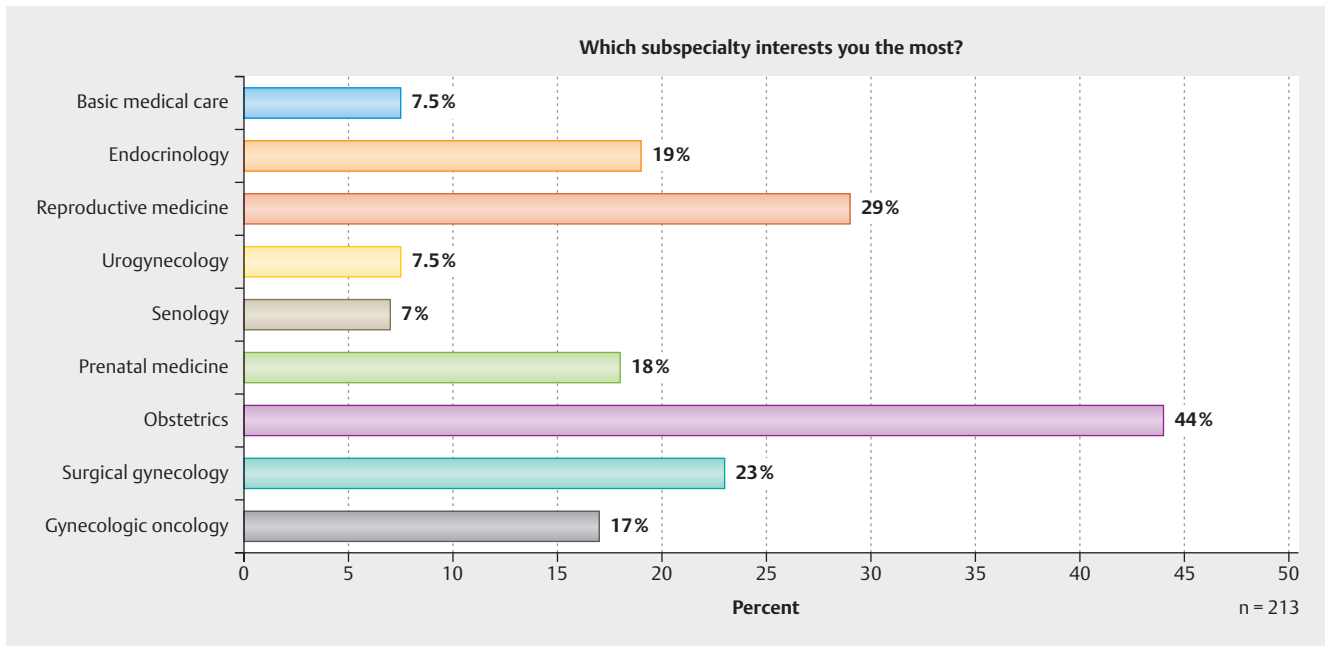
### Discussion

In this study, we aimed to explore the perspectives, preferences, and decision-making processes of 10th-semester medical students at the University of Bonn regarding their potential career paths in Obstetrics and Gynecology (OB/GYN).

Using a longitudinal design involving pre- and post-clerkship questionnaires, we identified key factors influencing students’ decision-making processes, including work-life balance, self-perceived understanding of the specialty, financial considerations,



► Fig. 9 Students were asked what positive and negative aspects they associate with the subject of OB/GYN. Multiple selections were possible.



► **Fig. 10** Students were asked to specify which subspecialties interested them most in OB/GYN. Multiple answers were allowed.

and the perceived workload associated with OB/GYN. The findings of this study contribute to the ongoing conversation about the recruitment and retention challenges facing the OB/GYN workforce, a critical issue both in Germany and globally.

### The role of night shifts in career decision-making

One of the most significant findings of this study was the pronounced influence of night shifts on students' decisions regarding a career in OB/GYN. Both before and after the clerkship, students overwhelmingly cited the frequency of night shifts as a deterrent, with the proportion of students indicating concern increasing post-OSCE. This mirrors findings from previous research indicating that medical students tend to avoid specialties with high demands for after-hours work. For example, a study conducted in the UK reported that night shifts, as well as weekend and on-call duties, were key factors driving students away from OB/GYN and other high-intensity specialties like surgery. This reflects the fact that night shifts are often associated with work-life balance challenges and can be a deterrent for students when considering fields like OB/GYN, which are known for their demanding schedules, including frequent night and weekend shifts.

The increase in concern about night shifts following clinical exposure suggests that hands-on experience in OB/GYN during clerkships reinforces these pre-existing apprehensions [10]. Anecdotal accounts from instructors and residents, who often appear fatigued due to the demanding schedule, may exacerbate these concerns. The visible exhaustion of medical professionals working long hours, including night shifts, is a powerful disincentive for students considering this specialty. Recent literature supports the notion that early and sustained exposure to such demanding working conditions can negatively affect students' perceptions of certain specialties.

Moreover, this issue is not unique to OB/GYN. In many high-intensity medical fields, such as Emergency Medicine and Surgery, night shifts and irregular hours are known contributors to burnout, job dissatisfaction, and attrition from training programs. Addressing these concerns by exploring alternative scheduling models, such as more flexible shift patterns or increased support during on-call hours, may improve the attractiveness of OB/GYN and related specialties to new graduates.

### Influence of future income on career choice

Another important finding from our study is the increasing emphasis on future income in students' specialty selection following their OSCE. Initially, 43% of students identified income as a major factor in their decision-making, but this figure rose to 54% after the OSCE, indicating that financial security becomes a more significant consideration as students approach the end of their education and focus on their professional futures.

The growing importance of income in specialty choice has been noted in previous research, particularly in countries where the cost of medical education is high. A 2020 study in the United States, for example, found that income potential and debt repayment were key concerns for students when choosing a specialty. In the context of OB/GYN, although the field offers competitive salaries, the demanding workload and emotional strain may make the compensation seem insufficient [11], contributing to why income becomes a more crucial factor as students gain deeper insights into the challenges of the specialty.

This shift in priorities likely reflects the increased exposure to real-world medical practice that occurs during clinical training. Through clerkships and conversations with residents and attending physicians, students gain a clearer understanding of the demands and responsibilities of different specialties. As a result, they



may begin to weigh up the financial rewards and long-term stability offered by various fields more carefully. In a specialty like OB/GYN, which involves significant responsibility and demanding hours, the potential for higher income can serve as an important motivating factor to offset these challenges.

This finding underscores the evolving role of financial considerations in career decision-making and highlights the need for early discussions in medical education about the financial realities of different specialties. Preparing students to make informed choices regarding both the professional and financial aspects of their future careers is essential for their long-term satisfaction and success.

### Students' self-perceived understanding of the OB/GYN specialty

A third significant finding was the marked improvement in students' self-perceived understanding of the OB/GYN specialty following their clerkship and OSCE. This increase in perceived understanding aligns with existing literature [12], suggesting that practical, hands-on experiences are critical in shaping medical students' knowledge and perceptions of various specialties.

The OSCE provides a structured, hands-on evaluation of clinical skills and knowledge, and this increase suggests that the combination of the clerkship and the OSCE played a significant role in improving students' understanding of OB/GYN. The clerkship allows students to interact with both patients and healthcare professionals in a real-world setting, while the OSCE offers a formalized assessment of their clinical competencies [13]. Together, these experiences appear to have enhanced students' confidence in their knowledge of OB/GYN, making them better equipped to consider the specialty as a potential career path. This finding underscores the importance of practical, hands-on experiences in shaping students' perceptions of various medical specialties, suggesting that exposure to clinical practice is essential for informed career decision-making.

### Interest in pursuing a career in OB/GYN

However, despite this increase in knowledge, students' interest in pursuing a career in OB/GYN did not rise significantly, with only a relatively small number expressing a genuine desire to follow this path. This suggests that while the understanding of the specialty grew, other concerns – particularly those related to work-life balance, stress, and the demanding nature of the job – continue to be more influential in students' career decision-making processes. Similar findings were reported in a study by Adams et al., which showed that while students' appreciation of OB/GYN's complexity and scope increased following clinical rotations, their interest in the specialty did not change significantly, due in large part to concerns about workload. An interesting thought, especially regarding male students' lack of interest in pursuing a career in OB/GYN, would be the possibility of them being denied access by the female patients to certain medical procedures during the clerkship [5].

This reluctance is consistent with broader trends reported in the literature. In many countries, OB/GYN is experiencing a recruitment crisis, with fewer medical graduates choosing it as their first-

choice specialty. In the UK, for example, fewer than 1 in 30 medical school graduates selected OB/GYN as their preferred career path. Similarly, in the United States, recruitment into OB/GYN residency programs has struggled to meet demand, with concerns about burnout, litigation risk, and workload often cited as contributing factors.

The findings from this study suggest that these broader issues also apply to the German context. Despite increased exposure and understanding, the perceived challenges of a career in OB/GYN – particularly the demanding hours and workload [6] – continue to outweigh the potential rewards for many students. As such, efforts to make the specialty more appealing must address these concerns head-on, potentially by offering more flexible working conditions, reducing night shift burdens, or providing greater support for work-life balance.

### Positive and negative perceptions of OB/GYN

In terms of the specific attributes of the specialty, OB/GYN was generally viewed as an "interesting" and "fulfilling" field by most students [14]. These positive perceptions align with research suggesting that OB/GYN offers a diverse and rewarding clinical experience, with the opportunity for both surgical and patient-centered care [15]. However, the negative perceptions of workload and stress, cited by the majority of students, overshadow these positive aspects. Concerns about long working hours and high stress levels are well-documented in the literature as significant barriers to choosing a career in OB/GYN.

Interestingly, this study found no significant differences in career decision-making based on gender or age, a finding that contrasts with some previous studies that suggest women are more likely to choose OB/GYN as a career. However, given that 65% of our study participants were female, it is possible that the gender distribution in this particular cohort was not sufficiently diverse to detect significant differences [16]. Nonetheless, the finding that both men and women expressed similar concerns about workload and work-life balance suggests that these issues are universal in their impact on career choices in OB/GYN.

### Students' interest in OB/GYN subspecialties

The results for students' subspecialty preferences provide important insights into the areas that generate the most interest. Obstetrics emerged as the most favored subspecialty [17], likely due to its dynamic and rewarding nature, offering a mix of medical and surgical care, and the emotional fulfillment of participating in childbirth. The high interest in Reproductive Medicine, the second most popular subspecialty, may stem from its association with cutting-edge fertility treatments and the significant impact on patients' lives. Additionally, since most fertility treatments in Germany are not covered by insurance, patients often pay out of pocket, resulting in higher treatment costs and, consequently, the potential for increased revenues and higher incomes for practitioners.

Surgical Gynecology and Gynecologic Oncology also received notable interest, though to a lesser degree. These fields involve managing complex cases and performing intricate surgeries, which appeal to students who enjoy technical challenges. How-

ever, the emotional and physical demands of these specialties may deter some students.

In contrast, subspecialties such as Basic Medical Care, Urogynecology, Senology and Endocrinology attracted less interest. This could be due to perceptions that these areas are less specialized or lack the immediate clinical action of more hands-on specialties. For example, Endocrinology, while essential, may not offer the procedural variety that students often seek in their careers.

Overall, students are drawn to specialties that balance hands-on experience with emotional reward. The popularity of Obstetrics and Reproductive Medicine reflects this, while the lower interest in other subspecialties suggests a need for better exposure and advocacy to highlight their critical role in women's health. Educators should focus on expanding student exposure to these fields, emphasizing their importance and potential impact on patient care, to cultivate a more well-rounded interest in all aspects of OB/GYN.

### Limitations

There are several limitations to this study that should be acknowledged. First, the study was conducted at a single institution, the University of Bonn, which may limit the generalizability of the findings to other medical schools in Germany or internationally. The unique characteristics of the University of Bonn, including its focus on graduate-entry medical students, may influence the perspectives and preferences of the participants, and these findings may not fully reflect the views of undergraduate medical students or those studying in different educational contexts. Second, the study relied on self-reported data from questionnaires, which can introduce bias, such as social desirability bias, where respondents may provide the answers they believe are expected or more acceptable, rather than reflecting their true preferences and perceptions. Additionally, the use of paper-based surveys, while practical, may have resulted in incomplete responses or non-response bias, where certain individuals with particular views may have been more or less likely to participate fully in both surveys.

Another limitation relates to the timing of the data collection, with the questionnaires administered before and after the clerkship and OSCE. While this design allowed for an assessment of how clinical exposure influences students' views, the relatively short time interval (2 to 10 weeks) between the two surveys may not capture the long-term changes in perceptions or career preferences that could occur as students progress further in their training. Longer follow-up periods would provide more comprehensive insights into whether students' attitudes toward OB/GYN evolve with greater clinical experience and exposure to other medical fields. Furthermore, the study did not explore in detail other factors that could influence career decision-making, such as mentorship experiences, personal life goals, or exposure to alternative specialties during the same time period.

While the study identified significant factors such as night shifts, workload, and income considerations as important determinants of career choice, it did not delve deeply into the qualitative aspects of why these factors are so influential. Future studies incorporating qualitative methods, such as focus groups or interviews, could provide richer data to better understand the under-

lying reasons for students' preferences and hesitations regarding OB/GYN as a career.

Another factor that complicates the evaluation is that the survey was not continuous, making it impossible to track individual changes in decision-making over time. This choice of design was intentional, aiming to create a straightforward questionnaire that would encourage participation by the highest possible number of students, providing a broad initial overview. However, for future studies, this approach will be revised to allow shifts in individual perceptions of the specialty and how these influence career choices over time should be tracked.

Lastly, subspecialization was addressed in this study; however, the knowledge of subspecialties was not directly tested. Furthermore, with the increasing trend towards subspecialization within the field of OB/GYN, a general survey of subspecialty interests may not fully capture the evolving nature of career preferences in this area. This limitation suggests that future research should consider the growing complexity of subspecialization in OB/GYN, as well as its potential impact on students' career choices.

Overall, while the study provides valuable insights into the factors influencing medical students' career choices in OB/GYN, these limitations suggest that further research is needed to expand upon these findings and explore the broader context of career decision-making in this field.

### Conclusion

The findings of this study highlight the multifaceted challenges that influence medical students' decisions to pursue a career in OB/GYN. While hands-on clinical exposure improved students' understanding of the specialty, concerns about night shifts, workload, stress, and financial compensation remain significant deterrents. These issues are consistent with global trends indicating that OB/GYN faces a recruitment crisis due to the demanding nature of the specialty. Addressing these concerns, particularly through reforms that improve work-life balance, offer greater flexibility, and enhance financial incentives, may be essential in attracting the next generation of obstetricians and gynecologists.

Future research should focus on interventions that can mitigate these challenges, such as mentorship programs, scheduling reforms, and targeted efforts to improve the work environment in OB/GYN. By addressing the factors that deter students from choosing OB/GYN, it may be possible to reverse the current trend and build a more sustainable workforce in this critical field of medicine.

### Declarations

**Funding:** There was no funding to declare.

### Ethics approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of University Bonn (EP 309/23).

**Consent to participate:** Informed consent was obtained from all individual participants included in the study.

## Contributors' Statement

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AW: Conceptualization, Methodology, Writing – Original Draft, Writing – Review & Editing. LD: Conceptualization, Resources, Writing – Original Draft, Writing – Review & Editing. NH: Formal analysis, Methodology. MM: Resources, Writing – Review & Editing. BS: Writing – Review & Editing, Resources. FR: Conceptualization, Methodology, Formal analysis, Writing – Original Draft, Writing – Review & Editing.

## Conflict of Interest

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The authors declare that they have no conflict of interest.

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