Operating in the margins: Women's lived experience of training and working in orthopaedic surgery in South Africa

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ABSTRACT

Medicine in South Africa (SA), as in other parts of the world, is becoming an increasingly gender diverse profession, yet orthopaedic surgery continues to be dominated by men, with women constituting approximately 5% of the profession in SA. The aim of this descriptive qualitative study was to explore women's experiences of training and working as orthopaedic surgeons in SA and identify structures, practices, attitudes, and ideologies that may promote or impede the inclusion of women. Data were collected via focus group discussions with women orthopaedic surgeons (n=16). Grounded in phenomenology, data were analysed using thematic analysis following a data-driven inductive approach to making sense of participants' experiences. Five main themes emerged: i) dynamic working environments and the work of transformation; ii) negotiating competing roles of mother and surgeon; iii) belonging, exclusion and internalised sexism; iv) gaslighting and silencing; and v) acts of resistance – agency and pushing back. The findings highlight the dynamic process in which both men and women contribute to co-creating, re-producing, and challenging practices that make medicine more inclusive.

Introduction

Medicine in South Africa (SA), as in other parts of the world, is becoming an increasingly inclusive and diverse profession, with growing numbers of women doctors (Bates *et al.*, 2016; McKinstry *et al.*, 2006). Greater diversity in medicine has led to improved relations with diverse patient populations and a deeper understanding of their needs and backgrounds (Sullivan 2004), as well as encouraged varied and novel ways of thinking, enhanced cultural proficiency, and improved patient care and outcomes (Klifto *et al.*, 2020). Nevertheless, surgical disciplines have continued to be dominated by men

(Wildschut, 2010). In 1960, only 10% of the SA medical profession were women (Digby *et al.*, 2012), but by 2019, women constituted 40.6% of medical doctors, yielding a men-to-women ratio of 1:0.7 (Tiwari *et al.*, 2021). Between 1999 and 2007, enrollment of women in SA medical schools increased from 49.7% to 56.2%. However, during this period, men still made up 80% of specialists, with women constituting only 5% of surgeons, 4% of cardiothoracic surgeons and 3% of orthopaedic surgeons (Wildschut, 2010). In SA, as in Canada, the United Kingdom and the US, women still tend to specialise in disciplines such as obstetrics and gynaecology, paediatrics, family medicine, and dermatology—a phenomenon that has been called "internal segregation" (Wildschut, 2010). Globally, orthopaedic surgery has been particularly reticent resistant to gender transformation and continues to report the greatest sex disparity of all sub-specialities (Rohde *et al.*, 2016; van Heest & Agel, 2012). In the US, for example, the women-to-men ratio in orthopaedics changed marginally from 1:7 to 1:6 between 2007 and 2016 (Klifto *et al.*, 2020). In 2020, SA had only 51 registered women orthopaedic surgeons, amounting to 5% of the profession (HPCSA, 2022).

Studies in Canada, the US, and the United Kingdom have identified several reasons why women choose not to specialise in orthopaedic surgery, including personal preference, the nature and demands of the work, perceptions about the work, tradition, negative experiences of the work environment during training, patients' attitudes towards women surgeons, long working hours, and difficulties retaining balance between work and family commitments (Green *et al.*, 2020). Women surgeons in Rwanda report similar challenges and attribute their decision to enter the speciality to role models, positive patient encounters, and exposure to surgery (Yi *et al.*, 2018).

Women in surgical disciplines more broadly (i.e., beyond just orthopaedics) experience subtle forms of interpersonal discrimination even when laws are in place to prohibit gender discrimination (Myers *et al.*, 2018). Studies have documented women surgeons' negative experiences in the workplace, including interpersonal microaggressions, environmental invalidations, being treated like a second-class citizen, assumptions about traditional gender roles, sexual objectification, assumptions of inferiority, being forced to "leave gender at the door," and experiencing sexist language (Sprow *et al.*, 2021). A survey of women's perceptions of gender-based discrimination during surgical training and practice found that 87% of women experienced gender-based discrimination in medical school, 88% in residency, and 91% in practice (Bruce *et al.*, 2015). A qualitative study of 46 women surgeons and trainees identified four types of bias faced by women surgeons: i) workplace factors such as access to parental leave and role models; ii) epistemic injustices (unfair assessments of women surgeons' credibility by patients and colleagues); iii) stereotyped expectations that they will carry out more of surgery's "care work" such as meeting the emotional needs of patients, and iv) objectification (Hutchison, 2020). Furthermore, women surgeons remain grossly underrepresented in leadership positions in academic surgical departments (Jena *et al.*, 2015; Zhuge *et al.*, 2011), creating the impression that, for women surgeons, a "glass-ceiling" exists which is perpetuated due to prejudices about traditional gender roles, unconscious assumptions, sexism in medicine, and lack of effective women mentors (Cochran *et al.*, 2013; Colletti *et al.*, 2000; Zhuge *et al.*, 2011).

Occupying a historically marginalized identity in the workplace, such as being a woman in a field dominated by men, especially in a field dominated by men, has been associated with discrimination (Crawley, 2006; Pager & Shepherd, 2008; Smith, 2002), compromising mental health, and decreasing work satisfaction (Jansson & Gunnarsson, 2018). A survey of orthopaedic surgery residents across the United States and Canada found higher levels of depression and worse mental health outcomes among women residents (Gosselin *et al.*, 2019). Furthermore, women surgeons in the US are more likely to experience burnout compared to their male colleagues, which has been attributed to work-home conflicts and workplace discrimination (Dyrbye *et al.*, 2011). Indeed, women surgeons' experiences of marginalisation and discrimination in the workplace are a source of stress that consume energy, which decreases the emotional capacity available for additional roles and negatively impacts their psychological well-being (Olsen *et al.*, 2022). Women surgeons' psychological health is affected by their perception of other people's endorsement of stereotypes in the workplace (Salles *et al.*, 2016), and Saudi Arabian scholars have described the deleterious emotional impact on women when their surgical competence is unfairly questioned (Alwazzan & Rees, 2016). Experiencing marginalisation contributes to trainee surgeons' attrition, as well as feelings of depression, depersonalization, and emotional exhaustion, which, in turn, compromises patient care and depletes the medical workforce (Torres *et al.*, 2019).

While studies in SA have explored the experiences of Black doctors' training as medical specialists (Thackwell *et al.*, 2016, 2017), no studies have described experiences of women orthopaedic surgeons in SA. Understanding the experiences of women orthopaedic surgeons in SA may provide insight into why this corner of medicine continues to be dominated by men and what can be done to promote ongoing transformation and support the well-being of all doctors. Furthermore, understanding the experiences of women orthopaedic surgeons could have important implications for protecting and promoting the mental health of women orthopaedic surgeons who occupy a minority position in a historically male dominated work environment. This interpretive qualitative study aims to explore women's experiences of training and working as or-

thopaedic surgeons in SA and identify structures, practices, attitudes, and ideologies that may promote or impede the inclusion of women in orthopaedic surgery.

Materials and Methods

The study was led by two women orthopaedic surgeons (MT and MOC) who wanted to document their experiences and to give voice to other women's experiences in the profession.

Data collection

Purposive and snowball sampling were used to recruit women orthopaedic surgeons working in the public and private sector, as well as women undergoing training to be specialists in orthopaedics. Emails inviting women to participate in the study were sent to all members of the South African Orthopaedic Association, heads of departments at the eight SA universities training orthopaedic surgeons, and to members of the South African Female Orthopaedic Surgeons Society. The invitation described the aims of the study and asked women willing to participate in focus group discussions to contact the principal investigator (MT).

Data were collected in December 2021, during three focus groups conducted online via Zoom. A total of 16 women orthopaedic surgeons participated in the focus groups. Each group had between four and six participants and lasted 60 to 90-minutes. The focus groups were facilitated by a psychologist (JB) using a semi-structured interview guide which included questions about motives for choosing this speciality, experience of training and working in this field, and challenges and highlights of being a woman orthopaedic surgeon. MT and MOC attended all focus groups as participant-researchers, asking questions to clarify what other participants were saying and sharing their own experiences. All focus groups were audio recorded and transcribed.

Data analysis

Data were analysed inductively using thematic analysis (Braun & Clarke, 2012). Two researchers (JM and NH), who are not orthopaedic surgeons and had not participated in the focus groups, worked independently to identify the initial codes using ATLAS.ti and followed the steps outlined by Braun and Clarke (2012). Initial themes were then shared and discussed with the whole research team to gain consensus on a final code book for subsequent in-depth analysis. JM and NH used the code book to conduct an independent, in-depth analysis of the data using ATLAS.ti. The final list of themes and quotes were then discussed with the research team to gain consensus that participants' words had been correctly interpreted and to select the most appropriate quotes to illustrate each theme. This process of data analysis triangulation was adopted to enhance the trustworthiness of the findings (Saunders *et al.*, 2018). Member checking (also known as participant or respondent validation), was also used to improve the trustworthiness of findings by sending a final draft of the manuscript to participants for them to correct any aspects of the findings that did not represent their experience. Member checking is a technique used in qualitative research for consulting research participants about the credibility of findings (Birt *et al.*, 2016).

Ethical considerations

Ethical clearance for the study was obtained from the Health Sciences Research Ethics Committee at Stellenbosch University (N21/06/054). The online focus groups were password-protected; participants could log in with an alias and keep the video setting off to safeguard their privacy. Informed consent was obtained prior to data collection. De-identified data were securely stored on a password-protected cloud-based server. All identifying information has been removed from the quotes to ensure anonymity.

Findings

Participants consisted of registrars (n=6) and consultants (n=10), from six of the eight universities offering postgraduate orthopaedic training. Registrars are middle-ranking hospital doctors undergoing training as specialists (i.e., the equivalent of a resident). Consultants are senior doctors who are qualified as specialists (i.e., the equivalent of an attending physician). Among the consultants, seven worked in the public sector, and three worked in private practice. Participants were between 25 and 59 years old. Five superordinate themes were identified: i) dynamic working environments and the work of transformation, ii) negotiating competing roles of mother and surgeon, iii) belonging, exclusion and internalised sexism, iv) gaslighting and silencing, and v) acts of resistance – agency and pushing back.

Dynamic working environments and the work of transformation

Participants described a dynamic and transforming work environment, which was markedly different from the healthcare system prior to 1994, when medicine in SA was still male dominated. They spoke with ambivalence about the use of quota systems and affirmative action to improve gender representation, highlighting how these practices contributed to them questioning whether they had earned their place in the profession. While they celebrated gender diversification in the workplace, they also talked about the emotional work of being active participants in the transformation process and the impact of being part of a minority group.

Participants gave concrete examples of gender transformation in the workplace and the strategies used to achieve this. P2, for example, contrasted her current environment to the discrimination experienced as a woman doctor prior to 1994:

> ...[F]emale medical officers still got salaries two thirds of what the equivalent male doctors got… [and] once you married, you lost your housing subsidy…. We also didn't have paid maternity.… A lot has changed for the better.

Participants explained how quota systems and affirmative action were being used to recruit more women into orthopaedic surgery and promote the career advancement of hitherto underrepresented groups. While they recognised the need to increase workplace opportunities for women, they also described how affirmative action undermined women by prompting them to question whether they had been selected on merit. P8 explained:

> … [T]he appointment of registrars has become so much more politicalised…. You kind of have people saying, "Oh, but you know that you'll get the post...because they're short of woman in the department." And, I think, for our registrars, there's probably a very strong feeling of, "Am I here because I deserve to be here? Or am I here because I'm not a white boy?"

Similarly, P4 described how her self-confidence was undermined by colleagues saying that she had only been selected for a training program because of affirmative action, going on to explain that she only believed that she had earned her place in the training program once she was affirmed by a man:

> There were quite a good amount of comments made at many times, like, "Oh, yes, there was only two girls before you. They had to employ another girl. So, you played the girl card, obviously going to get the job." And I remember believing that for a very long time. Only recently, I was speaking to one of the consultants who was actually in my interviews…and [he said] they were so happy when I interviewed well, when I scored the best.… It would have been wonderful to know that seven years back, and not for seven years think that you really just got the job because you're a girl.

P4's experiences not only highlight how a quota system exacerbated feelings of self-doubt, but also illustrates men's enduring role as gatekeepers to the profession and the power they hold to affirm women's competence.

Participants spoke with an acute awareness that they were disrupting an established gender order. They expressed pride in disturbing the status quo, but also said this role was exhausting. They said actively participating in the transformation process imposes additional—often invisible—labor and responsibilities on them, which are not explicitly acknowledged or shared by colleagues who are men. P11 explained:

> I always feel like I have to first prove myself that I am competent, and that I'm this amazing person, and that I know everything before I can even do something as simple as cutting an incision. I have to first be qualified as an orthopaedic specialist.... I take it personally when that happens to me…. This constant needing to prove myself gets exhausting.

Similarly, P15 described the impact, emotional labor, and personal cost of being a minority:

> You deal with the macroaggression. You go home. You debrief. You reflect. You distract yourself. You do something else. That time could have been used for doing something academic. So, every day you're taking away because each time you're angry for 10 minutes is taking away 10 minutes of the time you could be using to be productive…. You're always on the back foot.

Participants said that as part of a minority group, they felt additional self-imposed pressure to perform exceptionally well so as not to confirm any perceptions that women cannot do the work of an orthopaedic surgeon. P6 explained the origin of this internal pressure, saying:

> I think the problem is when you are a minority of any kind, in a department, if you are only two of you, and one of you is really great, and one of you is average, they're going to remember that average one. Whereas if there's 10 men and one is average, you know, it is still only one…. But because you're compared to your minority group, that then becomes like a generalisation.

Participants used metaphors of war and combat to describe the emotional impact and trauma of participating in the work of transformation. P6 said, "They survived, but I mean, just like in a war, with like bits missing, you know, maybe not sort of like physical wounds, but definitely sort of emotional wounds." While participants acknowledged that progress towards gender diversity had been made, they also said the pace of change was slow and expressed pessimism about the possibility of radical change in the foreseeable future. P15 articulated this saying, "I'm now sitting here thinking, 'It doesn't get better.' I thought it would get better." And P8 concluded, "I don't see it changing anytime soon."

Negotiating competing roles of mother and surgeon

Participants spoke about the challenge of trying to balance the competing roles of surgeon and mother and the sacrifices this entailed. They spoke about the difficult decisions they had made to delay motherhood and described how the working environment and the work of orthopaedic surgeons made it difficult to be pregnant, especially during training. They identified structural barriers, such as the nature of the work and the physical consequences of being pregnant, which made childbearing difficult, but they also highlighted attitudes and prejudices expressed by men and women colleagues, which exacerbated these structural barriers and made it more difficult to be a mother.

Participants spoke with sadness and frustration about their decisions to sacrifice or delay motherhood so that they could realize the orthopaedic surgeon's role, implying that they experienced these two roles as mutually exclusive. P15 said, "I've had how many ladies in front of me now, about four or five. Only one has been brave enough to have a child during Reg [training], time. It saddens me." And P6 said, "I really feel as much as I love my job, I feel like orthopaedics has robbed me of my fertility. And I resent it for that.…"

Participants said that the work environment—especially during training—made it almost impossible to be pregnant because work entails frequent and unavoidable exposure to radiation and physical exertion which compromises maternal health. P16 described the challenges she experienced being pregnant during training, saying:

> … [T]hen you get to about six or seven months [pregnant], and you're like really tired. Your back is sore now. I can't actually push this traction table so well. It's really heavy and, also, I guess I didn't realise how much weaker I would feel physically.

P13 reiterated the physical demands of pregnancy and the challenges of being a working mother, "It's really damn difficult being pregnant and working. It's even harder having a child or a toddler and trying to study, so it's really not that easy."

Several participants described reluctance to take maternity leave, being cognizant of the additional workload this would impose on colleagues and the disruption to their own training. They described hostile and unempathetic reactions of colleagues when pregnancy prevented them from being on call. P15 said, "I still think there's an undercurrent of, if you employ a woman, it's a risk, because she may want to have a baby, you know, and our program is not really structured around that." And P8 said:

> [My colleagues said,] "How can she want to stop doing calls at 37 weeks? Now we must pick up her calls!" When I can't see my feet, and my back's killing me, and I'm having pre-term contraction. All I wanted was to stop doing calls a month before I popped a human out of my body [but] that was not acceptable.

P15 acknowledged that it was similarly difficult for men to take paternity leave and said that men not taking paternity leave made it even more difficult for women to assert the right to take time off to during and after pregnancy: "If a man is too scared to take paternity leave, where does that leave a woman?" (P15).

Participants described how male colleagues made inappropriate comments which made it clear that women were expected not to fall pregnant. P6 explained, "Every time he [the head of department] would call me in to discuss something else…unrelated, his parting words to me would always be, "Whatever you do, just don't fall pregnant.'"

Participants expressed sadness and concern about the health and fertility consequences of their decision to delay motherhood until after training. P15 said:

> I'm much older, and, you know, to now finish and then try to have a child, it's just not fair physiologically. It's not fair to ask me to put it off because, you know, for them, for males they can have a child at 90. It doesn't matter.

And P6 described the career sacrifices necessitated by pregnancy and motherhood, saying:

> I just feel like my professorship or whatever is going to be at least five to seven years delayed [compared to] whoever qualified with me, because I'm still trying to create this family…. I'm behind the men, my peers, because they're writing articles and like pumping out things because…wife is at home looking after the babies…. I now have to juggle both, and from an academic trajectory, I think we're on the back foot.

This sense of "being on the back foot" (p6) and "making sacrifices" (P15) to be a mother negatively impacted participants' job satisfaction and left them feeling robbed of the experience and joy of motherhood. It was explicit in the words of participants that they could not reconcile the role of mother and orthopaedic surgeon and that structural and attitudinal changes in the workplace would be needed to enable reconciliation of the two roles.

Belonging, exclusion and internalised sexism

While participants spoke of finding their place in orthopaedic surgery and said they experienced a sense of belonging in this field of medicine, they also described ongoing systemic barriers which blocked full participation in the profession and left them feeling alienated from colleagues. The experience of simultaneously finding their place in the profession and being excluded from full par-

ticipation, engendered a sense of thwarted belonging. Aside from encountering sexist attitudes from other men doctors, nurses, and patients, they also described how other women expressed sexism and identified ways in which they themselves had internalised and reproduced sexism.

Participants explained how they "belonged" in orthopaedic surgery and described the joy of discovering a place in medicine that piqued their interests and matched their aptitudes, finding the speciality a "perfect fit" (P1) for them, and "being at home" (P2) doing the work of an orthopaedic surgeon. P1 said, "I started, and I found orthopaedics a wonderful mix between the engineering, and the building, and the three-dimensional thinking and puzzle solving that I love, mixed with the humanity of medicine." P2 explained, "In my fourth year, we had the experience of being on call in the orthopaedic section of the [name redacted] hospital. And I just totally fell in love and just felt this is my place."

Although participants said they found their work environment demanding and challenging, no one said they regretted choosing this speciality. P14 explained:

> When we got exposed to what orthopaedics was actually about…it was simply amazing. It's clean. It's cleaner than surgery. And you get to be in theater all the time, and it's just a whole lot of fun. So, I don't think I have any regrets.

However, participants also described sexist attitudes and institutional practices that contributed to feeling excluded and marginalised. P10 described the alienating impact of confronting gender stereotypes, saying, "We had to assist for cases in private, and I could hear on the phone, how the guy said, 'Don't send me a girl to assist. They can't do it.'" They described the culture of orthopaedic surgery as an "old boys' club" that affirmed heteronormative, traditional masculine modes of expression. For example, P9 described feeling marginalised and alienated from men colleagues because she did not share their interest in traditionally "male" sports:

> The boys would go off and ride their bicycles, or they all seem to go and ride motorbikes.... And I would go, and I'd pick up my tennis racket, and I'd go and hit a few tennis balls or whatever it was.… You always feel separate or alone…. It's just the way it is.

Likewise, a participant reported that a male colleague commented, "You are not one of us" (P15), which reinforced the perception of being out of place in the orthopaedic environment. P15 explained:

> … [I]n an interview he [senior male colleague] let slip that I wasn't a [white male]... [He said] "We can't really deal with you yet." I would just like to be an orthopaedic surgeon. I didn't know I was offending anybody by trying to be that. And so, it becomes difficult, you know when people say that to you, and it hurts….

All but one participant gave examples of encountering gender expectations and explicit sexist attitudes from other doctors, nursing staff, and patients. For example, P15 described the emotional impact of regularly not being recognised as an orthopaedic surgeon because it is typically assumed that the surgeon would be a man:

> I walk into a strange theater. Everybody turns. I need to introduce myself. "Hi, this is who I am, I am here to do this [surgical procedure]." It is exhausting, as you've been doing it [explaining who you are] every day…. You do it when you're on call. And at 3 a.m. in the morning you get somebody who's going to say something left ways [derogatory], and you burst out at them because you've been carrying this the whole day. Then you get reported, "Oh, she's being emotional!" But no one understands that was the fifteenth person of that day to undermine you.

Participants also articulated a perception that men surgeons are assumed at face value to be competent, but women are required to demonstrate competence before they are recognised as surgeons. P3 explained:

> …[A]nd the sisters [nurses] always think I'm either the rep or the radiographer and never think you're the surgeon. And you have to also prove yourself to them, that you're a capable surgeon before they start trusting you with things.

Similarly, another participant said:

> ….[P]atients assume you're not the doctor—you're the nurse. Or [they assume] your big burly [man] intern is the orthopaedic surgeon. And you know, [they assume] you've got to be the assistant…. And you're explaining the operation in detail [to the patient]...and then the patient turns to him [the intern] and asks a question that he can't answer. (P5)

These stories highlighted the frequency with which participants were "not seen" and/or "misrecognised." They experienced this misrecognition as a recurrent unambiguous reminder that women are out of place doing the work of an orthopaedic surgeon and do not belong in this field of medicine.

Participants said that some of the most blatant sexism they had experienced came from other women—not only women nurses, but also other women specialists. P6 explained:

> … [M]yself and another female were both asked in the interview process, whether or not we plan to fall pregnant, during Reg [training] time, which is actually illegal. You're not allowed to ask that, but we were both asked, and that question came from a senior female in the department.

Another participant said:

> As much as I've had a lot of trouble with men in my departments, my worst case was with a female head of department. I don't know why that happens, and I can't explain it really…. Maybe it's because you have your guard down when you're with the female head of department, and so it hurts more. (P11)

Similarly, R13 said:

> The hospital that I haven't felt comfortable at is actually because of the senior woman who makes all the other women feel inadequate…. Unfortunately, all the registrars or medical officers that have been female have had the same problem with this particular woman, and it's quite traumatizing. I honestly actually have PTSD [post-traumatic stress disorder] right now from her behaviour so now, when I have to go to the hospital, I, literally, like get anxious and nervous.

Some participants acknowledged that they too hold women trainees to a higher standard than their male counterparts, with an expectation that women should "do better than men" (P6). They acknowledged that this double standard contributed to increasing the pressure on other women and made the work environment less hospitable for them. These experiences seem to point to internalised sexism and a complex dynamic in which women contribute to co-creating and reproducing a work environment with different rules for men and women. P1 said:

> I really do try and be an advocate for the women, but at the same time, I think, as a woman in the department, I do hold them [women] to a higher level…. It's about holding them to a higher standard. Because I want to be proud of that minority. I really want to be proud of those girls. I want them to achieve. I want them to be beyond question.

Participants also articulated a perception that senior women colleagues were harsh on junior women because they were unconsciously re-enacting their own experience of being treated badly. P8 said:

> I almost feel like there's this divide, and as a female consultant or senior, you can either be an absolute bitch or you can be a mentor, and I've encountered both…. They think "I've had it really hard in getting to where I am, and I'm going to make you work just as hard, because I didn't have it easy."

Gaslighting and silencing

Participants said they experienced gaslighting—i.e., being psychologically manipulated into doubting their own perception of reality and/or memory of events—when they tried to talk about sexist practices, which made it very difficult for them to raise concerns about subtle gender discrimination in the workplace without being positioned as "crazy" (P6) or "emotional" (P15), "imagining" (P6) this transgression or being "too sensitive" (P6). These experiences acted as a prohibition to talking about sexism and left them feeling silenced, unheard, and afraid to raise their concerns.

P6 described a scenario where she tried to draw attention to a male colleague's sexist remark: "…the fact that they did not actually acknowledge it—to go, "Sorry you're right'…. [Instead, they] don't seem to want to admit it." Participants explained that they were sometimes called "combative" (P16) for drawing attention to gendered practices. While they acknowledged that they were assertive and passionate about raising these issues, they did not experience themselves as combative. This incongruence between their experience of themselves and their colleagues' experience of them was perturbing and contributed to participants questioning their perception of themselves, including their sanity and judgement. P16 explained:

> You know that sometimes these comments can be bounced off because you're resilient, but if people say things to you—like "you're combative," and you don't experience yourself like that—then those kind of micro-traumas will wear anybody down. And you wouldn't be human if they didn't have an impact on your mood or your level of job satisfaction. It's not nice to be in a situation where people are telling you things that you don't experience of yourself.

Participants said that they felt silenced from gaslighting incidents and were afraid to be too assertive for fear of the consequences. P13 explained, "No one is standing up and saying anything. 'You want us to lay the complaint? You want us to email Prof [the head of department]? You want us to contact them?' But we're too scared."
And P14 said:

> I've seen it around me…. You are trying to obviously change the status quo, while the people who are very happy in the status quo are going to do almost everything to make sure that the things don't change. I saw it happen in our…department where this very vocal passionate, intelligent—they might

have named her a combative female in that department—was kind of pushed out because she wanted things done differently.

Implicit in the words of participants was a double bind; if they spoke directly about their experiences of sexism, they would run the risk of being gaslit and/or positioned as combative and/or squeezed out of the department, but if they remained silent, they would feel that they were complicit in perpetuating sexism and, hence, impeding gender transformation in orthopaedic surgery. This "double bind" created internal tension and frustration which impeded participants' job satisfaction.

Acts of resistance – agency and pushing back

Participants described strategies they use to resist and disrupt the status quo. They explained how they affirmed their sense of agency and pushed back against being marginalised through acts of resistance and rebellion which included positioning themselves as stubborn, consulting lawyers to assert their legal rights, taking a stand about sanitary bins in bathrooms, claiming space, wearing boldly colored dresses, insisting on maternity leave, and expressing milk at work when they were breastfeeding. Above all, participants described becoming comfortable with not fitting in and expressed pride at being different.

Participants explained how they resisted marginalisation by asserting themselves and playing the role of rebel. P1 described her tenacity and rebellion, identifying herself as stubborn—a label she reclaimed and wore with pride—saying:

> I really do believe we are a stubborn lot of women who have really gone out and said, "You know I'm going to do what I love. I'm going to do it well, and… stuff everyone's opinion about me doing that."

And P4 said:

> That didn't sit well with me, to be told that I can't do something. So, I think that maybe fuelled my rebellious side to the point that I decided, well, I can do it now, and I will do it great!

Participants gave examples of the lengths they went to challenge the status quo, including consulting labor lawyers and insisting on sanitary bins being placed in the bathrooms. P13 said, "I went to, I even contacted like labor lawyers to see what the law says, and labor laws for doctors in general…." Another participant explained:

> There was a big uproar when I had to add a bin for sanitary pads to our one toilet that we had in our hospital. Oh my God, it was like the world is going to end. So, they were like, "Why do we have to have a bin, sanitary pads in our toilet?" and I was like, "Yes because there are now women in our department and get over it." (P8)

Participants reported pushing back against the notion that there is no room for femininity in orthopaedics by wearing dresses and dressing in bold colors, especially at conferences where they expressed feeling particularly marginalised. P6 said:

> I make a point of when I go to Congress, when all those men are there at the annual meeting, I make sure that I'm wearing something bright, because they're all in grey and navy and black…just to be sort of like, "Just remember, we are here and we are not going anywhere." I do it on purpose as an act of rebellion.

Similarly, another participant described her defiant response when she was asked if she planned to fall pregnant:

> …[W]hen I got there, I was asked [if I was planning to fall pregnant]. So that's just a little bit ridiculous. So, I asked them if they plan to get into any major accidents or get any major surgery or get cancer, then they should just, please, let me know. (P10)

And P12 explained how after having a baby, she used expressing milk as an opportunity to make a point about women doctors' needs:

> I had to express breast milk during the day…. I just told the guys like, between cases, "Now, I need twenty minutes to go express. I'll write the theatre notes, while I'm expressing in the office. I need that office, please. Thank you." I had to give my one male colleague a lift between the two hospitals, so he had to wait outside the car while I set up, and I put a blanket over myself, and I expressed next to him in the car on the way to the other hospital, and he had to deal with it. He didn't have the guts to say anything about it.

Participants also asserted that they felt comfortable with "not fitting in" and challenging established practices. Throughout the interviews, there were implicit assumptions about the value of diversity and the benefits of questioning traditions. P9 explained how she had become comfortable with challenging conventions and celebrated the benefits of diversity.

> It's only as I've gotten older that I realised that you shouldn't fit in. That's the beauty of it. You contribute because you're different. You see things differently, you approach patients differently, you handle conflict differently, you handle manage-

ment of groups of people differently, you crisis manage differently, you think differently in theatre, and that's because you are a woman. And I wish I had known that earlier, because it really tormented me, this dire need to fit in, to be able to be one of the boys, but you're not going to be one of the boys…. You shouldn't be one of the boys. That's the beauty of having different races, and different genders, and different identities in a group, is that you can approach it in a different way.

Discussion

Participants in this explorative qualitative study describe working in a system that is undergoing visible transformation as more space is made for women in a field of medicine traditionally dominated by men. They describe participating in the transformation process and the emotional and often invisible labor this entails. They describe the satisfaction they experience doing the work of an orthopaedic surgeon while also encountering systemic structural and attitudinal barriers to their full participation in the profession. Their experiences of simultaneously finding a perfect fit in this specialty while feeling blocked from fully participating precipitated a sense of thwarted belonging. The experiences draw attention to the painful sacrifices they make to straddle the role of mother and surgeon while resisting and challenging the status quo.

Previous studies have described surgery as a "boys club" with fiercely protected boundaries that restrict access (Gargiulo *et al.*, 2006), which is consistent with how the women in our study experience orthopaedic surgery in SA. Indeed, it is this tightly controlled membership that in part makes the profession exclusive and distinctive. The women in our study are aware that they have crossed the boundary and work hard to affirm their place in this "club," yet they still sometimes feel that their belonging is thwarted. Previous studies have demonstrated that a lack of belonging contributes to trainee surgeons' attrition, depression, depersonalization, and emotional exhaustion (Torres *et al.*, 2019). It is thus unsurprising that the women in our study describe the emotional effort and tediousness of being excluded as they confront sexism, deal with microaggressions, and are misidentified. A scoping review of microaggressions experienced by women in surgery identified several common experiences, including encountering assumptions that women have inferior surgical skills, attitudes about traditional gender roles, and sexist language (Sprow *et al.*, 2021), all of which are common to the experiences of the women orthopaedic surgeons who participated in our study.

It is remarkable that the women in our study spoke so explicitly about the inability to reconcile the role of mother and surgeon and the struggles they felt to assert basic rights to maternity leave, even though SA has a liberal constitution which affirms and protects women's rights. The role of the mother is closely tied up with social constructions of what it means to be a woman, and pregnancy is a natural expression of womanhood. In this sense, a work environment that does not make space for motherhood sends an unambiguous message to women that they cannot bring all of themselves to work. Implicit in the words of participants was a perception that to assume the role of surgeon, they were encouraged—if not expected—by both men and women colleagues to deny motherhood and thus split off parts of themselves that are deeply entangled with womanhood. Again, these tensions are not new (Morantz-Sanchez, 1985) or unique to SA (Yi *et al.*, 2018). A recent US study found that 84% of female residents did not start a family in their training and that these women experienced bias concerning pregnancy from both senior colleagues and their peers (Mulcahey *et al.*, 2019). Similarly, studies have documented women surgeons' perceptions that they are expected "to leave gender at the door" when they come to work (Sprow *et al.*, 2021), as is implicit in the words of our participants.

It is noteworthy that the women in our study report experiencing sexism and gender discrimination from other women—including nurses and senior medical specialists—as has been reported in previous studies of women surgeons' experiences in the US (Bruce *et al.*, 2015). However, our participants also explicitly acknowledge that they too sometimes express and enact sexist attitudes by holding other women to a higher standard than men. There is extensive literature describing "mean girls," "queen bees," women's competitiveness with other women, and internalised misogyny in the workplace (Harris & Kramer, 2019), particularly in the corporate world (Tosone, 2009). Still, this dynamic has not been widely explored in medicine. Scholars have described how senior women in business environments block and undermine more junior women to prevent them from climbing the hierarchy (Johnson & Mathur-Helm, 2011), a practice which is not uncommon in traditionally men-dominated work environments (Abramson, 1975; Davidson & Cooper, 1992; Gini, 2013). Other studies have also described how senior women working in male-dominated environments are more critical of women subordinates and require more of women subordinates compare to men colleagues (Derks *et al.*, 2011; Moalusi & Jones, 2019). It is theorized that this occurs because women working in environments dominated by men want recognition of their own abilities to have "made it" and wish to remain unique in their environment, maintaining their "queen bee" status (Davidson & Cooper, 1992; Mattis, 1993). It has also been suggested that women in these environments tend to assume hyper-masculine leadership characteristics, rejecting their femininity and becoming more brash and aggressive as they assimilate into the dominant culture (Merrick, 2002; Yi *et al.*, 2018). Another interpretation is that the senior women working in these environments are re-enacting the sexist attitudes they have been subject to be-

cause they have unwittingly and unconsciously internalised sexism, in the same way that racism and stigma are internalized (David, Schroeder & Fernandez, 2019; Fernández *et al.*, 2022).

The presence of gaslighting among our participants is further evidence of the power imbalance that exists in the historically patriarchal medical profession and is congruent with the findings of other studies describing gaslighting and bullying within the medical profession (Fraser, 2021). Gaslighting is less tangible and more difficult to expose than bullying, but can similarly have a pervasive psychological impact on healthcare workers (Fraser, 2021). Typically, in medicine, gaslighting occurs in doctor-patient interactions when patients experience invalidation, dismissal, and consequently inadequate care at the hands of doctors (Sebring, 2021; Thompson *et al.*, 2022). However, it also occurs between doctors, particularly when there is a power imbalance, as for example, occurs in training programs. Crucially, our participants describe how their experience of gaslighting makes them anxious about raising their concerns and acts to silence and restrict them.

Finally, the women in this study describe clearly the active and conscious role they play in exercising agency and resisting sexism in orthopaedic surgery. They acknowledge that they are active participants in a dynamic process where they are not powerless to influence the status quo. While they acknowledge that this resistance is sometimes emotionally gruelling, they nonetheless express pride at the role they are playing in transforming the profession and speak of their increasing comfort at being different and not having to "fit in."

It is a limitation that the study did not explore intersecting identities, including how gender intersects with race, ethnicity, sexual orientation, and disability. The study focused narrowly on women's collective experiences, and the sample was too small to adequately explore intersectionality. It would be very helpful, particularly in countries like SA that have a history of discrimination based on gender, sexual orientation, and disability, for future studies to focus on the dynamics of intersecting identities, although doing so would probably require an expansion into other surgical disciplines, given the small number of orthopedic surgeons with these social identities.

Conclusions

The findings of this study draw attention to the ongoing process of transformation that is happening in orthopaedic surgery as more SA women claim their place in a profession historically dominated by men, highlighting both the progress that has been made and the work that still needs to be done. Most importantly, the findings remind us of the dynamic process in which both men and women contribute to co-creating, re-producing, and challenging practices which make the profession more inclusive and diverse. The findings of this study highlight some of the structural and attitudinal barriers that may impede ongoing gender transformation in the profession, but also provide key insights into the psychological and emotional impact of occupying a minority position in medicine.

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