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Obstetric Nurses Perceptions About Work-Related Musculoskeletal Disorders: Photovoice Study

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Abstract

Obstetric nurses are at increased risk of work-related musculoskeletal disorders associated with equipment and materials, the parturient and the specific nature of their work. We used the photovoice method to identify obstetric nurses' perceptions of work-related musculoskeletal injuries involving 20 participants who worked in the delivery room. A total of 100 photographs were captured by participants and their narratives were obtained through 20 interviews. Analysis of the photographs, the nurses' descriptions of the photos, the researcher's field notes and the interviews, resulted in three semantic categories: perception of risk, perception of preventive measures and musculoskeletal symptoms, and one expressive category related to decision-making. Perceived risks for musculoskeletal injury were associated with workspaces, the precariousness of the equipment and materials, and the organization and nature of obstetrical nurses' work. The importance of preventive measures was recognized and reinforced by reports of transitory work-related musculoskeletal symptoms by 18 of 20 obstetric nurses participating in the study. The strategies perceived by the obstetric nurses as potentially effective for preventing musculoskeletal injury included improvements to the physical work environment and equipment, sensitization of the team to the problem, and developing biomechanical skills in situ through simulated exercises and peer support

Keywords

obstetric nurses, work-related musculoskeletal disorders, perception, risk factors, delivery rooms, Portugal

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Introduction

Cumulative trauma disorders are the result of isolated or combined disorders, aggravated by the development of activities and the effects of the work environment effects (Boakye et al., 2018). The prevalence rate of work-related musculoskeletal disorders (WMSDs) is directly linked to the type of professional activity carried out, as well as the work overload and the shortage of human resources and/or equipment, situations frequently observed in most public hospitals. The international recognition of the high prevalence rates (25%–98%) of WMSDs among nurses (Castelôa et al., 2019), justifies the growing interest of the scientific community in studying this professional group (Fernandes et al., 2018; Ribeiro et al., 2017). In their clinical practice, nurses carry out demanding activities, which include tasks that require handling and/or moving loads and people; adopting prolonged and inappropriate postures; extreme and repetitive movements; as well as emotional support, associated with "caring" for human beings (Boakye et al., 2018; Luan et al., 2018; Ribeiro et al., 2017; Thinkhamrop et al., 2017).

These tasks contribute to the occurrence of ergonomic and physical risks specific to the obstetric nurses' (ONs) professional activities (delivering babies, adapting the newborn to breastfeeding, relaxation exercises and massage, performing gynecological examinations, etc.), environmental risks (temperatures in the nurseries, delivery rooms,

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appliances and equipment, etc.), organizational risks (excessive workload, lack of breaks, etc.) and psychological risks (stressful situations - emergencies, emotional lability - miscarriage, death, etc.; Okuyucu et al., 2019, 2021; Presado et al., 2019). In the labor ward, the practice of ONs in assisting childbirth in horizontal or vertical positions is complex because they have several focal points of attention at the same time, involving inadequate positions and postural instability, with rapid movements that force the change from a static to a dynamic position, applying force that is often overloaded beyond their individual capacities (Presado et al., 2019). Musculoskeletal discomfort is associated with the adoption of incorrect postures and inadequate movements, increasing local mechanical stress on muscles, ligaments and joints, fatigue, errors, accidents and the risk of WMSDs, with repercussions on their health and quality of life (Sousa et al., 2018, 2023).

Individual risk factors such as: age, years of practice, body mass index, working hours, job satisfaction and stress are all factors that contribute to the worsening of injuries (Okuyucu et al., 2019). As well as the pandemic context (COVID-19), in which nurses were subjected to the tension and physical exhaustion of providing care, with altered work dynamics, resulting from the increased number of patients, with possible exposure to illness and death (Chang et al., 2020). Although stress, anxiety and depression can be seen as normal emotional reactions to a pandemic (Liu et al., 2020), they can aggravate WMSDs (Presado et al., 2019; Sousa et al., 2023).

In recent years, while healthcare quality has improved, the well-being of healthcare workers has been overlooked due to task standardization, heavy workloads, and stress (Bianchi et al., 2019), increasing the risk of musculoskeletal injuries, presenteeism, and absenteeism (Aysun & Bayram, 2017; Luan et al., 2018; Rainbow & Steege, 2017), and ultimately impact organizational sustainability and efficiency (Nascimento & Pestana, 2019). Institutional policies promoting ergonomic literacy and a culture of safety and well-being can help mitigate these risks (Okuyucu et al., 2021). This study aims to understand how obstetric nurses perceive and manage the risk of musculoskeletal injuries.

Methods

Drawing on the qualitative and interpretive paradigm, we used photovoice in this study since it is a participatory action research method that facilitates the involvement of people and communities to bring benefits to everyone, as well as the researcher (Jarldorn, 2019). Photovoice, which combines photography and accompanying narrative, is increasingly valued in health (Capewell et al., 2020) and nursing (Andina-Díaz, 2020; Santos et al., 2018), in that it allows participants to share their needs, thoughts, desires and life experiences about a particular phenomenon of collective interest (Was, et al., 2019; Jarldorn, 2019). Furthermore, photovoice enables participants to be involved in the documentation of data, the production of knowledge and social action (Wang, 1999). One of the aims of photovoice is to lead participants in reflecting on a particular problem that affects them, making them aware of the variables of their own environment (third level of awareness), and empowering them to move from a passive to an active state (Sakamoto & Pitner, 2005). In this way, photovoice methods can support local agents in promoting change (Killion & Wang, 2000; Pinheiro et al., 2024; Presado et al., 2021).

To operationalize the study, the first six of the eight steps outlined by Latz (2017) were followed. Step one corresponds to identifying the relevance of the problem, having developed a systematic literature review (Sousa et al., 2023). The next step involved the selection and invitation of the institution and participants, followed by steps focused on education on the method and problem, the collection of photographic records and their narratives, and finally ideation, where the words narrated become meaningful and produce knowledge. In this method, individual reflection is facilitated in the interviews to promote self-reflection based on the photos collected, allowing them to be critically analyzed and, consequently, for participants to identify beneficial solutions for the group (Jarldorn, 2019).

Study Sample. The selection of participants was intentional, based on predefined eligibility criteria and the availability of obstetric nurses to collaborate with the study (Creswell & Creswell, 2018).

The eligibility criteria were: having professional certification as obstetric nurses and working full-time in a labor ward. The time in the profession was not an exclusion criterion, as the researchers wanted to gain an insight into WMSDs over the course of years in the labor ward. The location for data collection was identified and selected, based on the criteria of accessibility to the researchers and a history of work-related musculoskeletal complaints.

The invitation to take part in the study took place during five education sessions, which were carried out in the department itself, with 91% of the ONs ($n = 29$) taking part. The topics covered were teaching photographic skills (ethics, safety and camera basics) and describing the problem under study - WMSDs. A total of 20 obstetric nurses working in the Gynecology/Obstetrics department of the public hospital on a Portuguese island took part in the study, corresponding to a total of 65% of the ONs in that department. All the ONs who participated directly (photography and interview) or indirectly (present in the photograph) in the study signed the respective informative consent forms. There were no dropouts during the process, but there were two obstetric nurses who verbalized their refusal to participate, which was respected by the participants and the researchers.

Data Collection. Although photovoice is an innovative approach, it is little explored in the context of obstetrics and little known by nurses in clinical practice, so it was essential to hold five education sessions with the aim of providing guidance on how to collect the images, which process to adopt and what precautions were needed to ensure the safety and privacy of those involved.

Photographic documentation of colleagues in daily activities, where they present incorrect, extreme or static postures, leads to reflection on the problem and consequently on their attitude toward the risk of developing WMSDs.

The photographs were taken with participant's personal mobile phones or with the camera provided by the researchers. Once five relevant photographs had been taken, participants were instructed to send the photos to the researcher's email and the interview would be scheduled. Data collection took place in two stages: photographic recording, which took place January to March, 2023, with a total of 100 photographic records collected, and narrative recording (interviews), which took place in March and April, 2023, with a total of 20 interviews.

The interviews were carried out in the department itself, by prior appointment and in a previously defined space, lasting between 24 and 38 min, with only one interview being necessary per participant. The interview script followed the basic guidelines of the acronym SHOWeD, defined by Wang (1999), which asks: What do you see here?; What is really happening here?; How does this relate to your life?; Why does this situation, concern or force exist?; What can we do about it?

In the documentary analysis of the photo, the researcher posed questions to identify the denotative and connotative aspects of the photo, according to the point of view of the participant photographer (Sari et al., 2022). Denotation refers to the literal meaning of the object or image, focusing on the literal meaning of signs and symbols, through something obvious, observable and visible to the eye. While connotation refers to the association or idea suggested by the image, which makes you think of something beyond what is perceptible to the eye (Moldez & Gomez, 2022).

Data Analysis. After the interviews were completed, two researchers transcribed the narratives, and the transcribed text was emailed to all participants for review and validation. Once participants confirmed the narratives, the data from both images and narratives were entered into the qualitative analysis software WebQDA® for further analysis and interpretation

The analysis process was carried out by two other researchers in two phases: in the first, the denotative view of the image records was analyzed together with the participants' narratives, identifying the daily activities perceived by the ON as potentially responsible for WMSDs and their frequency. The second phase, the empirical (connotative) material was analyzed, reading and coding of the findings, creating categories based on the theoretical framework that underpinned this study.

The content analysis process went through the three phases presented by Bardin (2016): pre-analysis; exploration of the material; treatment of the results, inference and interpretation. This process was carried out by two expert researchers, as well as two specialists in the subject area under study, with the aim of minimizing bias and reinforcing the rigor of the study.

Based on Bardin's classification (2016), three semantic categories were identified (perception of preventive measures, perception of risk and musculoskeletal symptoms) and one expressive category (decision-making).

Study Rigor. The fundamental principles of methodological and scientific rigor were supported throughout the developmental process of study, including the credibility, transferability and reliability of the data (Lindgren et al., 2020). Credibility was supported through the verification and validation of the narrative texts by the participants, ensuring that the transcription was accurate and aligned with the ON experience.

The study's credibility was supported by a transparent explanation of the method and research process, grounded in a theoretical framework, enabling reviewers to confirm the results. The team included two PhD Nursing professors and one PhD in Psychology, all with extensive experience in research. To minimize personal bias, the researchers adopted a reflexive approach, suspending assumptions and beliefs, and ensured thorough data collection and analysis with regular group meetings. Narratives were validated by participants before categorization, which ensured relevance and representativeness (Belotto, 2018). Consistent comparison and documented coding changes upheld objectivity, transparency, and adherence to inductive principles.

Ethical Considerations

This study complied with the declarations and guidelines that establish the fundamental ethical principles, the Declaration of Helsinki and the Belmont Declaration (respect for persons, beneficence and justice), the General Data Protection Regulation of the European Union, and European Directive 2001/20/EC. Approval was obtained from the Health Ethics Committee and the Scientific and Research Committee of the Health Service of the Autonomous Region of Madeira, EPERAM under number S.22001442 of 2022/03/29. The ONs in the labor ward were given time to ask questions and were free to take part in the study. Sixty-five percent of the ONs showed an interest in taking part and signed a consent form with the right to their image (photograph) and to take part in the study.

The relationship between the researcher and the participants, the photographic content, the nature of the interviews and their duration were crucial to respecting the dignity of the

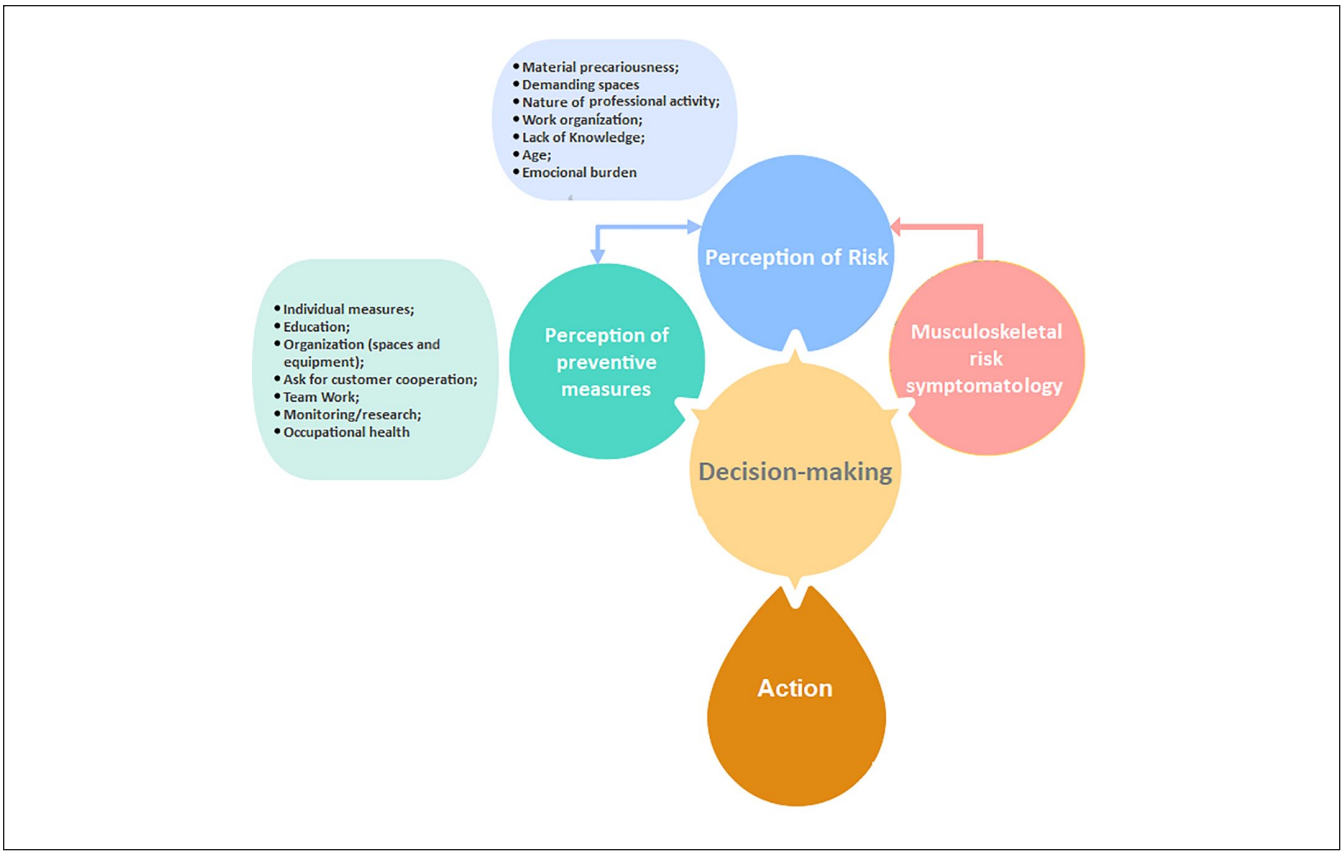

Figure 1. Diagram of categories and subcategories.

participants and minimizing power imbalances (Newton, 2017; Resnik, 2020). During the interviews, a safe environment was maintained, in a private setting selected by the participants, having obtained consent before the interview began, and having been reminded of the possibility of suspending their participation at any time.

Results

The participants in this study were 20 obstetric nurses (ONs), mostly women ($n = 19$), with an average age of 47.55 years, ranging from 30 to 61 years old. The length of time they had worked in nursing ranged from 6 to 40 years, with an average of 14 years' experience as specialists in obstetric nursing.

The normal working hours were 35 a week, but 85% ($n = 17$) reported working between 35 and 42 hr, and 10% between 42 and 50 hr a week. As for part-time work, 55% ($n = 11$) of the ONs say they do it regularly, the main reason being to get extra income and experience (60%) and the rest say it is to make ends meet (40%). An important finding was that eighteen of the participants reported experiencing transient or permanent musculoskeletal symptoms.

Four categories were identified from the content analysis: three semantic categories (perception of risk with the most references, followed by perception of preventive measures and finally musculoskeletal risk symptoms), and one expressive category: decision-making (Figure 1).

Perception of Risks. ONs' perceptions of risks of WMSDs were evident in the photos and interviews, showing that the ONs were able to identify potential risks for injury in their work setting, explain how the image captured in the photos represented a risk for injury (denotative), and describe their feelings, concerns and fears (connotative) associated with these risks. Confined spaces, precarious materials and equipment, work organization and the very nature of the professional activity were identified as risk factors across all the empirical material.

The confined spaces which force nurses to adopt inappropriate postures where body balance and the alignment of the different body segments were evident in photographs (Figure 2). As a result, ON were often forced to assume painful positions, with flexion and lateralization of the trunk, which increases the force and effort required, as well as fatigue.

As the participants noted: *"In the photo we have a colleague who is removing material from a low piece of furniture, and as we can see, the room is not large, with equipment pieces very close to each other, hindering our movement."* [P14]

Figure 2. Photos depicting confined spaces.

> *When transferring a parturient in the delivery room, we are always faced with the same problem: lack of space and conditions, and we have to adapt and in these adaptations we take on positions that are more painful for our spine.* [P7]

> *These activities are very frequent, daily and in all shifts. Our rooms are small, there's not a lot of space, we have to mobilise the beds according to the work we have to do, for example, if we're doing an epidural, we have to move the bed aside so we have space for the anaesthetist to perform the technique on the lady's back, and there's also some material that hinders our passage.* [P8]

Another risk reported was the precariousness of the equipment and material, especially when it could not be adapted to the anthropometric characteristics of the patients and caregivers. For example, this could occur when equipment could not be raised to a certain height or when there was no equipment to facilitate the positioning and mobilization of the parturient and/or newborn:

> *When putting a pregnant person through the cardiotocograph in the emergency department, the position of the back is not correct, overloading the lumbar and dorsal region, this happens because we don't have couches to perform the cardiotocography, and it's done in an armchair that's too low for our back*. [P13]

> *We don't have any material to help us transfer, so we have to use our arm strength, some patients co-operate, others not so much, and we often have to pull them up ourselves using a certain amount of physical effort (. . .) In the last photograph, the colleague is lifting the bed to do a Trendelemburg using physical effort, because there is no automatic mechanism for this task, using arm strength, and she adopts a vicious position that can be debilitating over time, and it's a task we've practised quite often.* (Figure 3) [P14]

The organization of work and the failure to plan the execution of the activity in good time from a biomechanical point of view are pointed out as modifiable factors, by individual and team decision, but not always easy to adopt due to the volume of work, the urgency of the activities and the lack of appreciation of the risk by the professionals. One ON explained the problem as being related to "overwork," explaining that this occurred when nurses were required to complete multiple tasks simultaneously with several patients and with other professionals who "often don't collaborate with us." [P4]. Another ON suggested the problem was related to a lack of awareness:

Figure 3. Photo showing the manual adjustment of the equipment for Trendelemburg.

> *The cause of adopting these postures isn't a lack of training, it's a lack of reviewing our practices, in other words, someone correcting our posture, because those who adopt vicious positions during childbirth aren't aware of adopting that position, they're mechanised and often adopt postures or behaviours because it's quicker.* [P3]

Everyone agrees that there are specific risks associated with the nature of the professional activity, which increases the imbalance between the demands of the job and the professional's ability to respond, relegating the analysis of the risk associated with the task and their own safety to the background. The activities identified were: childbirth, vaginal examinations, the newborn's first breastfeeding and episiorrhaphy, as expressed in these narratives:

> *Another activity that can lead to injuries is childbirth, extracting the newborn without warming up the muscles, without anything, which is the beginning of some musculoskeletal problems that we have, because we often do force and traction without warming up beforehand, starting with musculoskeletal problems, at the level of the spine, which is mainly where we complain the most, because it's what supports the rest of the skeleton/ structure*. [P7]

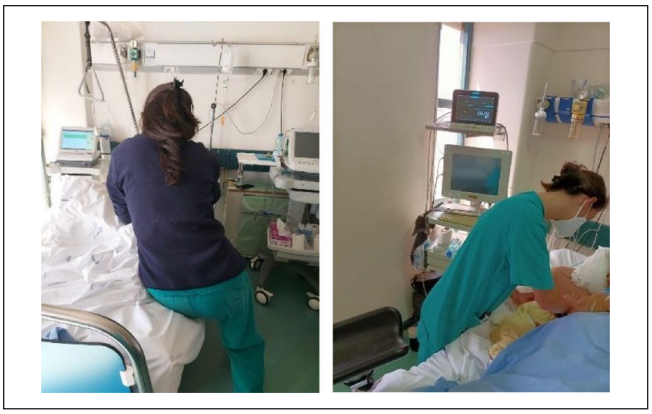

Figure 4. Photo depicting the gynecological assessment technique and breastfeeding.

> *In my opinion, the activity that brings the greatest risk is breastfeeding, because while cardiotocograph monitoring takes a short time, breastfeeding can take a long time and we have to adjust our posture so that the baby stays on the breast, with the breast twisting*. (Figure 4) [P5]

Perception of Preventive Measures. The main suggestion with respect to preventive measures was to train and sensitize teams to the problem of WMSDs. Participants thought that learning the principles of biomechanics could help prevent the adoption of incorrect postures and inadequate movements, and thereby help to reduce local stress on muscles, ligaments and joints. Participants pointed out that education and training play a key role in the integrated prevention and management of these injuries. They suggested using simulated practice and considered this training to be more effective if followed by a system of awareness-raising and monitoring among teams:

> *It's not common to talk about musculoskeletal injuries in the delivery room, nobody talks about it. When it comes to musculoskeletal injuries prevention, we could have practical lessons, on the spot, not in theory, to adapt to the physical conditions we have and also to carry out the different activities, simulating the execution of the activity correctly. In this place, with this lady, in this activity, what would be the best way, it would have to be something more real, so that we could visualise it, because if it's theories in books, which explain how to transfer, everyone knows, but then we can't put it into practice.* [P9]

> *I think that in-service training is an asset, and that we should have examples, even maternal health specialists, who have already been diagnosed with some kind of work-related injury to talk about their experiences. I think it's important to raise awareness of this issue, because we're only reminded of it when someone mentions on a shift that they've had to go to the physiotherapist for shoulder or back complaints, associated with some bad positioning they've done, or in an emergency situation.* [P2]

Participants also indicated there are measures relating to the organization of space, equipment and human resources that can be complementary and help minimize the risk of WMSDs. One ON stated: "Another [consideration] is the material, which is often obsolete and should be replaced by others, such as electronic marquees that promote comfort and safety for pregnant women and professionals." [P5]

The very organization of teamwork, both between the different professionals and between ONs and the parturient person, was viewed as a priority area for change in order to guarantee safe work. The participants' discourse on this measure denotes above all a concern to protect professionals from injury, rather than the importance that the team can have in terms of primary prevention and building healthy working environments. As the following ON put it: "When a colleague has complaints, the team tries to help. I've already had an injury and I couldn't bring the baby to the breast, and I had a colleague who came to replace me." [P10]. This point was reinforced by another ON: "As we work as a team, if someone has a complaint, the team will protect them so that they don't get injured again, [although] obviously this puts a strain on the rest of their team-mates." [P11]

Obstetric nurses are aware that preventive measures, more of an organizational nature, have to be associated with the adoption of individual measures, whether it's physical exercise to strengthen muscles, or the avoidance of domestic and leisure activities that perpetuate the incorrect postures and repetitive movements they perform during clinical practice hours:

> *To prevent musculoskeletal injuries we need to strengthen our muscles, we need to take care of ourselves. We need to do gymnastics, walking, Pilates, etc. to strengthen our spine, the muscles in our limbs, to avoid so many problems like I have with my back.* [P7]

> *Younger people tend to think, "No, this isn't for us. . ." only in 20 or 30 years' time. So we know that maybe we're not doing it right, but we don't realise that it will have consequences for our future. And the risk remains at home, where we also make a lot of mistakes in the application of force and posture.* [P2]

Musculoskeletal Risk Symptoms. Participants who reported experiencing musculoskeletal risk symptoms said that their injuries were accompanied by pain that made it difficult to work and manage activities from their daily lives, with a loss of quality of life and functionality.

> *I'd say that these injuries have an impact on personal life, because when the injury is already effective, it's not just active at work, it accompanies us on a daily basis, interfering with personal life, household chores, general well-being. The sleep, which is extremely important, as we work shifts, and when we can rest we must do so in a restorative way, and when we have an injury we won't be able to rest, resorting to medication to alleviate the pain, but there comes a point when the medication no longer has any effect and then things get more difficult.* [P11]

I've been diagnosed with bilateral shoulder tendinitis 30 years after my complaints(. . .), delivering a baby can be done, but it's done with pain. Bilateral tendinitis increases the pain, it takes months to treat. Last year I had a year of physiotherapy and shockwaves, I already know there's no cure, these are chronic injuries, a consequence of my practice, because I started working in orthopaedics, and my first tendinitis was there. I was carrying a lot of weight, limbs in plaster, transferring patients from beds to chairs and from chairs to beds. I had my first tendonitis when I was 27, when I got here it got even worse (. . .). Those with this type of injury stop doing a lot at home in order to be able to do their best work, if at all, because we come to work with pain and leave with even more pain, depending on what we do. [P17]

Decision Making Related to WMSDs. This category captures participant discourse related to the possibility of deciding in a clinical context, whether or not to assess the risk of injury, whether or not to implement preventive measures and how this decision has influenced or may influence the onset of WMSDs. ON decision making appeared to be associated with the culture of the specific department, the organization of care, the availability of materials and equipment, the complexity of the parturients' clinical situations and their individual experience as an ON who may have experienced injury. To make effective decisions, participants viewed it as essential to learn and develop biomechanical skills on the spot, through simulation and with peer support. This imperative to be competent in order to guarantee their safety was consistently related to the work organization and the management of resources to make performing safely feasible:

We adopt these positions without thinking, only realising when it hurts; because I'm more careful now that it hurts, but when it doesn't hurt, we do these sawed-off positions without thinking, and the consequences come later. [P6]

There are other activities that also contribute to injuries, such as giving birth, our posture, which we were instructed to do sitting down, but we do it standing up, which is more incorrect, I personally prefer to give birth standing up, but I'm aware that, while sitting down we have a more correct posture and the strength itself is better supported. I realise that sitting is better, but since I'm used to giving birth while standing up and I like doing it this way, I continue in the standing position. (Figure 5) [P5]

The level of the bed is something I see a lot in my colleagues, the plane is never at our level, it's something I try to correct, when I'm the one providing care. I'm already aware of it, I'm also more experienced, and I take care to prevent back pain. It's not that I don't do incorrect positions, because I do them, but I'm more aware. I often correct my colleagues, raising the plane, warning them about their posture, but sometimes it's a quicker situation and we don't think about it. [P12]

Figure 5. Photo showing the performance of a sit-up in the orthostatic position.

Discussion

The results of this study show that the ONs who took part in this study were able to identify important risk factors for WMSDs, point out preventive measures to minimize the risk and describe how decisions related to assessing their own risk for WMSDs as well as taking action to ensure their safety are influenced by a number of factors. By using a photovoice approach, this qualitative study extends our understanding of how ONs perceive their risk of WMSDs and how they deal with this situation. The results corroborate the findings of other studies that observe a high prevalence of WMSDs among healthcare professionals, particularly midwives (Okuyucu et al., 2019, 2021; Presado et al., 2019).

The lack or inadequacy of equipment and materials stands out as a risk, and means that some common activities, such as cardiotocography and other tests, are carried out in armchairs that are too low for the professional, or beds and stretchers that cannot be adjusted in height. This reinforces the results of the qualitative study by Dartey et al. (2021), in which the 20 ONs who took part in the study reported that the discomfort associated with the use of non-adjustable delivery beds in the monitoring of labor and delivery of pregnant person is life threatening to both parturients and attending ONs.

The findings of this study reinforce the need for healthcare institutions to take into account not only ergonomics, but also the improvement of the organizational aspects of the work environment (Sousa et al., 2023). This concern extends to the organization of workspaces to allow sufficient space for equipment, materials, the parturient and the companion, and enable the mobility of the various members of the team without obstacles and without affecting balance, body alignment and the adoption of correct postures.

Others have also argued that the physical environment of the delivery/birthing room has an impact on parturients' birth experiences as well as health care staff (Björnson

Skogström et al., 2022). Furthermore, it has been suggested that the design of healthcare environments can effect healthcare quality, safety, and satisfaction of staff with regard to the physical, psychological and social dimensions of the workspace (Björnson Skogström et al., 2022; Ruohomäki et al., 2015). Drawing on their ethnographic research, McCourt et al. (2016) reported that midwives working in labor units designed to provide a homely and comfortable birth environment indicated that this space had a positive effect on their wellbeing as well as their way of working. This suggests a comparison between conventional obstetric units and less medically-oriented birthing environments on the prevalence of musculoskeletal symptoms and the ability to use principles of biomechanics to minimize WMSDs should be explored.

In a systematic review of interventions to prevent musculoskeletal injuries in nursing work, Sousa et al. (2023) concluded that in addition to architectural aspects and equipment, the implementation of systemic and multifactorial programs are needed, including workflow processes, ongoing training, skills monitoring and communication between professionals about risk (Sousa et al., 2023). The ONs in this study pointed to the need for similar interventions. They indicated that attention to the architectural aspects and the ergonomics of materials in their workplace are necessary to minimize the risk of WMSDs. However, they also emphasized the importance of implementing systematic, multifactorial programs, including workflow processes, continuous training, simulation in situ, skills monitoring and communication between professionals about WMSDs.

Our findings concerning obstetric nurses' decision-making related to the prevention of WMSDs make an important contribution to the literature. A study that explored the factors that influence clinical decision-making of midwives who work independently, identified five themes that influenced clinical decision-making: the pregnant person as a whole individual, sources of knowledge, the midwife as a whole person, the collaboration between maternity care professionals, and the organization of care (Daemers et al., 2017). In our results, we also found that the wellbeing of the pregnant person and the baby is a priority for the ONs, and especially in emergency situations, ONs sacrificed their own safety to ensure the best care for the dyad. Reflection on how ONs make decisions related to risk assessment and preventive measures and how these influence the onset of the injury is present in all the interviews. However, these reflections were more detailed among ONs with more years of professional activity and experience related to WMSDs. Future studies should explore whether ON's decisions related to assessing and preventing musculoskeletal injuries are shaped not only by their experience, intuition, and personal circumstances but also by their attitudes about physiology, parturient-centredness, shared decision-making, and collaboration with other professionals (Daemers et al., 2017).

Strengths and Limitations. The methodological choice of a qualitative study using visual methods and data allowed us to understand the phenomenon from the participants' point of view. From the dialog between the results of this study and international literature, new dimensions and perspectives emerge that make it possible to propose solutions to mitigate this problem. The use of visual methods makes it possible to visualize the intangible dimensions of human activity, allowing attention to be focused on what is truly important to the participant, including aspects that might not have occurred to the researcher (Rodrigues, 2022).

Nevertheless, this study as limitations associated with its nature, method and data collection technique. Participants were recruited from one hospital where working conditions and equipment may be different from other settings. As well, the age and professional experience of our sample may limit the transferability of the study findings. We only had one male participant, which did not allow us to determine whether there are differences in risk assessment, implementation of measures, musculoskeletal symptomatology and decision-making according to sex. The interpretation of the data may have been influenced by the researchers' experience in this area of research, given that two of the researchers are ONs. However, the triangulation of sources (photographs, field notes, interviews) allowed for a deeper understanding of the phenomenon and enriched the analysis. Further, returning the analysis to the participants made it possible to validate the interpretations by the participants, and thus minimize possible biases.

Conclusions

Although numerous studies have investigated WMSD's in nurses, few have focused specifically on obstetric nurses or used a qualitative approach to explore the issue. In this study, the use of photovoice offered a holistic perspective. The study findings revealed that risks for musculoskeletal injuries were associated with multiple factors, including limited workspaces, inadequate materials and equipment, work organization and the inherent nature of the ONs' professional tasks. The urgent need to implement approaches to prevent these injuries was evident in that 18 of the 20 ONs reported having experienced work-related transient or permanent musculoskeletal symptoms. The strategies mentioned by the ONs as potentially effective for preventing WMSDs included improvements to the physical work environment, sensitization of the team to the problem, and developing biomechanical skills in situ through simulated exercises and peer support.

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