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## Work-related Musculoskeletal Pain in Obstetrics and Gynaecology Professionals

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### Abstract

**Background:** Surgical fields like Obstetrics and Gynaecology are highly demanding, both physically and mentally. This often leads to acute and chronic muscular strain which can impede productivity and patient care. The present study aims to study the burden of musculoskeletal pain among practicing obstetricians and gynaecologic surgeons, identify associated risk factors and the impact on their physical health.

**Materials & Methods:** A web-based questionnaire was used to collect data from obstetrician and gynaecologists for studying musculoskeletal pain. Descriptive analysis was done of the risk factors and relation with surgical practice patterns and the effect on lifestyle.

**Results:** The overall prevalence of Musculoskeletal pain/discomfort was 61.3%. The most common region effected was the lower back (44.7%) followed by the neck (36.8%). Majority gave a pain score of 5–7 out of 10. The main event leading to the initial episode of pain was cited as performing consecutive multiple surgeries/deliveries (64.8%). 66% of the participants had more than 7 days of their daily living activities affected significantly. Three-fourth of the doctors reported relief of pain by rest. 81% reported a recurrence of pain after complete cure owing to return to their previous level of activities.

**Conclusion:** The present study highlights that the majority of the musculoskeletal pain burden was preventable by early recognition and rest. It brings to focus the need to address the importance of ergonomics for surgeons, obstetricians and gynaecologists, in particular. Establishing a protocol to identify at-risk surgeons and formulate a timely intervention and rehabilitation plan is essential to enhance performance.

**Keywords.** work-related, musculoskeletal pain, occupational injury, obstetricians, gynaecologists, ergonomics, surgery

## Introduction

Work related musculoskeletal discomfort and pain has been in focus in the recent times as there is an increasing awareness and aim to improve the quality of life. The repetitive use of a particular group of muscles, joints, tendons, etc results in micro injuries over a period of time. If not given rest, they lead to constant pain and stiffness and may result in irreversible damage also. Work related Musculoskeletal pain has been studied in association with various occupations, and has been researched in health professionals as a large group. [1,2] But very scant research exists in the context of Obstetricians and Gynaecologists.

Surgical branches of the medical profession are highly demanding and predisposes the doctors to constant physical and mental strain. Studies have shown that female surgeons have a higher prevalence of musculoskeletal pain as compared to males.[3] Obstetricians and Gynaecologists (OB/GYN) in most institutes, especially in North India, are predominantly females.

The aim of the present research was to study the burden of work-related musculoskeletal pain among practicing Obstetricians and Gynaecologic surgeons. The primary objective was to determine the prevalence and spectrum of musculoskeletal pain among Obstetrics and Gynaecology (OB/GYN) practitioners and identify associated risk factors. The secondary objective was to study its impact on their physical health and productivity.

## Material and Methods

A web-based questionnaire was designed to collect data from Obstetrician and gynaecologists for studying musculoskeletal pain. Institutional Ethics Committee approval was taken for the study.

Participant selection for the study was done by Purposive sampling method. A validated structured proforma was used to collect the information related to the risk factors and relation with surgical practice patterns and the effect on lifestyle. The questionnaire was distributed via an online link which was shared by email and WhatsApp to 100 practicing Obstetricians and Gynaecologists both in the Government and private sectors. The questions included both open ended and closed ended type.

Questions were related to demographics, pattern of obstetrics and gynaecology practice, location of pain/discomfort, its duration and severity, aggravating and relieving factors and effect on work or leisure activities. In addition, the participants were enquired about medical/ surgical treatment sought.

The primary outcome was prevalence of musculoskeletal symptoms, body regions involved, severity of the pain and identify risk factors. Secondary outcomes included the impact of work-related musculoskeletal pain/discomfort on day-to-day activities and work performance. Descriptive analysis was used to analyse the data collected.

## Results

The questionnaire was distributed online to 100 practising Obstetricians and Gynaecologists, both in the Government and private sectors, and the response rate was 62%. Of all those who had responded, were resident doctors across all years (40.3%), Government Institute consultants (35.5%) and Private practice consultants (24.2%).

Majority of the participants were less than 40 years (67.7%), three participants were less than 25 years and 19.4% were more than 45 years. Most of the OB/GYN practitioners used their right-hand predominantly (92%). There was only one male OB/GYN practitioner and the rest were females.

The clinical workload was assessed in terms of working hours involved in performing deliveries or surgeries. Forty-two participants (67.7%) reported average working hours (performing deliveries or surgeries) of more than 20 hours per week, which was considered as heavy workload.

The overall prevalence of Musculoskeletal pain/discomfort was 61.3% (Thirty eight out of 62 respondents experienced musculoskeletal pain or discomfort in the preceding year). The most common region affected was the lower back (44.7%) followed by the neck (36.8%) and shoulder/arm region (28.9%). The involvement of the other regions was as shown in Figure1.

Among those affected, the pain was chronic and lasting for more than three months in almost half of the Obstetricians and Gynaecologists who experienced pain (54%) and 43.2% reported that the pain lasted for a duration of more than 180 days in the past one year. The frequency of pain episodes was also high as 84.3% of the total participants who experienced musculoskeletal pain reported more than three episodes of pain in the preceding year.

All participants experiencing musculoskeletal pain were asked to rate the pain/discomfort as a range from 1 to 10. The pain scores given by the participants had a mean pain score for all responders as 5.42 (Figure 2).

The number of working hours and the pain scores were analysed to see how the increased workload had an impact on musculoskeletal pain (Table 1). The participants who had average working hours between 16 to 20 hours had the

maximum pain scores (Mean pain score 7.5), indicating increase in pain scores with the greater cumulative hours of surgery/delivery. Doctors with less than five hours of conducting deliveries or surgeries did not experience any significant musculoskeletal pain or discomfort.

The main event triggering the initial episode of pain was cited as performing multiple surgeries or deliveries over consecutive days (37.8%), followed by multiple surgeries/deliveries in a single day (27%). A single difficult surgery or delivery performed led to the initial episode of musculoskeletal pain in 8.1% respondents. Injury due to scalpel causing musculoskeletal pain was also reported by one participant.

In clinicians experiencing the initial musculoskeletal pain episode, the symptoms were aggravated by continuing multiple surgeries/ deliveries in 76.3% of the participants. Whereas, 10.5% reported no further aggravation of pain or discomfort. Two participants reported that a single difficult case performed with their preexisting musculoskeletal pain deteriorated their symptoms.

Despite a large number of OB/GYN professionals being afflicted with some form of musculoskeletal injury, more than half (57.9%) did not seek any professional

help for their condition. In fact, 21.7% took self-medication. The reasons cited were mainly that they considered it a usual event and thought that it would subside eventually (47.8%). Lack of time to seek medical attention was mentioned by 17.4%. As is seen in Figure 3, taking adequate rest was instrumental in pain relief in majority (76.3%).

The pain was relieved mainly by taking rest, physiotherapy and oral medications. Although there was relief in the pain or discomfort by a combination of modalities, yet there was complete relief in only 23.7% participants and 73.7% had only partial relief.

Even after complete cure, there was a recurrence of symptoms in 50% of the doctors. This was attributed to return to previous level of activity in 81.8% of those who had recurrence of symptoms. In fact, more than 3 days of rest was advised in 23.7% practitioners, but only 8.1% actually took days off work due to work commitments.

Although one-fourth of the participants did not report any major effect on the daily living activities, a large proportion of them (40.5%) had more than a week of daily activities adversely effected (Figure 3).

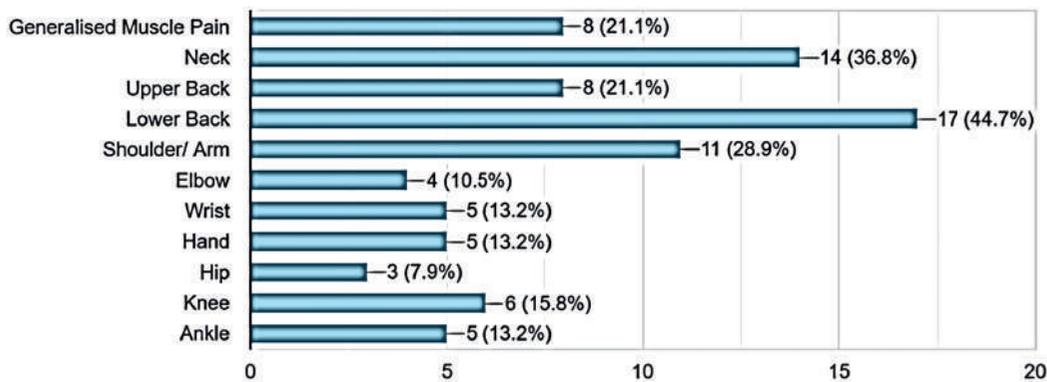


Fig. 1. Body regions involved with musculoskeletal pain

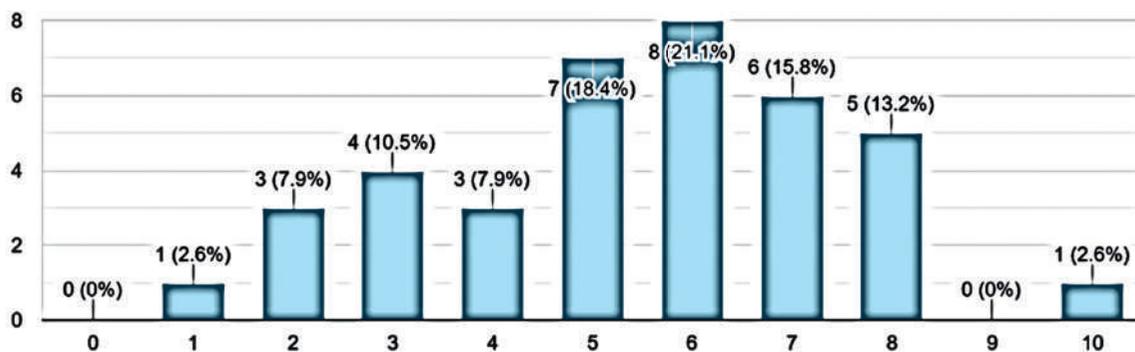


Fig. 2. Musculoskeletal pain/discomfort score on a scale of 1-10

**Table 1. Pain score according to the number of working hours (deliveries and surgeries) per week**

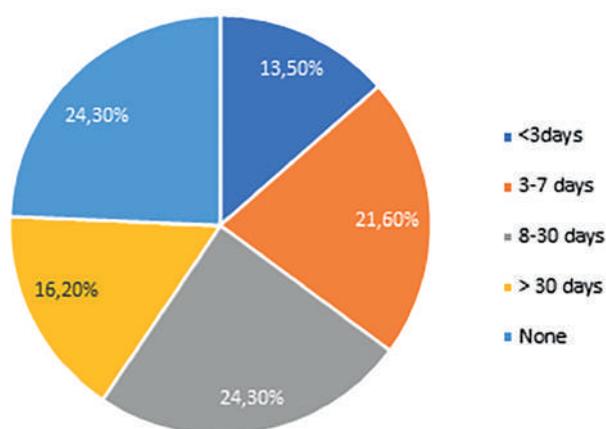
Average Working hours/week	Participants who reported pain (n=38)	Mean pain score (1 to 10)
< 5	0 (0%)	0
6–10	5 (13.1%)	4.8
11–15	4 (10.5%)	5.7
16–20	2 (5.2%)	7.5
>20	27 (71%)	5.3

### Discussion:

In the present study, there was a high prevalence of Musculoskeletal pain/discomfort among OB/GYN professionals (61.3%). A similar high prevalence of work-related musculoskeletal injuries among Obstetricians and gynaecologists has been reported by Okuyucu KA, et al (63%) and Kapoor S, et al (53.6%). [4,5]

Obstetricians and Gynaecologists are particularly at risk as the profession involves both elective and emergency surgeries, unpredictable timings and heavy workload. This often leads to acute and chronic muscular strain which can impede productivity and patient care.

The burden of musculoskeletal pain and discomfort is highlighted by the fact that a significant number of Gynaecologists (84.3%) had more than three episodes of pain and in almost half of the respondents the pain was chronic and lasting for more than three months (54%). Adams et al reported that many surgeons experience pain for a prolonged duration >180 days in various regions like neck and back. [6]



**Fig. 3.** Number of days of daily living adversely affected due to musculoskeletal pain

Despite having discomfort and pain affecting routine activities, more than half of the OB/GYN practitioners (57.9%) did not seek professional help. Majority (47.8%) considered it as a usual event and thought it would eventually subside. A recent cross-sectional survey also reported that only a small fraction (23%) of gynaecologic surgeons sought treatment for work related musculoskeletal injuries [7]. This is a common scenario wherein doctors usually reconcile with their health, often ignoring symptoms. Most doctors are too busy to even seek timely medical attention and this can further reduce the work efficiency. Moreover, despite being advised rest to cure the musculoskeletal stress, only a third of the doctors actually took rest. Whereas, others couldn't take rest owing to various work commitments. Studies have also shown that most doctors are not aware of ergonomic principles and often have symptoms due to chronic strain. [8,9]

The reporting of pain and mean pain scores also increased with the increase in the number of working hours related to deliveries and surgeries, as is evident from the table 1. Recuperation is essential to prevent tissue damage due to accumulating and repetitive stress. This will be possible only if there is increasing awareness and recognition of the musculoskeletal affliction. Other researchers have also advocated that there should be sufficient time to recover from any injury, otherwise there is a harmful cumulative effect. [10]

The most common regions involved with regard to musculoskeletal pain in OB/GYN professionals in the present study were the lower back and neck. Other studies on Obstetricians and gynaecologists show consistent findings with regard to the involvement of neck and back regions frequently. [4,6] The high risk for neck and lower back has also been established by an objective assessment of intraoperative workload on surgeons. [11] In another research which assessed the intraoperative

workload objectively, involved This signifies the areas of chronic strain due to poor postures for long duration. Specific attention can be paid to the posture or technique which can prevent the strain on the musculoskeletal system. For instance, adjusting the Operation Theatre (O.T.) table to an optimal height so as not to stoop over, will minimise neck strain while performing surgery. Repeated musculoskeletal activity and long duration of exposure coupled with lack of rest intervals for recuperation has a significant negative impact on the health.

The impact of the musculoskeletal pain was ascertained by the loss of work days and efficiency as is evident from the results. Literature supports similar observation that productivity at work is negatively impacted and consequently puts a great economic burden. [9,12]

Identification of the various risk factors causing musculoskeletal pain or discomfort can be done by a detailed history regarding cumulative hours at work, force applied and posture during work. Risk factor assessment has been proven to be an effective strategy to plan interventions with the aim of minimising musculoskeletal injuries. [12] A recent study has explored the option of an ergonomic device for the benefit of open surgeons based on the research that there is a high prevalence of neck and lumbar pain due to the biomechanical risk of unfavourable postures during surgery. [13]

## Conclusion

Musculoskeletal pain is highly prevalent among Obstetrics and Gynaecology professionals across all the levels of seniority. It brings to focus the need to address the importance of ergonomics for surgeons, Obstetricians and Gynaecologists, in particular. As majority of the musculoskeletal pain burden is preventable by early recognition and rest, establishing a protocol to identify at risk Surgeons and formulate a timely intervention and rehabilitation plan is essential to promote well-being and enhance performance.

Future research can be aimed at evaluating effectiveness of different strategies and in planning ergonomic adaptations.

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### **Біль у опорно-руховому апараті, пов'язаний із професійною діяльністю, серед фахівців акушерства та гінекології**

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#### **Анотація**

**Передумови:** Хірургічні спеціальності, такі як акушерство та гінекологія, є надзвичайно вимогливими як фізично, так і психоемоційно. Це часто призводить до гострих і хронічних м'язових перенапружень, що можуть погіршувати продуктивність і якість надання медичної допомоги. Це дослідження спрямоване на оцінку поширеності болю в опорно-руховому апараті серед практикуючих акушерів та гінекологів, визначення пов'язаних факторів ризику та впливу на їх фізичне здоров'я.

**Матеріали та методи:** Для збору даних щодо болю в опорно-руховому апараті було використано онлайн-анкету, заповнену лікарями-акушерами та гінекологами. Проведено описовий аналіз факторів ризику, їх взаємозв'язку з характером хірургічної практики та впливом на спосіб життя.

**Результати:** Загальна поширеність болю/дискомфорту в опорно-руховому апараті становила 61,3%. Найчастішою зоною ураження була поперекова ділянка (44,7%), далі — шия (36,8%). Більшість учасників оцінювали інтенсивність болю на 5–7 балів із 10. Основною подією, що спричинила перший епізод болю, було виконання кількох операцій/пологів поспіль (64,8%). У 66% учасників понад 7 днів значною мірою були порушені повсякденні активності. Три чверті лікарів повідомили про полегшення болю після відпочинку. 81% зазначили рецидив болю після повного одужання у зв'язку з поверненням до попереднього рівня навантаження.

**Висновок:** Представлене дослідження підкреслює, що більшість випадків болю в опорно-руховому апараті є попереджуваними завдяки ранньому розпізнаванню та своєчасному відпочинку. Це акцентує увагу на важливості ергономіки для хірургів, особливо акушерів і гінекологів. Вкрай необхідно розробити протоколи для виявлення лікарів групи ризику та своєчасного впровадження заходів і реабілітації для підвищення ефективності їх роботи.

**Ключові слова:** біль, пов'язаний із роботою, біль у опорно-руховому апараті, професійна травма, акушери, гінекологи, ергономіка, хірургія.