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ORIGINAL ARTICLE

Musculoskeletal Problems in Pregnancy

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ABSTRACT

Introduction: Pregnancy induces many modifications in a woman's body which include changes in posture, changes in blood physiology, weight gain, changes in musculotendinous strength, joints, and ligaments laxity. Many researchers have suggested that the incidence of back pain in pregnancy is between 30% to 70%. The main objective of this study is to offer an extensive view of the musculoskeletal problems experienced during pregnancy and to find out the most common causes of musculoskeletal pain and symptoms in pregnancy.

Materials and methods: This study was conducted at Dow University Hospital in the Department of Orthopedic Surgery from December 2020 to February 2021. After taking ethical approval from IRB (Institutional Review Board) of Dow University of Health Sciences, a total of 184 women are included in this study. Antenatal follow-ups of the patient were conducted in this study, during which certain musculoskeletal problems during pregnancy were asked. The participants who had a term pregnancy (37-42 weeks), aged between 18-45 years, during antenatal visits were included in the study. Those who had prior musculoskeletal disorders other than pregnancy e.g. rheumatoid arthritis, osteoarthritis, SLE (systemic lupus erythematosus) were excluded from the study.

Results: The participants of our study had a mean age of 30.15 ± 6.80 years. Most of the participants were graduates i.e. 143(77.72%). Average weight gain during pregnancy was 13.69 ± 6.80 kg and only seven (3.80%) participants did aerobic exercise during pregnancy. Regarding timings of the musculoskeletal symptoms, most of the participants had symptoms at night i.e. 155(84.24%). The low backache was seen in 168(91.3%) participants, arthralgia was seen in 135(73.4%) participants, arthritis was seen in 69(37.5%) participants, and neck pain was seen in 64(34.8%) participants.

Conclusions: Musculoskeletal problems due to pregnancy cause a huge burden on the health economy. The most common musculoskeletal problems include low backache, arthritis, arthralgia, and neck pain. Weight gain and a sedentary lifestyle during pregnancy make these problems even worse. Further studies on a larger scale are needed to validate the results of this study.

Keywords: Musculoskeletal problems, Pregnancy, Arthritis, Arthralgia, Low back pain, Neck pain

INTRODUCTION

Pregnancy induces many changes in a woman's body which include changes in posture, weight gain, changes in musculotendinous strength, joints, and ligaments laxity [1]. To some extent, almost all women complain of musculoskeletal problems. Most of them do not seek medical aid until their discomfort starts interfering with their daily living activities.

The researchers have suggested that the incidence of back pain in pregnancy is between 30% to 70% [2-5], pain in the symphysis pubis during pregnancy was reported to be 37.1% in another study [6]. The pregnant woman mostly experiences lower back pain, muscle cramps, carpal tunnel syndrome, sacroiliac joint pain, lower limb joint pains, foot discomforts, and pedal edema.

Sedentary lifestyle, cultural values, environmental factors, level of physical activity affects the level of musculoskeletal dysfunctions.

This study was conducted at a tertiary care hospital in Karachi Pakistan. This study aimed to find out the musculoskeletal dysfunctions and general distresses usually experienced by a pregnant woman across various trimesters. So that, this data may help in the development of physical discomfort specifications and also for suggesting a custom-made exercise and informative program to each pregnant woman.

Regardless of the importance of the topic, current literature is insufficient for clinical trials and most of the information is grounded on case series and professional opinions from clinical experience [7]. The main objective of this study is to provide a broad look at the musculoskeletal problems experienced during pregnancy and to identify the most common causes of musculoskeletal pain and symptoms in pregnancy.

MATERIALS & METHODS

The proposed study was conducted at Dow University Hospital in the Department of Orthopedic Surgery for a period of three months i.e. December 2020 to February 2021. After taking ethical approval from the Institutional Review Board of Dow University of Health Sciences, a total of 184 women are included in this study. Antenatal follow-ups of the patient were conducted in this study, during which certain musculoskeletal problems during pregnancy were asked. The study comprised of participants who had a full-term pregnancy (37-42 weeks), aged between 18-45 years, throughout antenatal visits. Those who had prior musculoskeletal disorders other than pregnancy e.g.

rheumatoid arthritis, osteoarthritis, SLE (systemic lupus erythematosus) were excluded from the study.

The basic demographic details of patients including, occupation, literacy level, sex of the baby, and clinical characteristics of the patients including age, body mass index, weight gained during pregnancy, parity, and exercise habits were collected from the medical questionnaire charts and face-to-face interviews. Musculoskeletal pain regions were defined as hand-wrist, elbow, shoulder, neck, back, low back, hip, knee, and ankle-foot in a figure of the human body. The interviews were conducted with participants in each trimester antenatal visit to assess their musculoskeletal pain severity individually in each trimester.

RESULTS

The mean age of the participants is 30.15 ± 6.80 years, as shown in Table 1.

Table 1: Analysis of the age of participants

	N	Minimum	Maximum	Mean	Std. Deviation
Age	184	20.00	39.00	30.1576	6.80824

The mean parity of the participants is 3.51 ±.99, as shown in Table 2.

Table 2: Analysis of parity of participants

	N	Minimum	Maximum	Mean	Std. Deviation
Parity	184	1.00	6.00	3.5163	.99713

Regarding the education of participants, 15(8.15%) were matriculation passed, 15(8.15%)were intermediate passed, 143(77.72%) were graduates and only 11(5.98%) had masters done, as shown in Figure 1.

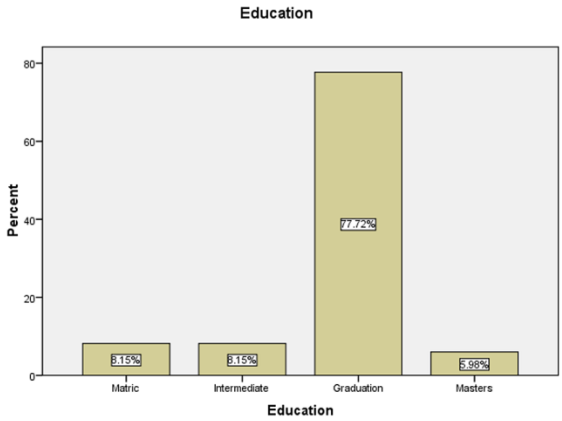

Figure 1: Distribution of educational level of participants

The average weight gain during pregnancy is 13.69% ±2.40, as shown in Table 3.

Table 3: Analysis of weight gain in pregnancy among participants

	N	Minimum	Maximum	Mean	Std. Deviation
Weight gain in pregnancy	184	6.00	20.00	13.6957	2.40782

Among participants, only seven (3.80%) did exercise whereas 177(96.20%) did no exercise during pregnancy, as shown in Figure 2.

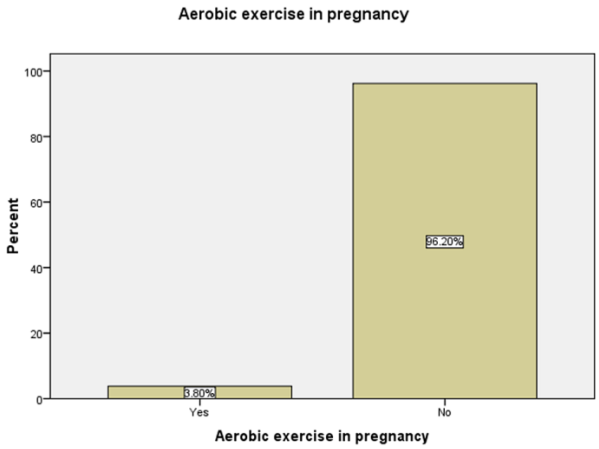

Figure 2: Frequency of aerobic exercise in pregnancy among participants

Regarding timings of symptoms, eight (4.35%) had symptoms in the morning, 20(11.41%) had symptoms in the evening and 155(84.24%) had symptoms at night, as shown in Figure 3.

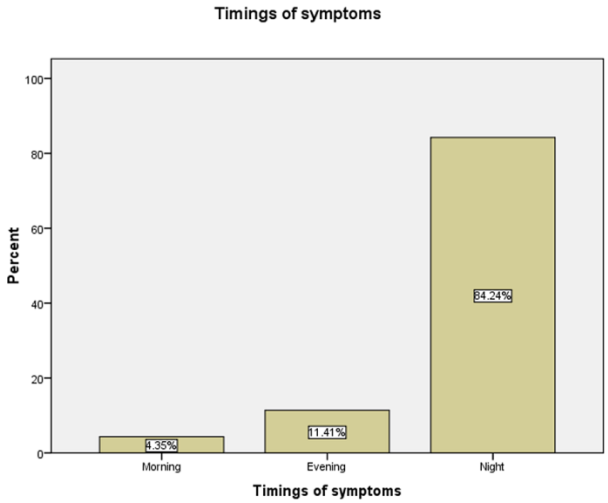

Figure 3: Distribution of timings of symptoms among participants

Regarding the frequency of musculoskeletal symptoms among participants in descending order, low back pain was seen in 168 (91.3%) participants, arthralgia was seen in 135(73.4%) participants, arthritis was seen in 69(37.5%) participants, and neck pain was seen in 64(34.8%) participants. Among less frequent symptoms, carpal tunnel syndrome was detected in 24(13.0%) participants, De. Quervains disease was seen in five (2.7%), pelvic pain was detected in 18(9.8%) participants, and hip pain and AVN (Avascular necrosis) hip joint were detected in 47(25.4%) and four (2.2%) participants respectively. Pain in elbow, shoulder, and ankle, and foot was detected in 39(21.2%), 19(10.3%), and five (2.7%) participants respectively. The frequency of leg muscle cramps was 42(22.8%), plantar fasciitis was 46(25.0%), and thoracic outlet syndrome was 0(0%). These findings are as shown in Table 4.

Table 4: Frequency of musculoskeletal symptoms among participants

Musculoskeletal symptoms	Response	Count	Table N %
Low back pain	Yes	168	91.3%
	No	16	8.7%
Pelvic pain	Yes	18	9.8%
	No	166	90.2%
Hip pain	Yes	47	25.4%
	No	138	74.6%
AVN hip joint	Yes	4	2.2%
	NO	180	97.8%
De-Quervains	Yes	5	2.7%
	No	179	97.3%
Carpal tunnel syndrome	Yes	24	13.0%
	No	160	87.0%
Arthralgia	Yes	135	73.4%
	No	49	26.6%
Arthritis	Yes	69	37.5%
	No	115	62.5%
Pain in elbow	Yes	39	21.2%
	No	145	78.8%
Pain in shoulder	Yes	19	10.3%
	No	165	89.7%
Pain in neck	Yes	64	34.8%
	No	120	65.2%
Pain in ankle and foot	Yes	5	2.7%
	No	179	97.3%
Leg muscles cramps	Yes	42	22.8%
	No	142	77.2%
Plantar Fasciitis	Yes	46	25.0%
	No	138	75.0%
Thoracic outlet syndrome	Yes	0	0.0%
	No	184	100.0%

AVN- avascular necrosis

DISCUSSION

In our study incidence of low back pain is in 91.3% of participants. which is closely look like to the results of a study done by Adinma et al which shows most of the participants had low back pain [7]. Previous literature shows 50-80% of women suffering from low back pain. The risk factors for low backache were mentioned as multiparity and sedentary lifestyle [8-11]. Regarding leg pain, 22.8% of respondents said that they had leg pains during pregnancy, whereas a study conducted by Kesikburun et al shows 75% of respondents had leg cramps [12]. Mean parity in this study was 3.5, literature shows a high prevalence of the musculoskeletal problem in multiparous women as compared to nulliparous women which are consistent with a study done by Bjelland which shows 21% pelvic girdle pain in those with two deliveries, 18% among primiparous and 11 % among first-time mothers [13]. De. Quervains disease is the inflammation of the dorsal compartment of wrist tendons i.e. abductor pollicis longus and extensor pollicis brevis [14, 15]. In our study, five (2.7 %) participants had De. Quervains disease. Regarding carpal tunnel syndrome, 24(13%) participants experienced this problem. A study done by Kesikburun et al shows 59(32.1%) had this problem [12]. Leg pain often presents as crampy pain in the calf in 22.8% of cases in our patient which is very close to a study done by Adinma et al which shows 25% of respondents had this problem [7]. In our study, 30.1 % of women had arthritis in various joints which is consistent with a study done by Banyai et al which shows an increased incidence of muscular weakness around the knee joint along with that there is a decrease in proprioceptive perception around the knee joint [16]. In our study, five participants had pelvic girdle pain which is consistent with a study was done by Vullo and colleagues whose study shows 34% of pregnant women had hip pain [17]. Whereas a study done by Kesikburun et al shows 32% had hip pain [12]. Due to increased mechanical pressure and load on the hip joints mostly women had increased incidence in the second and third trimester of pregnancy. However, osteonecrosis of the hip joint and transient osteoporosis should have suspected in those patients coming with hip pain. Diastases of the pubic symphysis, sacroiliitis, cauda equina syndrome, acetabular labral tears are also the causes of hip pain in addition to other causes [17-20].

The alteration of the mechanics during pregnancy necessitates the lower-extremity joints to adapt by absorbing extra force [8]. Low back pain, arthritis, knee, foot pain, and leg spasms have been recognized as the most common lower-extremity problems experienced during pregnancy. In the lower extremity, the hip is the most commonly affected region. Vullo and colleagues reported that 34% of pregnant women experienced hip pain [17]. Likewise, in the current study, 25.4% of women reported hip pain. Most of the women experienced hip pain in their third trimester. It may be due to an increase in mechanical load to hip joints owing to increase fetus size in the third trimester of pregnancy. Though, some specific disorders which may cause hip pain should also be evaluated. In a pregnant woman presenting with hip pain, transient osteoporosis of the hip or osteonecrosis of the femoral head should also be evaluated. Also, sacral fractures, acetabular labral tears, symphysis pubis diastasis or dysfunction, cauda equina syndrome, and sacroiliitis are uncommon reasons for hip pain in pregnancy [12-15].

CONCLUSIONS

Pregnancy-induced musculoskeletal problems cause a huge burden on the health economy of the country. Most women are suffering from these problems in any trimester. The most common problems came out to be backache, arthritis, arthralgia, carpal tunnel syndrome, De. Quervains disease. Weight gain during pregnancy superadded by a sedentary lifestyle makes these problems even worse.

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