

**CHARACTERISTICS OF PREGNANCY RELATED LOW BACK  
PAIN AMONG THE PREGNANT WOMEN AT SELECTED  
HOSPITALS IN BANGLADESH**

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled-

**CHARACTERISTICS OF PREGNANCY RELATED LOW BACK PAIN AMONG THE PREGNANT WOMEN AT THE SELECTED HOSPITALS IN BANGLADESH**

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## **DECLARATION**

I declare that the work presented here is my own. All source used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of the study. I would be bound to take written consent from the Department of Physiotherapy of Bangladesh Health Profession Institute,(BHPI).

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## Acronyms

<b>ADL</b>	:	Activities of Daily Living.
<b>BHPI</b>	:	Bangladesh Health Professions Institute
<b>BMRC</b>	:	Bangladesh Medical Research Council
<b>CRP</b>	:	Centre for the Rehabilitation of the Paralysed
<b>HBP</b>	:	High Back Pain.
<b>LBP</b>	:	Low Back Pain.
<b>LP</b>	:	Lumbar Pain.
<b>MDT</b>	:	Multi-Disciplinary Team
<b>PPP</b>	:	Posterior Pelvic Pain.
<b>SIP</b>	:	Sacro-Iliac Pain.
<b>SPSS</b>	:	Statistical Package of Social Science
<b>WHO</b>	:	World Health Organization
<b>IRB</b>	:	Institutional Review Board

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## Abstract

**Purpose:** The purpose of the study was to identify the characteristics of pregnancy related low back pain among the pregnant women at selected hospitals in Bangladesh.

**Objective:** The objective of the study was to find out the characteristics and most affected age group of low back pain during pregnancy, discover the frequency of low back pain in the different trimesters of pregnancy, association and explore the information about the LBP & occupation of the pregnant women.

**Methodology:** The study was performed in cross sectional study design. The study was conducted on musculoskeletal condition. The sample was collected through convenience sampling procedure and the samples were 100. The data was collected from Mirpur CRP and OGSB Maternity Hospital, Mirpur Zoo road, Dhaka. The data was collected through questionnaire with face to face interview. The questions were in some close and open ended. Data was analyzed with Microsoft Office Excel 2010 using SPSS 20 version software program.

**Result:** It was found low back pain mostly occurred among pregnant women who were 26 years older. The housewives were mostly complaints of Low back pain. In case of 1<sup>st</sup> pregnancy or primigravida, low back pain was experienced most, it was 65% and in the 3rd trimester of pregnancy percentage of feeling low back pain was most, and it was 49%.

**Conclusion:** Low back pain is very common during pregnancy. But there is lack of proper treatment of this Low back pain. They were not aware about existing physiotherapy services. Proper physiotherapy could be helpful to minimize this pain and prevent other pregnancy related complications also. So, in respect of Bangladesh, it is important to introduce obstetrical physiotherapy. This study can form a baseline for the physiotherapy service provision for the pregnant women with Low back pain.

**Recommendation:** LBP among pregnant women is burden for Bangladesh. For this reason, **firstly** it is recommended that the next generation of Physiotherapy members continue study regarding this area with large sample size and participants form different

districts of Bangladesh. **Secondly**, find out the factors behind the patient awareness status.

**Key words:** Low Back Pain, Prevalence, Associated Factors, Pregnant Women.

### **1.1 Background**

Back pain is omnipresent in today's society and is particularly common during pregnancy. 70% of all women will experience with back pain during pregnancy (Sabino and Grauer, 2008). Back pain is a major complaint encountered in clinical practice worldwide. In a paper published in *Obstetrics and Gynecology*, 2862 pregnant women participated in a study in the community of Linköping, Sweden, answered detailed questionnaires in the 20th, 30th, and 35th week of pregnancy, All women had symptoms of low back pain. Seventy-nine had such severe pain that they were referred to an orthopedic surgeon of orthoneurologic examination. These 79 were followed from 6 to 12 months after delivery (Victoria & Arcadi, 2011). In the western countries women are increasingly demanding a better quality of birth and obstetrics physiotherapy (Polden and Mantle, 2009).

In United Kingdom physiotherapist has an important role in multi professional team in women's health because during pregnancy women face some physical problems that need physiotherapy intervention. A Swedish survey reports that 66% of women between the age of 38 and 64 year's experience low back pain. Interestingly the majority of these women reported that their first episode of low back pain occurred during pregnancy period. Severe low back pain during pregnancy are at extremely high risk for developing a new episode of severe low back pain during a subsequent pregnancy as well as later in life (Joseph & Cragin, 2008). In a study on south Australian women, 61.8% of women who reported low back pain during pregnancy claimed the pain was at least moderately severe, 9% claimed they were completely disabled by pain (Stapleton et al., 2012).

Low back pain (LBP) during pregnancy has been characterized by the time of greatest pain intensity and location of pain. The features of pregnancy-related LBP compare to non-pregnancy-related LBP differ. Compare to 23.6% of the general population that endures severe LBP, one third of pregnant women describe severe LBP sometime during

their pregnancy. The 2nd and early-3rd trimesters are the period when backache is most prevalent (Mantle et al., 2012).

Several study also reported that the evening hours were apparently more painful than the rest of the day. Approximately 67% of pregnant women suffer from night discomfort or backache and 36% have night backache so severe it wakes them from sleep. Pattern of pain intensity, or location, also is crucial in determining LBP into pain originating from the posterior pelvic region (distal and lateral to L5) or lower lumbar area. Unlike lumbar pain, it has been directly correlated to both pain intensity and sick leave, therefore believed to be more incapacitating. While women with LBP pains typically remain constant throughout pregnancy, the prevalence of LBP increases during the middle and late stages of pregnancy (Cart, 2010).

Eighty percent of women experience back pain at some point during their pregnancies. The severity of pain during pregnancy ranges from mild discomfort after standing for long periods of time to debilitating pain that interferes with daily life. Although back pain during pregnancy can be a sign of a more serious condition, including labor, in most cases, it is the result of changes happening within the body (Silva, 2012).

## **1.2 Rationale**

During pregnancy women experience some physical changes. They feel pain in thoracic region to glutei region and the pain is severe in third trimester so that in this period they live in much stressed position (Sabino and Grauer, 2008). Obstetric physiotherapist can help the woman through pregnancy and to adjust with physical changes so that stress may be minimized (Polden & Mantle, 2009). So there is an important role of physiotherapist in supporting a woman and her birth partner throughout the pregnancy, labor and the post natal period (Brook et al., 2013). Maternity care is not well established and promotion of obstetric physiotherapy is great challenge for the physiotherapist in Bangladesh. The reasons for this may include lack of awareness, lack of resources, lack of qualified physiotherapist in this area, poor economic condition. In developed countries, obstetrical physiotherapy is an essential part of maternal health care. But in Bangladesh it is not established yet. Physiotherapists have great role in this context. The problems with pregnancy like low back pain can be minimized by the proper physiotherapeutic intervention. Physiotherapy is one of the responsible health professions for aiding and managing pregnancy related LBP. Maternal health and safety is an emerging area in perspective of Bangladesh where physiotherapist can work to gather information about percentage, prevalence and severity of LBP among the pregnant women. This will help to the implementation of ergonomic strategies to prevent it and to provide treatment to restore wellbeing. So, the service is greatly needed in Bangladesh for instances for pregnancy induced low back pain. Physiotherapist could help to ensure that physiotherapy service in maternity care. Research on this area can show the need to establish the skills of physiotherapist particularly in this area and be a base for expanding the scope of the profession in this country. So, the present study was conducted to know the characteristics of low back pain among women during pregnancy period.

### **1.3 Research Question**

What are the characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh?

## **1.4 Objective**

### **1.4.1 General objective**

To identify the characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh.

### **1.4.2 Specific Objectives**

- i. To explore the percentage of pregnant women experience low back pain during the pregnancy;
- ii. To find out the most common age group of low back pain during pregnancy;
- iii. To discover the frequency of low back pain in the different trimesters of pregnancy;
- iv. To carry out the information about the LBP & occupation of the pregnant women;
- v. To associate between low back pain with other factors;

## 1.5 Operational Definition

**Low back pain:** Low back pain refers to pain felt in lower back. It may also have back stiffness, decreased movement of the lower back and difficulty in standing straight.

**Pregnancy:** Pregnancy is the condition of having a developing embryo or fetus in the body after successful conception. The length of pregnancy according to recent embryologist is 266 days. Total pregnancy divided into 3 trimesters.

**First trimester:** 1st 3 months or (1-12) weeks.

**Second Trimester:** 4 to 6 months or (13-24) weeks.

**Third trimester:** 7 to 9 months or (25 weeks to up to delivery).

**Constant pain:** Not changing or varying, uniform regular pain.

**Intermittent pain:** Stopping or ceasing for a time, alternately ceasing and gaining of pain.

**Occasional pain:** Pain appearing at irregular or infrequent intervals.

**Activities of daily living:** Activities of daily living are the basic tasks of everyday life such as eating, bathing, dressing, toileting and transferring.

**Posture:** Position or bearing the body or body parts for special purpose.

The term of low back pain (LBP) refers to pain in the lumbosacral area of the spine encompassing the distance from the 1st lumbar vertebra to the 1st sacral vertebra. This is the area where the lordotic curve forms. The most frequent site of low back pain is in the 4th and 5th lumbar segment (Kravitz & Andrews, 2011). Back pain (also known as “dorsopathy”) is pain felt in the human back that may come from the muscles, nerves, bones, joints or other structures in the spine. The pain may be constant or intermittent, stay in one place or refer or radiate to other areas. It may be a dull ache, or a sharp or piercing or burning sensation (Robinson, 2011). Shiel (2007) informed us that low back pain is pain and stiffness in the lower back. It is one of the most common reasons people miss work. Low back pain is usually caused when a ligament or muscle holding a vertebra in its proper position is strained. Vertebrae are bones that make up the spinal column through which the spinal cord passes. When these muscles or ligaments become weak, the spine loses its stability, resulting in pain. Because nerves reach all parts of the body from the spinal cord, back problems can lead to pain or weakness in almost any part of the body.

Pain in the low back, often referring into the hip, buttock or one leg. The cause may be muscle strains or trigger points, instability due to weak postural muscles, hypomobile spinal facet joints, or degeneration or herniation of spinal disks (Anderson, 2005). Kelsey et al. (2013) expressed that LBP is common throughout the adult years in men and women, first episodes most frequently occur among people in their 20s and 30s.

Pain in the lower back area that can relate to problems with the lumbar spine, the discs between the vertebrae, the ligaments around the spine and discs, the spinal cord and nerves, muscles of the low back, internal organs of the pelvis and abdomen, or the skin covering the lumbar area (Ostgaard, 2011).

Back pain during pregnancy is common. Approximately half of all pregnancies are complicated by back pain (John & Triano, 2012). A reported 50-90% of women develop symptoms of LBP in the course of pregnancy (Hills, 2010). Back pain with soreness, stiffness, and pain is one of the most common pregnancy symptoms (Ansari et al., 2010). Pregnancy is the state of carrying a developing embryo or fetus within the female body.

This condition can be indicated by positive results on an over-the counter urine test, and confirmed through a blood test, ultrasound, detection of fetal heartbeat, or an X-ray. Pregnancy lasts for about nine months, measured from the date of the woman's last menstrual period (LMP). It is conventionally divided into three trimesters, each roughly three months long (Antoniadis, 2012).

A “Four way stretch” elastic support for the abdominal contents are formed by recti abdominis the internal and external abdominal obliques, and transverse abdomini. The recti run both side of the linea Alba and extend from the pubis to the xiphoid process and lower ribs and attach to the midline. The abdominal muscle is stretched by the growing uterus at the end of pregnancy. As the connective tissues, forming the linea Alba become lax it can cause the recti to be separated from the midline by several finger width. To support the pelvic and abdominal contents the pelvic floor muscles form an elastic sling below the pelvic outlet. To support the pelvic viscera the pelvic muscle need to act as a whole. However pelvic floor muscle can also work separately to control the sphincters. Due to trauma to the pelvic floor muscle and nerve supply, muscles weakness is not uncommon following pregnancy and child birth. This can results problem with continence (Brook et al., 2013).

Following the fertilization of the ovum amenorrhea is the first sign of pregnancy. With the growing of the uterus, muscle fiber lengthens and thickens as pregnancy progress. Uterus enlarged to become an abdominal organ by the 12 weeks. With the levels of the uterus, gestational dates can be determined, which continues to rise until the latter weeks of pregnancy. By 20 weeks uterine activity (Braxton Hicks Contraction) may be felt. The lower uterine segments develop, soften and stretch and collagenous supportive tissue increases, becoming more elastic. Pregnancy is governed and controlled by hormones, with affect various systems. Some of the effect of hormones is partially relevant to physiotherapy. Mentioned that progesterone decrease smooth muscle tone, initiates sensitivity to carbon dioxide in the respiratory center and causes an increase in maternal temperature, breast development and strong of fat deposits for milk production (Brook et al., 2013). Estrogen increases the growth of uterus and breast ducts and increases the level of prolactin to prepare breast for lactation. Estrogens also prepare prime receptor

sites for relaxation (pelvic joints, joints capsules) increase water retention (Polden & Mantle, 2009).

All four cardiac chambers increase in size from the first trimester to the end of the third trimester. The dimensions decrease to baseline levels in the postpartum period. Left ventricular remodeling also manifests as increases in left ventricular wall thickness and mass. Structural changes also occur at the level of the valve annulus: increases in mitral, tricuspid and pulmonic annular diameters lead to increasing degrees of mitral, tricuspid and pulmonic regurgitation. Small pericardial effusions are frequently found, which usually resolve after delivery. Increases in atrial size may contribute to atrial arrhythmias during pregnancy. Other changes, such as small pericardial effusion, may have little clinical significance. Although the prognostic significance of changes such as ventricular remodeling are well described in nonpregnant women, their magnitude and direction, and their long-term prognostic significance, have not yet been well studied in pregnant women with structural heart disease (Abduljabbar et al., 2011).

Common changes due to pregnancy that can cause back pain include: Weight gain- Pregnancy can cause to gain as much as a quarter of the body weight, adding stress to the back and other weight-bearing structures (Montgomery and Sawyer, 2011). Low back pain in pregnancy is generally ascribed to the many change in load and body mechanism that occur during the carrying of a child. It is normal to gain between 20 to 40 pounds during pregnancy (Sabino & Grauer, 2008).

Hormonal changes- Increasing levels of pregnancy hormones soften ligaments in preparation for childbirth, when the birth canal will need to expand in order for the baby to pass through. As the baby develops and grows, it puts increasing strain on the ligaments that hold the uterus in place causing back pain (Montgomery & Sawyer, 2011). A hormone called relaxant, which causes the ligaments to stretch and joints to loosen, and the mother get aching back (Low back pain, 2011). Malfunction in the sacroiliac joint is the most common cause of back pain in pregnancy. The sacroiliac joint forms the functional unit of the pelvis that allows normal alternating movement during walking. As the pregnancy advances, hormonal changes prepare the pelvis for delivery of the child by loosening the strong ligaments that control the function of these joints (John & Triano, 2012). Center of gravity – The center of gravity will gradually move forward as the

uterus and baby grow, which causes the pregnant women's posture to change (Adams, 2010). Muscle separation- As the uterus expands, two parallel sheets of muscles (the rectal abdominis muscles), which run from the rib cage to the pubic bone, may separate along the center seam. This separation may worsen back pain. Stress- Emotional stress can cause muscle tension in the back, which may be felt as back pain or back spasms. You may find that you experience an increase in back pain during stressful periods of your pregnancy (Colliton, 2006). Muscular imbalances- These imbalances create strain on weight-bearing structures in the body and are more problematic if superimposed on existing imbalances (such as muscle weakness and inflexibility). Muscle fatigue in turn often results in poor posture and/or makes poor posture even worse (Cunningham & Gary, 2011). Stress- As the belly gets bigger throughout the pregnancy and the lower back curves more than usual to accommodate the load, resulting in strained muscles and causes pain (Dawkins, 2011).

Low back pain during pregnancy can be classified into three types. Lumbar pain can occur with or without radiation to the legs; true sciatica is rare and thought to account for a small percentage of low back pain in pregnancy. Sacroiliac pain is felt distal and lateral to the lumbar spine near the posterior superior iliac spine, and rarely to the calf. It is four times more common than lumbar pain. Symptoms of sacroiliac joint pain typically continue several months after delivery. It is thought that 20% to 30% of pregnant women experience both lumbar and sacroiliac pain. Nocturnal pain occurs in the low back only at night while recumbent (Colliton, 2006). There are two common types of back pain in pregnancy. Lumbar or lower back pain (LBP) and Posterior pelvic pain (PPP) (Montgomery & Sawyer, 2011).

Lumbar or lower back pain- Lumbar pain is like the low back pain that may have experienced without pregnancy. It may feel over and around the spine approximately at the level of waist. Pain may radiate to the legs. Sitting or standing for long periods of time and lifting usually make it worse, and it tends to be more intense at the end of the day (Sabino & Grauer, 2008).

Posterior pelvic pain- Posterior pelvic pain (in the back of the pelvis) is four times more prevalent than lumbar pain in pregnancy. It is a deep pain felt below and to the side at the waistline, and/or below the waistline on either side across the tailbone (sacrum). Such

pregnancy pelvic pain may be experienced on one or both sides. Posterior pelvic pain in pregnancy can extend down into the buttock and upper portion of the posterior (in back of) thighs, and does not usually radiate below the knees. It can be associated with pubic pain. The pain does not quickly resolve with rest, and morning stiffness may also be present (Montgomery & Sawyer, 2011). There are three back pain groups in pregnancy depending on the site of the pain. The three back pain groups are: high back pain (HBP) in the thoracic region; low back pain (LBP) in the lumbar region; and sacroiliac pain (SIP) in the region of buttock and sacroiliac joint (Noren et al., 2007).

The spine is vulnerable due to the following factors during pregnancy: Hormone production during pregnancy makes joints less stable (to allow the pelvis to spread as the baby grows), Typical weight gain of 25-35 pounds during pregnancy, with the majority or extra weight distributed around the abdomen, Increase in postural strain as the body compensates for changes in the pregnant woman's center of gravity (Joseph & Cragin, 2008).

One of the most common complaints during pregnancy is lower back pain. Lower back pain can be the first sign that a woman may be pregnant, especially when there has not been a trauma or any other reason for back pain to appear (Victoria & Arcadi, 2011). Back pain in pregnancy often experienced as dull, persistent aches in the lower back tends to affect younger women and those who have had multiple pregnancies or weak backs before pregnancy. For most women, pain occurs in the sacroiliac joint, where the pelvis attaches to the spine. It may begin as stiffness in the morning and then progress to soreness through the day (Osterman, 2011). Pregnant women often describe a catching sensation in back/buttock when bending over, walking and going from sitting to standing (Dawkins, 2011). Associated symptoms include stiffness and limited motion in the back or legs. Pain and associated symptoms may be constant or may only occur in certain positions or after extended activity. Approximately one-third of patients report that pain increases as the day goes on while another one-third report that the pain worsens during the night and often disturbed sleep (Fast et al., 2011).

Assessments of LBP during pregnancy include the visual analogue scale and body charts or pain diagrams but they may be inadequate in distinguishing between lumbar and posterior pelvic pain. The neurological examination usually is unremarkable for both

types of pain with negative dural tension signs including the straight leg raise. The lumbar pain during pregnancy is similar to the clinical presentation of patients without pregnancy and is relatively easier to diagnose than pelvic pain. Pain on palpation of paraspinal muscles, hypo mobility and weakness in the back signifies muscle insufficiency in the lumbar spine. There could also be decrease range of motion of lumbar spine, with pain reproduced on lumbar flexion (Cart, 2010).

Back pain may not be prevented completely, but there are things that can do to reduce the severity or frequency. Here are a few steps that can take to help reduce the back pain during pregnancy. Get plenty of rest, use exercises approved by health care provider that support and help strengthen the back and abdomen, avoid high heels and sleeping on the back (Cunningham & Gary, 2011). Reduce some physical activities; if possible, minimize certain activities that maximally stress the lower back and pelvis. These activities include standing on one leg, climbing stairs, walking long distances and standing for long periods of time, maximize vocational ergonomics, take many short breaks, try to lie down, and educate pregnant women on structural fitness, i.e., body ergonomics, to avoid low back stress. Also, avoid lifting anything over several pounds; strengthen back muscles (Antoniadis, 2012). Avoid bending, arching and twisting motions and sleeping on side lying with a body pillow in the arms and between the knees may help as well. Make sure that the mattress is firm. If not, place a board underneath for the duration. A body pillow (at least 5 feet long) can also help to find stress-minimizing sleeping positions, Think good thoughts. A calm mind leads to a looser back, can also try some yoga, which will relax both mind and back (Ingrid et al., 2012).

The patient history is perhaps the most useful tool in differentiating the cause of pregnancy-related back pain. Patients should be asked to describe the location, nature, and duration of their pain. The physician can ask patients to draw the location and radiation of their pain on an anatomic diagram for the medical record (Colliton, 2006). Diagnosis of low back pain is usually based on symptoms because there are few tests available to aid in diagnosis because of fear of harming the fetus. Evaluation of low back pain during pregnancy is difficult because the pain is subjective and usually the result of a combination of problems. Pain is most often measured on a horizontal visual analogue

scale from 1 to 100 with anchors at ‘no pain’ and worst pain imaginable (Sabino & Grauer, 2008).

Pregnancy-related LBP can be defined as any type of idiopathic pain arising between the 12th rib and the gluteal folds during the course of the pregnancy. As such, this does not include any situation in which the pain can be attributed to a specific pathological condition, such as a disk herniation that arises either before or during the pregnancy. It is important for to consider other disease pathologies that mimic the symptoms of “primary” LBP associated with pregnancy. As previously stated, LBP with radiation into the buttocks and legs is a common problem during pregnancy. However, LBP must be carefully differentiated from radicular and other neurologic symptoms. True sciatica is rarely diagnosed in the pregnant population. Posterior facet syndrome can present with pain radiation down the posterior thigh and mimic radicular pain (Cart, 2010).

One of the most common treatment interventions of for LBP is physiotherapy. A study was conducted to find out the relationship between sick leave and prepartum back education and training classes. There was a 12% decrease in sick leave time among pregnant women enrolled in an individualized back education and training program for both ppp and lp pain type (Ostgaard et al., 2014). As a precaution, physiotherapy routine should be designed and monitored by women’s health physiotherapists, or health care provider who specializes women’s health. In other parts of the body the use of exercise to improve strength, mobility, coordination, and endurance have been well recognized. The following reasons to prescribe exercise for back pain- to decrease pain, to strengthen muscles, to decrease mechanical stress to spinal structures, to improve fitness level, to prevent injury, to stabilize hyper mobile segments, to improve posture, and to improve mobility (Kravitz & Andrews, 2011).

Much emphasis has been placed on muscular strengthening exercises to add stabilization and support to the trunk area, the degree of stability and support of the trunk area is largely dependent on the strength of the supporting structures, the muscles. Stronger muscles can enhance the spine's ability to withstand various degrees of external loads. Adequate flexibility of the oblique, hamstring, hip flexor and low back muscles is necessary for a healthy lower back. A lack of pelvic mobility, due to tightness in the hip flexors, could limit pelvic mobility and cause strain on the lumbar spine. In addition, tight

hamstring and hip extensor muscles could reduce the lordotic curve. (Kravitz & Andrews, 2011).

A convincing relation exists between low back pain and decreased muscular endurance. Occupational postural disorders, where prolonged maintenance of a particular posture occurs, were a causal factor to low back pain. Patients with low back pain have decreased levels of muscular endurance in the lumbar extensors. Abdominal muscular endurance in patients with low back pain is less than those in the normal health population. The application of endurance exercises that incorporate the back extensors as well as the abdominal muscles (Kravitz & Andrews, 2011).

Along with specific back exercises, aerobic exercise that increases the heart rate for sustained period is very beneficial for helping back problems. Aerobic exercise increases the flow of blood and nutrients to back structures which supports healing, and can decrease the stiffness in the back and joints that lead to back pain. It is easier to control weight or lose weight, decreasing the stress placed on the spine structures and joints. An increased production of endorphins after 30 or 40 minutes of exercise can combat pain. These bio-chemicals are the body's natural painkiller (Ostgaard et al., 2014).

Regular exercise will strengthen muscles and increase flexibility, relieving the added stress of pregnancy on your spine. A 2005 study reported in the International Journal of Gynecology and Obstetrics showed that women who exercised three times a week for 12 weeks during the second half of pregnancy had a decrease in severity of low back pain. Safe exercises for most pregnant women include walking, swimming and stationary cycling. Your doctor or physical therapist can recommend exercises to strengthen your back and abdomen (Farlex, 2011).

An activity that increases the body's heart rate for a sustained period of time is considered cardiovascular exercise. Walking, biking, and swimming are all considered safe for most pregnant women and can be performed for 20 to 45 minutes, 3 to 5 days a week. Pregnant women should take care to exercise at a mild to moderate level, but not to the point of exhaustion. Keep in mind that any exercise is better than none, so even a 10 minute walk at lunch time is beneficial (Silva, 2012). Back exercise technique with this back exercise technique, the physical therapist first tries to find the patient's "neutral" spine, or the position that allows the patient to feel most comfortable. The back muscles

are then exercised to teach the spine how to stay in this position. This back exercise technique relies on proprioceptions, or the awareness of where one's joints are positioned. Performed on an ongoing basis, these back exercises provide pain relief and help keep the back strong and well positioned. Following measures have to keep in mind when starting a stretching routine as part of a program of back exercises- wear comfortable clothes that won't bind, stretching should be pain free; do not force the body into difficult positions, move into the stretch slowly and avoid bouncing, which may actually tear muscles, stretch on a clean, flat surface that is large enough to move freely (Silva, 2012).

Stretching for lower back- Toning, stretching and strengthening the back and abdominal muscles through a stretching routine and moderate exercise program usually helpful to reduce LBP. In addition to relieving that back pain, the stretching and exercise will pay off tremendously in labor and delivery and during those first postpartum days. Squatting Stretch is just what it sounds like. Balance your body; steady yourself with a counter, table, or piece of furniture and squat for one minute at a time, 10 times a day. This is a great stretch and toner for legs and perineal muscles. Tailor Sitting is sitting on the floor with knees bent and feet crossed (kind of a relaxed cross-legged position). Spend 10 minutes a day at least two or three times a day sitting in this position. It gives the inner thighs a good stretch and takes the pressure off the lower back (Antoniadis , 2012). Tailor stretching is similar to tailor sitting but a little more intense. Sit on the floor with your back against the couch or wall. Bend knees and put your feet together sole to sole. Slowly, see how close to the floor you can get your knees. When done over a period of time this stretch will increase flexibility dramatically (Dawkins, 2011).

Hamstring stretching should include applying pressure to lengthen the hamstring muscle for 30-45 seconds at a time, one to two times each day. The hamstring muscles will lengthen over time, decreasing stress on the low back (Meyer et al.2006). Standing Hamstring Stretch is the most common technique. While standing, simply bend forward at the waist with arms hanging down and with legs relatively straight. Try to touch the toes but do not strain to do so. Stop when a stretch is felt in the hamstring. Wall Hamstring Stretch is another less stressful option is to lie on the floor, with the buttocks

against a wall, and place the foot up against the wall and then try to push the knee straight. One leg at a time may be stretched (Ingrid et al., 2012).

This stretch gives expectant mothers a double reward- relief from lower back pain and it helps prepare the body for birth. Lying on the back with knees bent and feet flat on the floor, exhale while pressing the small of the back against the floor then inhale and relax the spine. Have to repeat this several times. This stretch can be done in a standing position against the wall. In the standing pelvic tilt position press the small of the back against the wall and then relax. The standing position should always be used after the fourth month of pregnancy (Joseph and Cragin, 2008). It can be also done by Kneel on the hands and knees; there will be an arch in the lower back. Tilt the pelvis backwards and flatten the back, keeping buttocks relaxed (Mantle et al., 2012).

Doing exercise in the water provides for effective conditioning while minimizing stress on the back because the buoyancy of water counteracts the gravitational pull that can compress the spine. When 'unweighted' in water, a pregnant woman becomes more mobile, and stretching and strengthening exercises are less painful. Hydro therapy exercise is especially useful for patients in too much pain to tolerate land exercises on a mat or hard floor (Meyer et al., 2006).

The physician should ask women who are contemplating pregnancy about their history of low-back problems. If the history is positive, the physician should ascertain whether the symptoms have been evaluated and treated. Women with a history of low-back pain should be informed about the increased risk of symptom recurrence during pregnancy. Physically fit women who get 45 minutes or more of physical activity a week are less likely to develop lumbar pain during pregnancy (Colliton, 2006).

Those who present with both lumbar and posterior pelvic pain symptoms should avoid back strengthening exercise until the posterior pelvic symptoms resolve; these symptoms may worsen if lumbar strengthening exercise are performed. Deep abdominal toning is recommended which generate less stress on back muscles, but abdominal crunches and straight leg raises are contraindicated. It also should be noted that the goal of exercise during pregnancy is to improve or maintain muscle tone and not to control weight gain or to correct posture. Hyper mature labor, placenta previa threatened abortion are all contraindication to exercise during pregnancy (Cart, 2010).

### **3.1 Study design**

The purpose of the study was to find out the common characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh. The design of the study was cross sectional. This design involves identifying group of people and then collecting the information that required when they use the particular service. Cross-sectional studies thought of as providing a "snapshot" of the frequency and characteristics of a disease in a population at a particular point in time. Survey research is one of the most common forms of research that involves the researchers asking a large group of people questions about a particular topic or issue and these are related to the interest of the participant. While this approach allows the researcher to select participants according to the clearly define criteria. The cross sectional study design is usually cheaper and quicker and confounding variables can be controlled for during data analysis.

### **3.2 Study sites**

The sites of study were some selected hospitals at Dhaka, Bangladesh- Mirpur CRP, Dhaka, OGSB Maternity Hospital, mirpur zoo road, Dhaka.

### **3.3 Study area**

The study was conducted on Musculoskeletal Condition (Gynecology and Obstetrics).

### **3.4 Study population and sampling**

A group of individuals or items that share one or more characteristics from which data can be gathered and analyzed is known as population. All the pregnant woman of Bangladesh was considered as the study population. Convenience sampling technique was applied to select the sample. A process used in statistical analysis in which a predetermined number of observations will be taken from a larger population. The methodology used to sample from a larger population will depend on the type of analysis

being performed. The convening women from Mirpur CRP, Dhaka and OGSB maternity hospital, mirpur zoo road.

### **3.4.1 Sampling procedure of the study**

Finding the appropriate number and type of people to take part in the study is called sampling. In this study convenience sampling procedure was used to collect the samples. Convenience sampling is the most widely used sampling method. It is easy to implement and easy to analyze.

### **3.4.2 Inclusion criteria of the study**

- i. Participants were pregnant women – Because the investigator want to explore the common low back pain complaints arising among the women during prenatal period in this study.
- ii. Multigravida or primigravida both were selected to identify the frequency of charecteristics of low back pain in both gravida.
- iii. Pregnant women with any age – because investigators want to find out the charecteristics of low back painof different age groups and to identify the most affected age group.
- iv. Pregnant women with any trimester were selected – Investigator want to find out low back pain complaints arising in prenatal period on each trimester and explores the most vulnerable gestational age for those complaints.
- v. Subjects who will be participated willingly and had interest, otherwise they did not give exact information and that will not helpful for the study.

### **3.4.3 Exclusion Criteria**

- i. Those who did not fulfill the inclusion criteria were excluded.
- ii. Subjects who were medically unstable. Because medically unstable patient can confused with the question that can mislead the result of the study.

- iii. Persistent or previous pathological or traumatic history of low back pain in the body – because investigator wanted to find out the low back pain complaints which arise only during pregnancy due to maternal hormonal changes, if there will previous history of low back pain complaints then it could mislead the study results.

### 3.5 Sample size

The actual sample size for this study was calculated as 376, using the calculation of Formula:

$$n = \left\{ \frac{z \left(1 - \frac{\alpha}{2}\right)}{d} \right\}^2 \times pq$$

Here,

$$z \left(1 - \frac{\alpha}{2}\right) = 1.96$$

P = 0.573 (Fast et al., 2011).

$$\begin{aligned} q &= 1-p \\ &= 1-0.573 \\ &= 0.427 \\ d &= 0.05 \end{aligned}$$

$$\begin{aligned} n &= \left\{ \frac{z \left(1 - \frac{\alpha}{2}\right)}{d} \right\}^2 \times pq \\ &= \frac{(1.96)^2}{(0.05)^2} \times 0.573 \times 0.427 \\ &= 375.97 \end{aligned}$$

But as the study was performed as a part of academic research project and there were some limitations. Due to some limitations 100 pregnant women were selected as the sample of this study.

### **3.6 Data collection method and tools**

Data was collected through the face to face interview with participants. Data was analyzed Microsoft office Excel 2010 using a SPSS 20 version software program. The tools that needed for the study were- Consent paper, questionnaire, numeric rating scale, paper, pen, file, calculator, computer, and printer.

Questionnaire- Questionnaire is a method of collecting information whereby subjects answer a set of questions usually predefined by the researcher. Researcher used a questionnaire that includes structured questions including both open ended and close ended questions. An open-ended question asks the respondent to formulate his own answer, whereas a closed-ended question has the respondent pick an answer from a given number of options. Structured questions are always closed questions and most frequently used in survey research design.

Numeric Rating Scale- a Numeric Rating Scale is an 11-point scale for patient self-reporting of pain. It is for adults and 10 years old or older.

0=No pain

1-3=Mild pain (annoying, interfering little with ADLs)

4-6=Moderate pain (interferes significantly with ADLs)

7-10=Severe pain (disabling; unable to perform ADLs)

### **3.8 Ethical consideration**

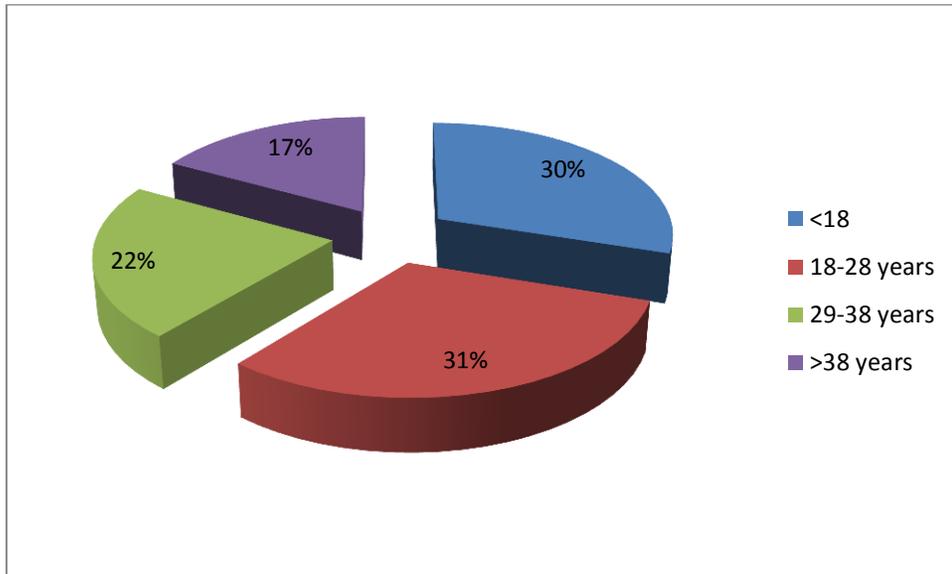
It should be ensured that it would maintain the ethical consideration at all aspects of the study. It is the crucial part of the all form of research. The study was approved by ethical committee of the research project before conducting the research project. The study has followed the guideline of World Health Organization (WHO) and Bangladesh Medical Research Council (BMRC). A written application was submitted to the authority of the

Mirpur CRP, Dhaka, OGSB Maternity Hospital, Mirpur zoo road, Dhaka, for involvement of clients and other facilities to complete this study. The participants were explained the purpose and goals of the study. The participants were ensured that their comments would not affect their occupational role. When the investigator had received an approval letter from the ethical committee and obtained permission from authority of the Mirpur CRP, Dhaka and OGSB Maternity Hospital, mirpur zoo road , Dhaka then the data collection was started. The aims and objectives of this study should be informed to the subjects verbally. Before conducting research with the respondents, it is necessary to gain consent from the subjects. A consent form was given to the subject and explained them. The subjects had the rights to withdraw themselves from the research at any times. It should be assured the participant that her name or address would not be used. The information of the subjects might be published in any normal presentation or seminar or writing but they would not be identified. The participant will also be informed or given notice that the research result would not be harmful for them. It would be kept confidential. Every participant has the right to discuss about her problem with senior authority.

The aim of the study was to identify the characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh. The data was collected by the researcher himself. Structured questions were used with both open ended and close ended questions in the questionnaire. The data was analyzed with Microsoft office Excel 2010 with SPSS 20 version software program. In this study researcher use bar, column, pie chart to show the results of the study. Because it is easier to make sense of a set of data.

#### 4.1 Age of the respondent

Among the 100 participants the , 30% participants were between the age of <18 years, 31% participants were between the age of (18-28)years,22% participants were between the age of (29-38)years,17%participants were the age of more than 38 years.



**Figure 1:** Age of respondent.

#### Association between age and low back pain

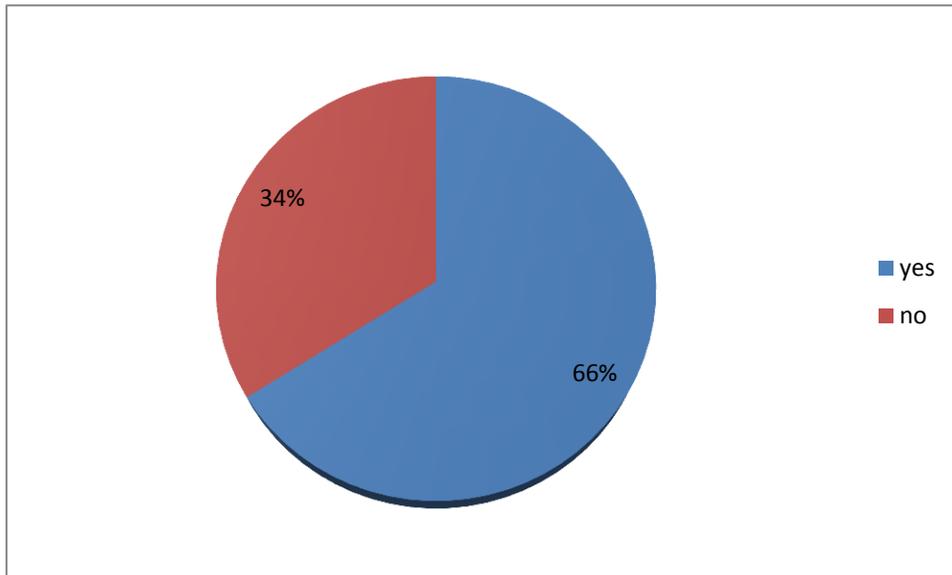
**Table-1:** Association between age and low back pain

Variable	Chi square value	P value
Participants age	88.454	0.000

This analysis showed association between age and low back pain was significant ( $p < 0.05$ ).

#### 4.2 Prevalence of LBP among the pregnant women

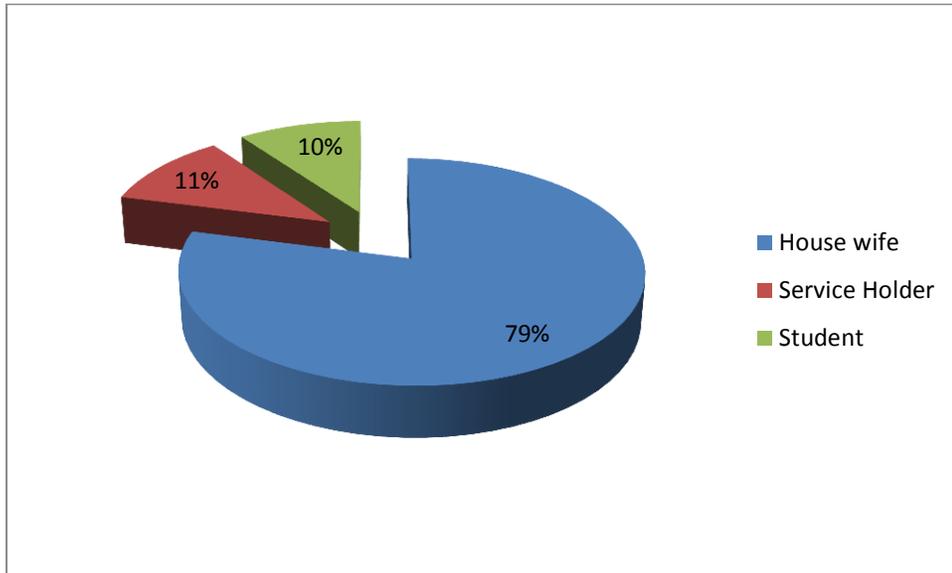
The investigator selected 100 pregnant women as sample. Among them (66% n= 66) most of the participants reported LBP. So the prevalence of low back pain among the pregnant women was very high.



**Figure 2:** Prevalence of LBP among the pregnant women.

### 4.3 Occupation of the participants

Majority of the pregnant women 79% were house wives, followed by service holder 11% & student 10%.



**Figure- 3:** The occupation of the participants.

### Association between occupation and low back pain

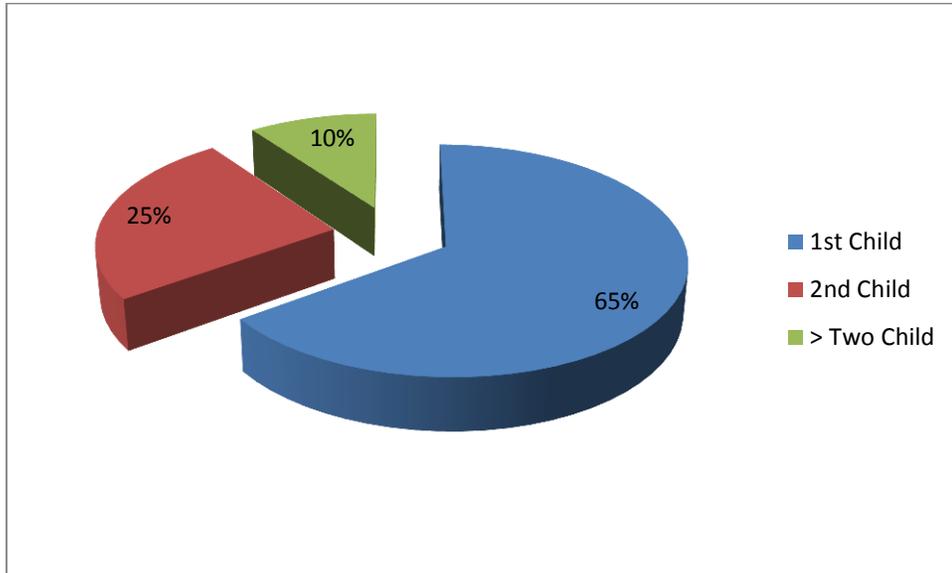
**Table-2:** Association between occupation and low back pain

Variable	Chi square value	P value
Participants occupation	51.601	0.000

This analysis showed association between occupation and low back pain was significant ( $p < 0.05$ ).

#### 4.4 Chronological state of the child

Among 100 participants the majority, participants were primigravida or had 1<sup>st</sup> pregnancy and the percentage was 65% . Some of participants had a child and were on their 2nd pregnancy and the percentage was 25%. Rest of the participants had more than 2 children and the percentage was 10%.



**Figure-4:** shows chronological state of this child.

#### Association between gravida and low back pain

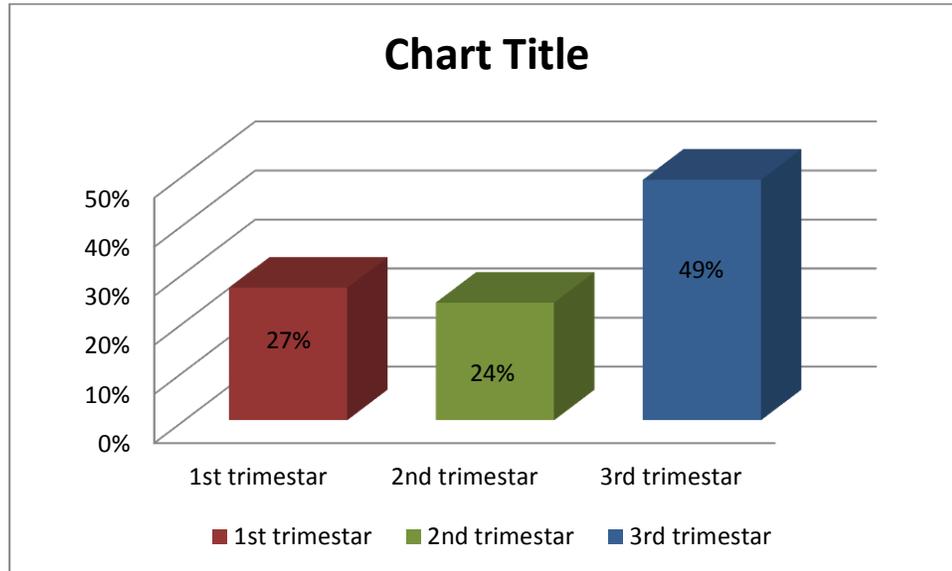
**Table-3:** Association between gravida and low back pain

Variable	Chi square value	P value
Participants gravida	95.722	0.000

This analysis showed association between gravida and low back pain was significant ( $p < 0.05$ ).

#### 4.5 Trimesters of pregnancy

Among the samples, 27 participants were on their 1st trimester and the percentage was 27%, 24 participants were in 2nd trimester and the percentage was 24% and 49 Participants were on their 3rd trimester and the percentage was 49%.



**Figure-5:** shows the trimesters of pregnancy.

#### Association between trimesters of pregnancy and low back pain

**Table-4:** Association between trimesters of pregnancy and low back pain

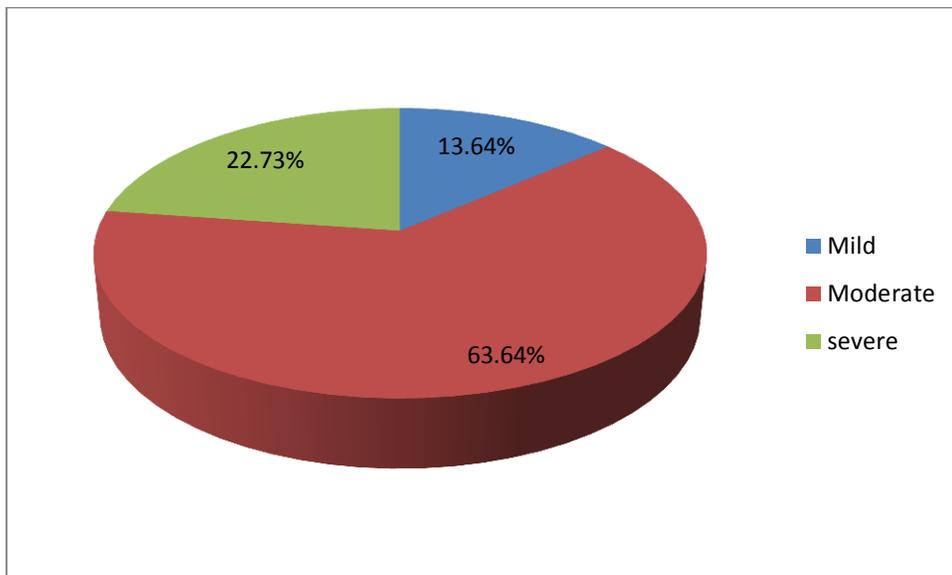
Variable	Chi square value	P value
Participants trimesters of pregnancy	53.618	0.000

This analysis showed association between trimesters of pregnancy and low back pain was significant ( $p < 0.05$ ).

#### 4.6 Severity of pain

To find out the severity of pain researcher used Numeric scale. In which the score, (1-3) represents mild pain, (4-6) represents moderate pain and (7-10) represents severe pain and those who had no pain.

More than half ( 63.64%) of the pregnant women who have pain reported their pain as moderate, only 22.73% of them suffered severe pain then rest of them 13.64% have Mild pain.



**Figure-6:** Shows the severity of pain.

#### Association between severity of pain and low back pain

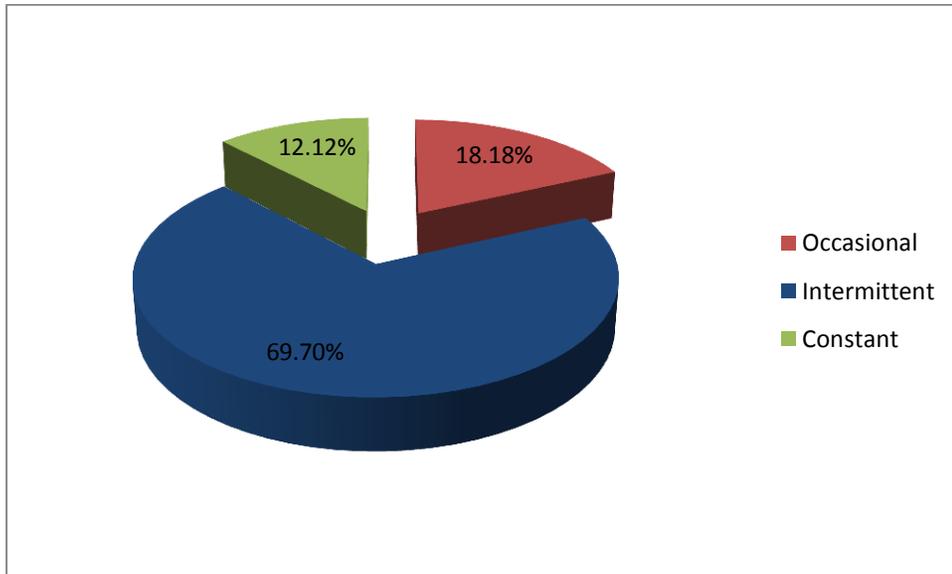
**Table-5:** Association between severity of pain and low back pain

Variable	Chi square value	P value
Participants severity of pain	40.085	0.000

This analysis showed association between severity of pain and low back pain was significant ( $p < 0.05$ ).

#### 4.7 Behavior of pain

In this study, 34% of the participants did not feel any LBP. So, this was not applied for them. Among the rest of the participants, n= 12 participants felt occasional LBP and the percentage was 18.18%, n=46 participants felt intermittent LBP and the percentage was 69.70% and n=8 participants felt constant LBP and the percentage was 12.12%.



**Figure- 7:** shows the behavior of pain.

#### Association between behavior of pain and low back pain

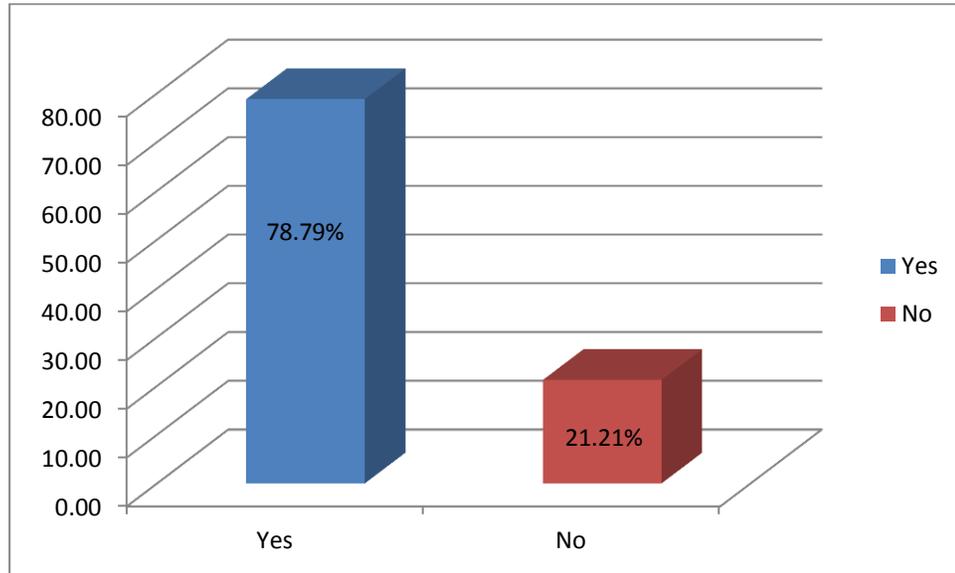
**Table-6:** Association between behavior of pain and low back pain

Variable	Chi square value	P value
Participants behavior of pain	76.525	0.000

This analysis showed association between behavior of pain and low back pain was significant ( $p < 0.05$ ).

#### 4.8 Pain increase with work

Among the 66 participants who reported LBP during pregnancy, 78.79% (n=52) experience that LBP increased with work and another 21.21% (n=14) participants said that LBP did not increase with work.



**Figure-8:** shows pain increase with work.

#### Association between increasing pain with work and low back pain

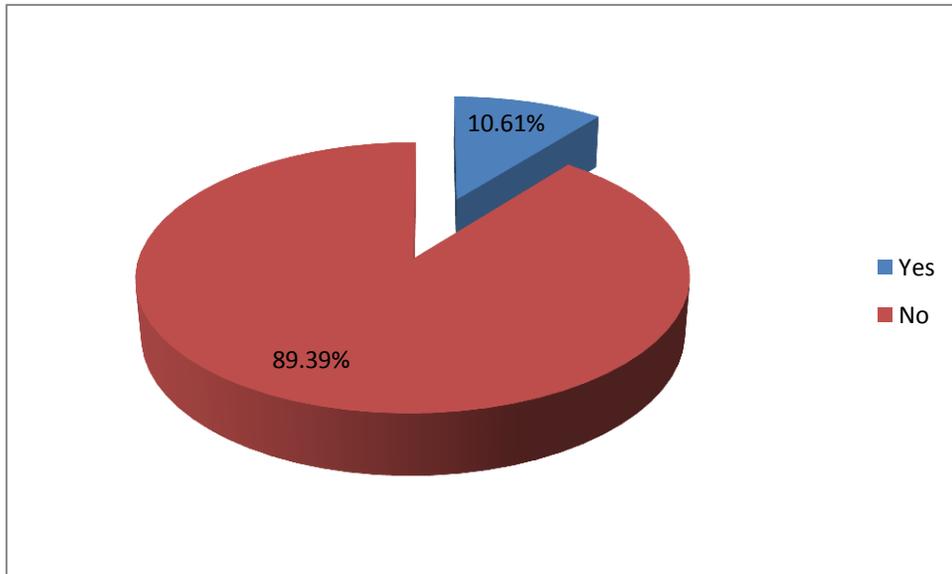
**Table-7:** Association between increasing pain with work and low back pain

Variable	Chi square value	P value
Increasing pain with work	60.415	0.000

This analysis showed association between increasing pain with work and low back pain was significant ( $p < 0.05$ ).

#### 4.9. Radiation of pain

Radiation toward lower limb is not significantly found (89.39%) where non radiating pain is common (10.39%).



**Figure 9:** Radiation of Pain..

#### Association between radiation of pain and low back pain

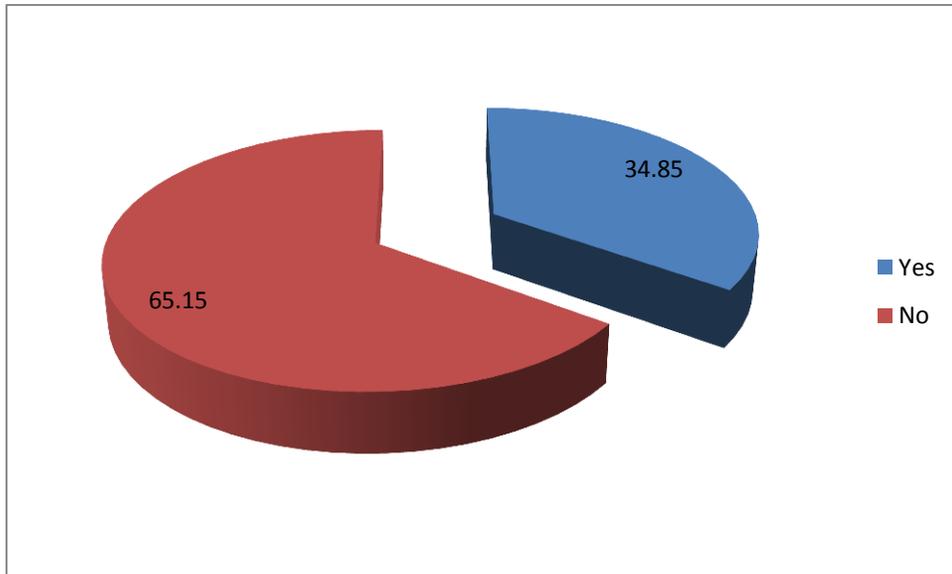
**Table-8:** Association between radiation of pain and low back pain

Variable	Chi square value	P value
Participants radiation of pain	26.624	0.000

This analysis showed association between radiation of pain and low back pain was significant ( $p < 0.05$ ).

#### 4.10. Pain with Sneezing and Coughing:

Among the 66 participants who reported LBP during pregnancy, (n= 23) 34.85% experience that LBP with sneezing and coughing and another (n= 43) 65.15% participants said that no LBP with sneezing and coughing.



**Figure 10:** Pain with Sneezing and Coughing.

#### Association between increasing pain with sneeze, cough and low back pain

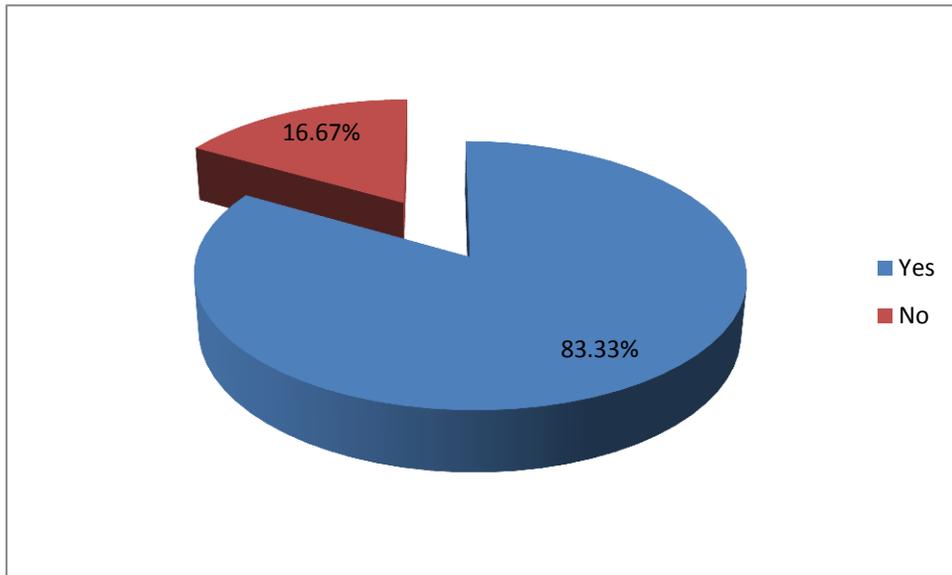
**Table-9:** Association between increasing pain with sneeze, cough and low back pain

Variable	Chi square value	P value
Participants Increasing pain with sneeze and cough	24.892	0.000

This analysis showed association between increasing pain with sneeze, cough and low back pain was significant ( $p < 0.05$ ).

#### 4.11. Taking rest at day time

Among the 66% who had LBP, 83.33% (n= 55) people took rest at day time and 16.67% (n=11) person could not take rest at day time.



**Figure-11:** Shows participants take rest at day time.

#### Association between taking rest and low back pain

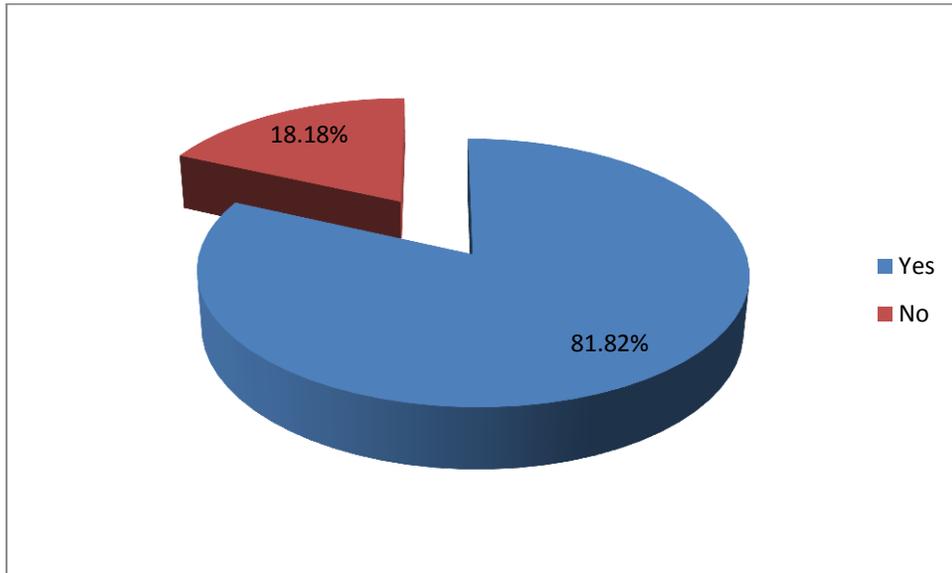
**Table-10:** Association between taking rest and low back pain

Variable	Chi square value	P value
Participants taking rest	44.880	0.000

This analysis showed association between taking rest and low back pain was significant ( $p < 0.05$ ).

#### 4.12. Pain decrease with rest

Not applicable for 34 person who did not have any LBP during pregnancy. 81.82% (n= 54) Participants experienced that pain decrease with rest and 18.18% (n=12) participants experienced that pain didn't decrease with rest.



**Figure-12:** Shows pain decrease with rest

#### Association between decreasing pain with rest and low back pain

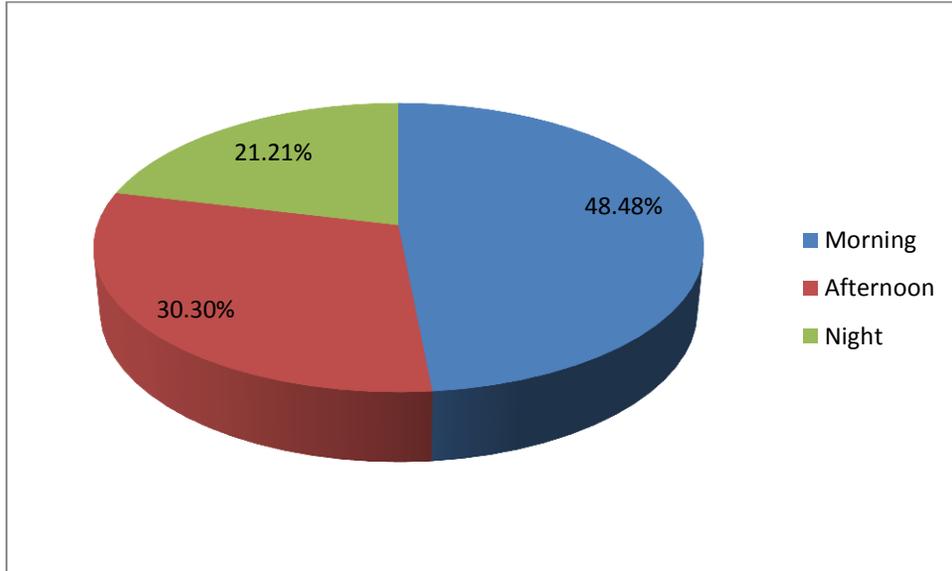
**Table-11:** Association between decreasing pain with rest and low back pain

Variable	Chi square value	P value
Participants decreasing pain with rest	49.867	0.000

This analysis showed association between decreasing pain with rest and low back pain was significant ( $p < 0.05$ ).

### 4.13 Period of LBP felt

Among the person (n=66) who had LBP in the pregnancy period 48.48% (n=32) felt pain during morning and 30.30% (n=20) felt pain during afternoon and 21.21% (n=14) felt pain during night.



**Figure-13:** shows which period pain felt

### Association between period of LBP feeling and low back pain

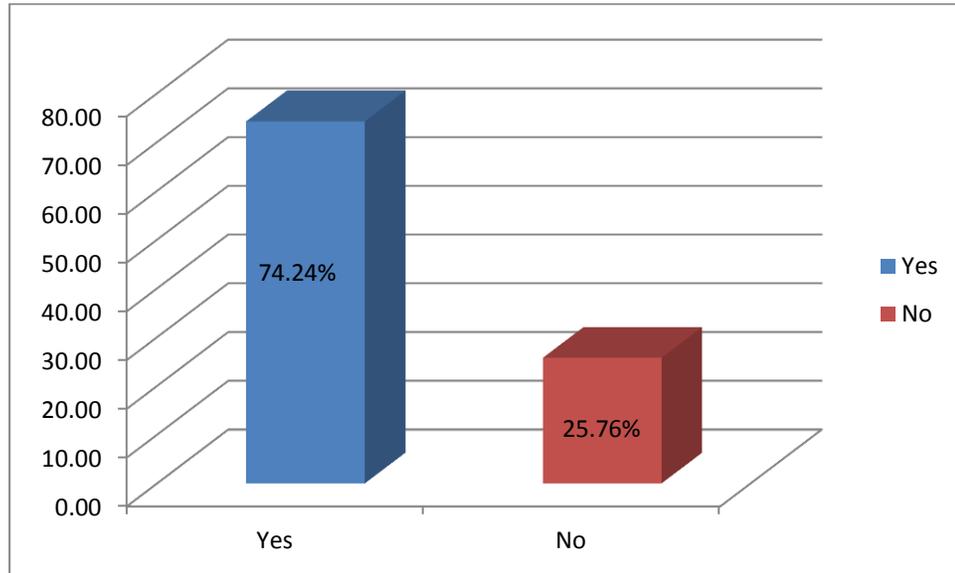
**Table-12:** Association between period of LBP feeling and low back pain

Variable	Chi square value	P value
Participants period of LBP feeling	68.724	0.000

This analysis showed association between period of LBP feeling and low back pain was significant ( $p < 0.05$ ).

#### 4.14 Pain hampers the ADL

In this study, who had LBP in the pregnancy period 74.24% (n=49) participants reported that LBP hamper their activities of daily living and other 25.76% (n=17) participants said that this LBP do not hamper their ADL.



**Figure-14:** Shows pain hampers the ADL

#### Association between pain hampers the ADL and low back pain

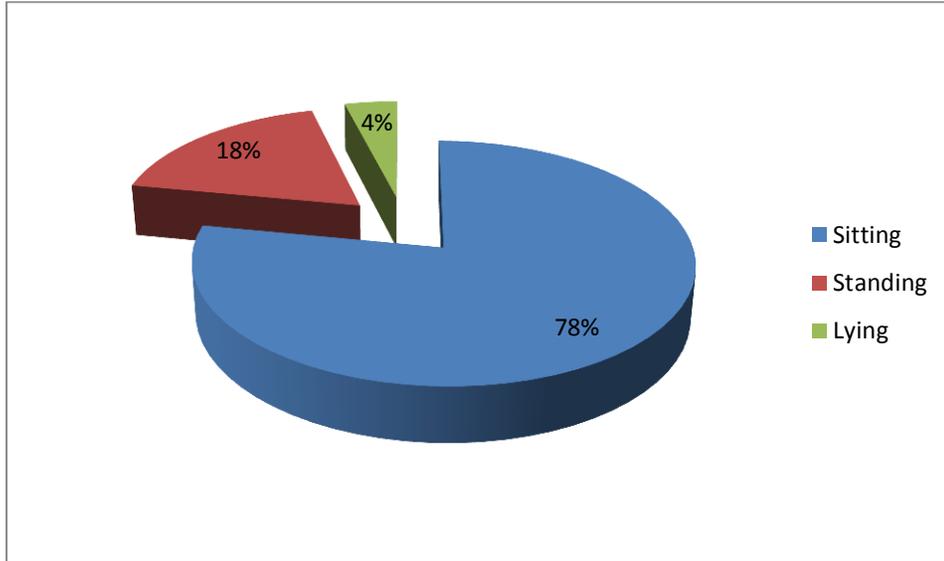
**Table-13:** Association between pain hampers the ADL and low back pain

Variable	Chi square value	P value
Participants pain hampers the ADL	56.039	0.000

This analysis showed association between pain hampers the ADL and low back pain was significant ( $p < 0.05$ ).

#### 4.15 The Postures that participant maintains

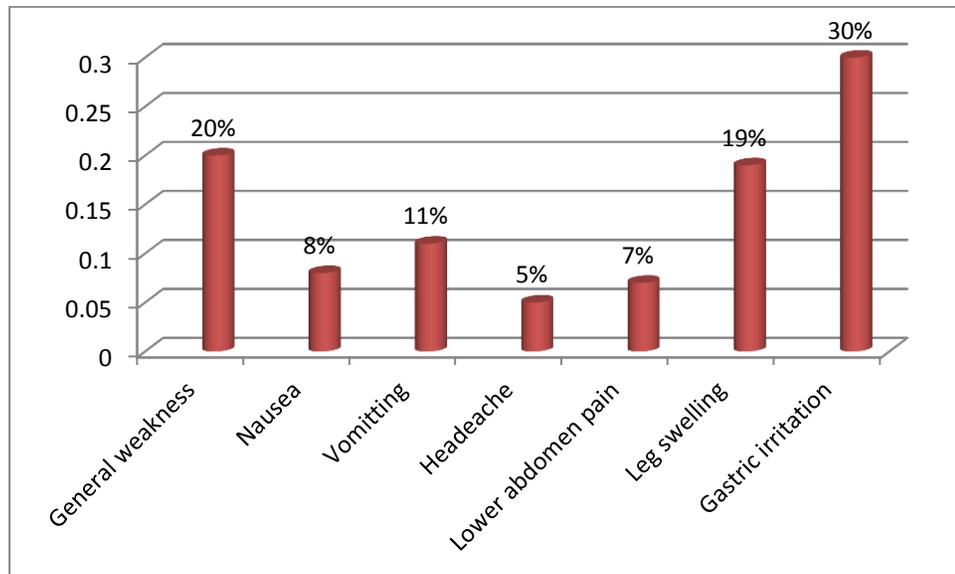
78% of the participants said that they spend most of the time in sitting position and 18% person said that, they spend most of the time in standing position and 4% person said that, they spend most of the time in lying position.



**Figure-15:** Shows posture most of the time participants maintain.

#### 4.16 Other problems

Among 100 participants 20% person complained general weakness. 8% person complained nausea. 11% person complain vomitting. 5% of them experienced headache. 7% participants complain lower abdominal pain. 19% Participants experienced leg swelling. 30% of them experienced gastric irritation.



**Figure-16:** Shows other problems.

<b>Associated factors</b>	<b>Chi square value</b>	<b>P value</b>	<b>Comments</b>
Age of the respondent	88.454	0.000	<b>Significant</b>
Occupation of the participants	51.601	0.000	<b>Significant</b>
Chronological state of the child	95.722	0.000	<b>Significant</b>
Trimesters of pregnancy	53.618	0.000	<b>Significant</b>
Severity of pain	40.085	0.000	<b>Significant</b>
Behavior of pain	76.525	0.000	<b>Significant</b>
Pain increase with work	60.415	0.000	<b>Significant</b>
Radiation of pain	26.624	0.000	<b>Significant</b>
Pain with Sneezing and Coughing	24.892	0.000	<b>Significant</b>
Taking rest at day time	44.880	0.000	<b>Significant</b>
Pain decrease with rest	49.867	0.000	<b>Significant</b>
Period of LBP felt	68.724	0.000	<b>Significant</b>
Pain hampers the ADL	56.039	0.000	<b>Significant</b>

**5.1 Discussion**

The aim of the study was to identify the characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh. There were 100 samples in this study to find out the characteristics of low back pain during pregnancy. In this study the prevalence was 66%. At a study on Iranian women (Ansari et al., 2010) found the prevalence of LBP during pregnancy was 57.3%, which is nearly similar to most other countries. In Swedish women the prevalence of low back pain during pregnancy was 49% (Webster, 2011). Hills (2010) stated that, 50-90% women develop symptoms of low back pain in the course of pregnancy. In another study on Swedish women (Wang et al., 2013) found that 68.5% respondents reported experiencing LBP during their current pregnancy. Approximately half of all pregnancies are complicated by back pain (John and Triano, 2012). According to a study on Northern Sweden; the prevalence of LBP during pregnancy was 72% (Mogren and Pohjanen, 2012).

In this study, it was found that in the age of more than 26 years, According to the study of USA, low back pain during the current pregnancy was predicted by age (Wang et al., 2013). According to a study on south Australian, younger women were more likely to develop LBP during pregnancy (Stapleton et al., 2002). In this study, 25.49% participants with LBP were at the age of (24-25) years, 21.57% were at the age of (17- 19) years and 19.61% were at the age of (20-23) years. According to a study on Swedish women, back pain during is common in young age (ostgaard et al., 2014). Hills (2010) claimed that, the prevalence of LBP during pregnancy appears to increase 5% for every 5 years of patient age.

This study stated that, in the 3rd trimester of pregnancy prevalence of LBP was the most 49%. In a study (Wang et al., 2013) found that pain onset most frequently in the third trimester of pregnancy (40.7%). Peter and Ulrich (2011) mentioned that as many as 80%

of pregnant women will experience low back pain, especially in their third trimester of the pregnancy. In this study, it was found that, in the 3rd trimester prevalence of LBP is 33.33%. Victoria and Arcadi (2011) found in a study that, the 2<sup>nd</sup> and early-3rd trimesters are the period when backache is most prevalent.

According to a study of United States of America, the average low back pain during pregnancy was moderate in severity (Wang et al., 2013). In this study, among the 66% participants who had low back pain, 13.64% Participants of them felt mild pain, 63.64% Participants felt moderate pain and 22.73 %Participants felt severe pain. In a study on south Australian women, Thirty-five and a half per cent of women recall having at least moderately severe back pain during pregnancy and 61.8% of women who reported low back pain during pregnancy claimed the pain was at least moderately severe, 9% claimed they were completely disabled by pain (Stapleton et al., 2012).

The present study stated that, the women at their 1st pregnancy or primigravida and the percentage was 65%. Those women had one children or it was their 2nd time pregnancy, the percentage 25%. Women with more than two pregnancy or those who had already two children or multiparty, among them the percentage of feeling LBP is 10%. In a study on North American women it was found that, Severe low back pain during pregnancy are at extremely high risk for developing a new episode of severe low back pain during a subsequent pregnancy as well as later in life (Joseph and Cragin, 2008). In a study among the pregnant women of Sweden, it was found that, multiparty is a risk factor for LBP of current pregnancy (ostgaard et al., 2014). In a Swedish study it was reported that, in case of increased parity LBP during pregnancy is more (Mogren and Pohjanen, 2012).

In this study, majority of the participants 79% who had LBP in the pregnancy period, were housewives followed by service holder 11% and 10% were students. Peter (2010) explained that low back pain can occur if any job involves lifting and carrying heavy objects, or if anyone spends a lot of time sitting or standing in one position or bending over.

Among the person who had LBP in this study in the pregnancy period 48.48% felt pain during morning and 30.30% felt pain during afternoon and 21.21% felt pain during night. Wang et al., (2013) claimed that, the majority of respondents (58%) reported that LBP during pregnancy caused sleep disturbance. Among the 66 participants who reported LBP during pregnancy, 52 (78.79%) experienced that LBP increased with work. Adams et al., (2010) found that, arduous work significantly increase the risk of LBP.

According to a study in Swedish women, 57% participants claimed that LBP impaired their activities of daily living & nearly 30% of respondents stopped performing at least one daily activity because of pain and reported that pain also impaired the performance of other routine tasks (Wang et al., 2013). In this study, who had LBP in the pregnancy period 74.24% participants reported that LBP hamper their activities of daily living.

## **5.2 Limitations of the study**

The study should be considered in light of the following limitations.

- i. In the study there were only 100 participants which hardly represent the whole population of pregnant women.
- ii. The findings of the study were not generalized to the wider population. The most easily accessible participants were collected from Dhaka city only and not their area of the country. This small number of sample is not enough to generalize the result.
- iii. Physiotherapy unit for maternal care is not available in many hospitals in Bangladesh. So the investigator could not collect data from all the primary, secondary levels of hospitals and from all the hospitals of Dhaka city also.
- iv. In the study data was collected from two hospitals of Dhaka. If investigator got more time, a larger data could be collected from different parts of Bangladesh. If it could possible, it may make the result more valid and reliable.
- v. Few researchers had done before on this topic area. So, there was little evidence to support the result of the study.
- vi. As it was a new topic area so it was difficult to collect appropriate information about the topic area especially on the perspective of Bangladesh.
- vii. The interview scheduled survey and interviewing skills were not adequate to get deeper information from the participants, as it was the first attempt for the researcher.

### **6.1 Conclusion**

The aim of the study was to explore the characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh. It is mostly occurred in the ages of more than 26 years old pregnant women. The housewives are mostly prone to develop LBP during pregnancy. In case of 1st pregnancy or primigravida LBP was experienced most (65%) and in the 3rd trimester of pregnancy percentage of feeling LBP was the most (49%). But they did not take treatment for LBP. To get relieve of LBP and other complains, Physiotherapy can play a vital role. If the pregnant women receive physiotherapy regularly and maintain the therapeutic activities at their home, LBP and most of the complications can be minimized during pregnancy and the complications which arise after pregnancy can be avoided. In this study it was found that none of the participants received Physiotherapy for their pregnancy induced LBP and they did not know the role of Physiotherapy for this condition. If the general people are aware about the Physiotherapy then more people will come to receive Physiotherapy during pregnancy for LBP. It will be also helpful for other health care professionals to understand the importance of Physiotherapy during pregnancy and will also ensure a good referral system.

### **6.2 Recommendation**

Like other countries, LBP among pregnant women is likely to be an upcoming burden for Bangladesh. For this reason, it is important to develop research based evidence of physiotherapy practice in this area. Physiotherapist's practice which is evidence based in all aspect of health care. Presently, lots of NGOs working on disability are included the services of physiotherapy. But physiotherapy for pregnancy induced LBP is newly introduced in Bangladesh. It is crucial to develop research based findings about the prevalence of the LBP among the pregnant women. This study can be considered as a ground work for the physiotherapy service provision for the pregnant women with LBP. Proper physiotherapy can reduce pregnancy related LBP and prevents postpartum complications. There are few studies on obstetrics area. These cannot cover all aspect of

the vast area. So, it is recommended that the next generation of physiotherapy members continue study regarding this area, this may involve-use of large sample size and participants form different districts of Bangladesh. Conduct research on other maternal health problems where physiotherapist can work. Like common musculoskeletal problems among pregnant women, prevalence of LBP after cesarean section, effectiveness of physiotherapy for the pregnancy induced LBP, prevalence of urinary incontinence ante partum and postpartum period, common physiotherapeutic intervention to reduce the complications of pregnant women are some areas of further studies for future researchers. The Government should aware the people about physiotherapy in obstetrical area, and create post in government hospitals and community hospital. So that he people can get the physiotherapy service. The NGOs should take proper initiative to promote physiotherapy services for the pregnancy induced LBP.

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## Appendix



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)  
**Bangladesh Health Professions Institute (BHPI)**  
(The Academic Institute of CRP)

Ref. CRP-BHPI/IRB/04/17/52

Date: 6/02/2017

To  
Tahmina  
4<sup>th</sup> Professional year  
B.SC. in Physiotherapy  
Session: 2009-2010, DU Reg. No. :791  
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

**Subject: Approval of the thesis proposal- “Characteristics Of Pregnancy Related Low Back Pain Among The Pregnant Women At Selected Hospitals In Bangladesh” by ethics committee.**

Dear Tahmina,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned thesis, with yourself, as the Principal investigator. The following documents have been reviewed and approved:

Sr. No	Name of Documents
1	Thesis proposal.
2	Questionnaire (English and Bengali version).
3	Information sheet and consent form.

Since the study involves answering questionnaire that takes 20 to 30 minutes, have no likelihood of any harm to the participants and have possibility of benefit patients in identifying the characteristics of pregnancy related low back pain among the pregnant women, the members of the Ethics committee has approved the study to be conducted in the presented form at the meeting held at 08.30 AM on February 25, 2016 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and asked to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964-2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain  
Assistant Professor, Dept. of Rehabilitation Science  
Member Secretary, Institutional Review Board (IRB)  
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন : ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স : ৭৭৪৫০৬৯

CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org

**Permission Letter**

August 31, 2016

Head of the Physiotherapy Department

CRP, Savar, Dhaka-1343

Subject: Regarding permission to collect data to conduct a research project.

Sir,

I respectfully state that I am Tahmina, a student of 4th year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). In 4th year course curriculum I have to do a research project. I have chosen a research title that is "Characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh" under my honorable supervisor Muhammad Millat Hossain, Senior Lecturer, Physiotherapy department, BHPI, CRP. Now, I have to collect data for my research project from Mirpur CRP. For which I want your kind approval. I assure that anything of my study will not be harmful for the participants.

I therefore, pray and hope that you would be kind enough to grant my application and give me permission for data collection and oblige thereby.

Yours faithfully

Tahmina

4<sup>th</sup> professional B.Sc. in Physiotherapy

Roll – 38 Session: 2009-2010

BHPI, CRP-Chapain

Savar, Dhaka-1343

*Recommended  
for ward deal  
Muhammad Hossain  
31/08/2016*

*Forwarded  
31/08/16*  
Md. Obaidul Hossain  
Associate Professor & Head of the Department  
Department of Physiotherapy  
Bangladesh Health Professions Institute (BHPI)  
CRP, Chapain, Savar, Dhaka-1343

*Approved  
31.08.16*

Mohammad Anwar Hossain  
Associate Professor &  
Head of Physiotherapy Dept.  
CRP, Chapain, Savar, Dhaka-1343



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)  
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তারিখ : ৩১.০৮.২০১৬

প্রতি  
চিফ কনসালটেন্ট  
ওজিএসবি মেটারনিটি হাসপাতাল  
মিরপুর, ঢাকা।

বিষয় : রিসার্চ প্রজেক্ট এর জন্য আপনার প্রতিষ্ঠান সফর ও তথ্য সংগ্রহ প্রসঙ্গে।

জনাব,

আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্রে-সিআরপি'র শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন ফিজিওথেরাপি কোর্স পরিচালনা করে আসছে।

উক্ত কোর্সের ছাত্রছাত্রীদের কোর্স কারিকুলামের অংশ হিসাবে বিভিন্ন বিষয়ের উপর রিসার্চ ও কোর্সওয়ার্ক করা বাধ্যতামূলক।

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন ফিজিওথেরাপি কোর্সের ছাত্রী তাহমিনা তার রিসার্চ সংক্রান্ত কাজের তথ্য সংগ্রহের জন্য আগামী ১৮.০৯.২০১৬ থেকে ২০.১০.২০১৬ তারিখ পর্যন্ত আপনার প্রতিষ্ঠানে সফর করতে আগ্রহী। তার রিসার্চ শিরোনাম

“Characteristics of pregnancy related low back pain among the pregnant women at the selected hospitals in Bangladesh.”

তাই তাকে আপনার প্রতিষ্ঠান সফর এবং প্রয়োজনীয় তথ্য প্রদান সহ সার্বিক সহযোগিতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

মোঃ ওবায়দুল হক  
অধ্যক্ষ-ভারপ্রাপ্ত  
বিএইচপিআই।



20/09/2016

**Dr. Afroz Mondal**  
Chief Consultant  
OGSB Maternity Hospital

## CONSENT FORM

(Please read out to the participant)

Assalamualaikum, my name is Tahmina, I am conducting this study for partial fulfillment of Bsc in Physiotherapy degree, titled, “Characteristics of pregnancy related low back a pain among the pregnant women at selected hospitals in Bangladesh.” from Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information. You will answer some questions which are mentioned in this form. This will take approximately 20-30 minutes. I would like to inform you that this is a purely academic study and will not be used for any other purpose. The researcher is not directly related with this obstetrics area, so your participation in the research will have no impact on your present or future treatment. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don’t like or do not want to answer during interview.

If you have any query about the study or your right as a participant, you may contact with me and Muhammad Millat Hossain, Assistant Professor, Department of Rehabilitation Science, CRP, Savar, Dhaka.

Do you have any questions before I start?

So may I have your consent to proceed with the interview?

YES

NO

Signature of the participant \_\_\_\_\_

Signature of the Interviewer \_\_\_\_\_

## মৌখিক অনুমতি পত্র

(অংশগ্রহনকারীকে পড়ে শোনাতে হবে)

আসসালামু আলাইকুম,আমার নাম তাহমিনা,আমি এই গবেষণাটি বাংলাদেশ হেল্থ প্রফেশনস ইনস্টিটিউট (বি এইচ পি আই) এ করছি যা বিএসসি ইন ফিজিওথেরাপী কোর্সেও অধিভুক্ত। যার শিরোনাম হল “বাংলাদেশের কিছু নির্বাচিত চিকিৎসালয়ে আগত গর্ভবতী মহিলাদের গর্ভকালীন সময়ে কোমর ব্যথার ধরন নিরূপন”। আমি এক্ষেত্রে কিছু ব্যক্তিগত এবং আনুষঙ্গিক প্রশ্ন জানতে চাচ্ছি।যা আনুমানিক (২০-৩০) মিনিট সময় নিবে। আমি আপনাকে অবগত করছি যে,এটা আমার অধ্যয়নের অংশ এবং অন্য কোন উদ্দেশ্যে এটা ব্যবহার হবে না। গবেষক সরাসরি এই অধ্যয়নের সাথে অস্ত্রভুক্ত নয়। তাই এই গবেষণায় অংশগ্রহন আপনার বর্তমান ও ভবিষ্যৎ চিকিৎসায় কোন প্রভাব ফেলবে না। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহে এটা নিশ্চিত করা হবে যে,এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহণ স্বেচ্ছাপ্রনোদিত এবং আপনি যে কোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রত্যাহার করতে পারেন। এ ছাড়া কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তর না দেওয়া এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকার আপনার আছে।এই অধ্যয়নে অংশগ্রহনকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে অথবা মোহাম্মদ মিলস্নাত হুসাইন,সহকারী অধ্যাপক, রিহ্যাবিলিটিশন সাইন্স বিভাগ, বাংলাদেশ হেল্থ প্রফেশনস ইনস্টিটিউট, সাভার, ঢাকা এ যোগাযোগ করতে পারেন।

এটা শুরু করার আগে আপনার কোন প্রশ্ন আছে? আমি আপনার অনুমতি নিয়ে এই সাক্ষাৎকার শুরু করতে যাচ্ছি।

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অংশগ্রহনকারীর স্বাক্ষর.....

সাক্ষাৎগ্রহনকারীর স্বাক্ষর.....

## Questionnaire

### **Title – Characteristics Of Pregnancy Related Low Back Pain Among The Pregnant Woman At Selected Hospitals In Bangladesh.**

#### A. Socio demographic information:

Name : \_\_\_\_\_ Date:.....

Age : \_\_\_\_\_

Occupation : \_\_\_\_\_

Address : \_\_\_\_\_

#### B. Sample related information:

1. How old are you?

< 18 Yrs       < 18 to 28 yrs       < 29 to 38 yrs       > 38 yrs

2. What is your religion?

Islam       Hindu       Christian       Others

3. What is the chronological state of this child?

1<sup>st</sup>       2<sup>nd</sup>       More than two

4. Which of month of pregnancy it is?

1<sup>st</sup> trimester (1-3)       2<sup>nd</sup> trimester (4-6)       3<sup>rd</sup> Trimester (7-9)

5. Do you feel low back pain?

YES       NO

5.1: If answer is YES, mention the month when it's happened on your Pregnancy.

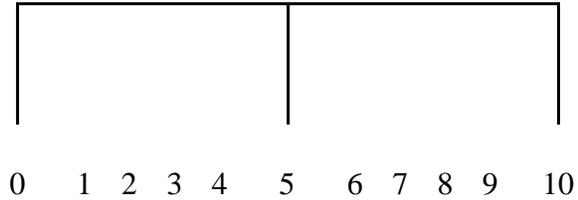
1<sup>st</sup> trimester (1-3)

2<sup>nd</sup> trimester (4-6)

3<sup>rd</sup> Trimester (7-9)

6. How severe is the pain?

a.



b. Not applicable.

7. What is the behavior of pain?

Occasional

Intermittent

Constant

Others

8. Is the pain increase with work?

Yes

No

N/A

9. Is the pain goes downwards to leg?

Yes

No

N/A

10. Do you feel pain in sneezing and coughing?

Yes

No

N/A

11. Do you take rest at day time?

Yes

No

N/A

12. Is the pain decrease with rest?

Yes  No  N/A

13. In which period pain felt most?

Morning  Evening  Night

14. Does your pain hamper your activities of daily living?

Yes  No  N/A

15. In which posture most of the times you stay for rest?

Sitting  Standing  Lying  N/A

16. Do you have any other problem?

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17. Did you receive any physiotherapy for this pain?

Yes  No  N/A

## প্রশ্নসমূহ

শিরোনামঃ “বাংলাদেশের কিছু নির্বাচিত চিকিৎসালয়ে আগত গর্ভবতী মহিলাদের গর্ভকালীন সময়ে কোমর ব্যথার ধরন নিরূপন”।

ক. অর্থ সামাজিক অবস্থার তথ্যাবলীঃ

নাম : তারিখ:.....

বয়স :

পেশা :

ঠিকানা :

খ. নমুনা সম্পর্কিত তথ্যাবলী:

১. আপনার বয়স কত?

<১৮ বছর  <(১৮-২৮) বছর  <(২৯-৩৮) বছর  >৩৮ বছর

২. আপনি কোন ধর্ম পালন করেন?

ইসলাম  হিন্দু  খ্রীস্টান  অন্যান্য

৩. এটি আপনার কততম সন্তান?

প্রথম  দ্বিতীয়  দুইয়ের বেশি

৪. এখন আপনার গর্ভকালীন কত মাস?

প্রথম ট্রাইমেস্টার (১-৩)  দ্বিতীয় ট্রাইমেস্টার (৪-৬)  তৃতীয় ট্রাইমেস্টার (৭-৯)

৫. আপনার কি কোমরে ব্যথা হয়?

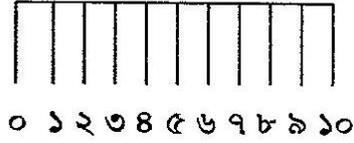
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৫.১ যদি উত্তর হ্যাঁ হয়, তবে গর্ভকালীন কত তম মাসে হয়েছে-

প্রথম ট্রাইমেস্টার (১-৩)  দ্বিতীয় ট্রাইমেস্টার (৪-৬)  তৃতীয় ট্রাইমেস্টার (৭-৯)

৬. ব্যথার তীব্রতা কত?

ক.



খ. প্রযোজ্য নহে

৭. ব্যথার ধরন কেমন?

মাঝে মাঝে  বিরতিযুক্ত  অবিরাম  অন্যান্য

৮. ব্যথা কি কাজ করার সঙ্গে বাড়ে?

হ্যাঁ  না  প্রযোজ্য নয়।

৯. ব্যথা কি কোমরের নিচে পায়ের দিকে যায়?

হ্যাঁ  না  প্রযোজ্য নয়।

১০. হাঁচি বা কাশির সাথে ব্যথা অনুভূত হয়?

হ্যাঁ  না  প্রযোজ্য নয়।

১১. আপনি কি দিনে বিশ্রাম নিয়ে থাকেন?

হ্যাঁ  না  প্রযোজ্য নয়।

১২. বিশ্রামের সাথে সাথে কি ব্যথা কমে যায়?

হ্যাঁ

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প্রয়োজ্য নয়।

১৩. কোন সময় ব্যথাটা বেশি অনুভূত করেন?

দিনে

বিকালে

রাতে

১৪. ব্যথার কারণে আপনার দৈনন্দিন কাজ কর্মে সমস্যা হচ্ছে কি?

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প্রয়োজ্য নয়।

১৫. আপনি বেশির ভাগ সময় কোন অবস্থান থাকেন?

বসা

দাঁড়ানো

শোয়া

প্রয়োজ্য নয়

১৬. আপনার কি আরও অন্যকোন সমস্যা আছে?

.....

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১৭. আপনি কি ব্যথার জন্য কোন ফিজিওথেরাপী চিকিৎসা নিয়েছেন?

হ্যাঁ

না

প্রয়োজ্য নয়।