FACTORS ASSOCIATED WITH LOW BACK PAIN AFTER CHILD BIRTH

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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

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Submitted by **Farheen Islam Chowdhury**, for the partial fulfilment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

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DECLARATION

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Acknowledgement

Acronyms

ADL: Activity of Daily Living

BHPI: Bangladesh Health Profession's Institute

BMI: Body Mass Index

CD: Cesarean Delivery

CRP: Centre for the Rehabilitation of the Paralysed

IRB: Institutional Review Board

LBP: Low Back Pain

SA: Spinal Anesthesia

SPSS: Statistical Package for the Social Sciences

USA: United State of America

VAS: Visual Analog Scale

VD: Vaginal Delivery

WHO: World Health Organization

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Abstract

Low back pain (LBP) is a universal public health problem and many women report low back pain after the childbirth. 50% of women complain of low back pain at some point in pregnancy or during the postpartum period. **Purpose:** To identify the Factors Associated with Low Back Pain After Child Birth. **Objectives:** To explore the socio-demographic factors of low back pain after childbirth in women. To explore the association between physical status, delivery history, previous pain, and low back pain after childbirth. To find out/explore the association between postural factors and low back pain after childbirth. **Methodology:** The design of the study was cross-sectional. 110 samples were selected conveniently for this study. The study was conducted in several settings in Talukjamira village, Gaibandha. Data was collected by using a self-developed questionnaire. Descriptive statistic was used for data analysis which focused on the table, pie chart and bar chart. **Result:** Among 110 participants, 56.4% participants were between the age of (18-25) years, which was related with low back pain. 88.2% were housewife and many of them experienced severe low back pain. 27 women had previous low back pain and 20.9% of them did household activities. 64.5% of the women were in normal BMI. 65.5% of women choose vaginal delivery and 34.5% of women choose cesarean delivery. Low back pain has no significant association with a way of delivery and anesthesia. In this study, a significant association was found with number of parturition and low back pain after child birth. 67.3% women felt occasional LBP and has a significant association with it. There was no significant association of low back pain with postural changes in women after childbirth. **Conclusion:** Many women report low back pain after the postpartum period. Women who had more children were more likely to have low back pains. LBP mostly occurs in young women between the ages of 18-25 years. Most of the women in the village were housewives and experienced severe low back pain. Among all the participants showed accurate BMI as most of the people had their weight and height adjustment. Low back pain had no significant association with the way of delivery, anesthesia and several postures. But two third of the participants felt occasional LBP which was highly related to LBP.

Key word: Low back pain, Childbirth.

1.1 Background:

People all around the world suffer from low back pain (LBP), which is one of the most frequent and difficult musculoskeletal diseases (Charoenchai et al., 2006). It is the most prevalent familial cause of activity limitation, the second most common reason for doctor visits, and the third most common reason for surgical operations in the United States (Apfel et al., 2010). It has become a major public health issue, as well as a common source of absenteeism and the need for disability benefits. That is why it is known as the disaster of the twentieth century (Sparkes, 2005). LBP is a very common problem that most people face at some point in their lives (Hoy et al., 2010). In the United States, approximately 70-85 % of the population suffers from LBP at some point in their lives (Buselli et al., 2011).The lifetime prevalence of LBP in European countries is around 70%(Tomita et al., 2010). According to a European research article, the lifetime prevalence of LBP ranged from 51% and 84 %, with point prevalence ranging from 14% and 42 % (Horvath et al., 2010).

According to a Swedish poll, 66 % of women aged 38 to 64 had LBP. Surprisingly, the majority of these women said their first episode of LBP happened when they were pregnant. In a New York hospital during pregnancy 56% of 200 women suffered from LBP. Several other studies have found that women who experience severe LBP during pregnancy are at an exceptionally high risk of experiencing severe LBP again during a second pregnancy, as well as later in life. Many women claim that LBP not only affects their ability to work while pregnant, but also interferes with daily activities (Wang et al., 2004).

Back discomfort is all-too-common in today's world, and it's especially frequent after childbirth. 70% of all women will suffer from back pain after childbirth(Sabino & Grauer, 2008). Recurrent or chronic postpartum back pain is linked to pregnancy symptoms. While the majority of low back pain goes away within six months after delivery, some causes long-term issues (Sabino & Grauer, 2008).

Approximately 40% of 464 participants felt pain six months after delivery(Mogren et al., 2006). The majority (36.2%) had recurrent discomfort, whereas just 6.9% had constant pain. In a 3-year follow-up study, 20% of women who reported back pain

during pregnancy said it was still disturbing them (Noren et al., 2002). Women in Western countries are increasingly demanding better birthing conditions and obstetrics physiotherapy (Polden& Mantle, 2009).

Physical changes occur throughout human pregnancy. Physiological changes occur as a result of anatomical and functional requirements throughout pregnancy. Physiological changes have an impact on the musculoskeletal system, which frequently results in pain, especially lower back pain (Stapleton et al., 2002).

Pregnant women frequently suffer from low back pain.It is estimated that nearly half of all pregnant women experience back pain at some point throughout their pregnancy or in the postpartum period. The origin of pregnancy-related low back pain is unknown. Low back pain during the menstrual period and a previous history of low back pain have been identified as risk factors for low back pain during or after pregnancy.In terms of age, it is well understood that the younger the patient, the higher the risk of getting pregnancy- joint instability, as well as increased spinal flexibility and the beginning or aggravation of related low back pain. Greater weight is also linked to low back pain, as it causes sacroiliac low back pain (Carvalhoet al.,2017).

In a study on south Australian women, 61.8 % of women who reported low back pain during pregnancy said it was moderately severe, and 9% said it was completely incapacitating. In 10-43 percent of women, the pain might last up to six months after delivery. One-third of women describe their pain as severe and disruptive to daily activities, with 10% of women stating that low back discomfort has prevented them from working (Stapleton et al., 2002).

In Vietnam, 12.3% (n = 222) of the women experienced LBP during the six months' postpartum period(Ha et al., 2019).Although it is impossible to determine who will experience LBP during pregnancy or to estimate the risk, women who have previously experienced LBP are more likely to experience more severe pain and for a longer period of time after childbirth. Back pain before pregnancy is more strongly associated with low back pain. The association between a woman's age or a high workload and low back pain is still unknown. Epidural or spinal anesthesia during labor does not appear to be linked to an increased incidence of persistent postpartum

LBP that women who acquire a lot of weight after having a baby are more likely to develop postpartum LBP (Katonis et al.,2011).

Kwon et al.,2006 found no association between increased BMI and the development of low back pain. Another study of adult females in Sri Lanka found that being overweight and underweight are both risk factors for low back pain (Karunanayake et al.,2006). Increased BMI and joint hypermobility are important factors of LBP during and after pregnancy (Mogren, 2006).

Overweight, trauma, bending, twisting, and extended non-neutral work postures have all been correlated to disc degeneration (Omair et al., 2013). Standing position causes lumbar lordosis to diminish and increases low back muscular activity, disc pressure, and pressure on the ischium, all of which are related to the development of LBP. The use of a sitting device that minimizes low back muscle activation has been shown to improve sitting comfort and reduce the chance of experiencing LBP (Makhsous et al.,2009).

Nearly 60% of women with LBP reported the pain interferes with their ability to sleep and do everyday tasks, and 10.6% of women indicated had to take time from work because of the pain(Wang et al., 2004). These could be some of the reasons why poor posture is strongly linked to the onset of low back pain.

The studies that discuss pregnancy and back pain are descriptive, and it's unclear whether adjustments were made for other factors that cause low back pain. After correcting for other characteristics such as improper posture and increased BMI, a case-control study on Sri Lankan females found that parity had no significant association with low back pain (Karunanayake et al.,2006).

1.2 Justification

Back pain is common in today's society, and it's highly common after pregnancy. After giving birth, 70% of all women will experience back pain (Sabino & Grauer, 2008). The low back pain largely depends on the patient's day to day life activities. LBP affects patient's mobility, personal care, usual activities as well as mental status also. Mostly these things can change the course of treatment positively. After this study physiotherapist get an idea about the factors of low back pain after child birth. This idea helps to set up treatment plan according to patient's needs. Better treatment can beprovidingas well as essential advice to the patients. As a health professional it improves knowledge. By this study patient also benefited by gaining knowledge about her condition and gain some information about their life style which are responsible or not for their mobility, personal care, usual activities, and mental status. This research was based on the practical data collected from the women after child birth at village Talukjamira according to my questionnaire. A relation between this information and draw some conclusion which could be used in future. This kind of research was not done before in Bangladesh, so it will be a resource for physiotherapist and other medical professionals for the quick analysis to find out the efficiency of the treatment that why the therapy is working faster or not. There is no alternative to do research as a professional in order to develop the profession. However, in order to complete the 4th year of B.Sc. in physiotherapy, a research proje ct must be completed that meets the professional body's requirements.

1.3 Research Question

What are the factors associated with Low Back Pain after childbirth?

1.4 Objective

1.4.1 General objective

     - To identify the factors associated with Low Back Pain after childbirth.

1.4.2 Specific objective

- To explore the socio-demographic factors of low back pain after child birth of women.

-To explore the association between physical status, delivery history, previous pain and low back pain after child birth.

-To find out/explore the association between postural factor and low back pain after child birth.

1.5 Conceptual Framework

Independent variables   **Dependent variable**

```
┌─────────────────────────┐
│ Socio-demographic       │
│ factor & Physical status:│
│                         │
│   • Age                 │
│   • Occupation          │───────┐
│   • Height              │       │
│   • Weight              │       │
└─────────────────────────┘       │
                                  │        ┌─────────────────┐
┌─────────────────────────┐       │        │                 │
│ Delivery history and    │       ├────────│ Low back pain   │
│ Previous pain:          │───────┤        │                 │
│                         │       │        └─────────────────┘
│   • Anesthesia          │       │
│   • Other traumatic     │       │
│     history             │       │
└─────────────────────────┘       │
                                  │
┌─────────────────────────┐       │
│                         │       │
│ Postural habit          │       │
│                         │───────┘
│   • Sitting posture     │
│   • Standingposture     │
│   • Bending posture     │
│   • Squatting posture   │
│   • Walking posture     │
│   • Sleeping posture    │
└─────────────────────────┘
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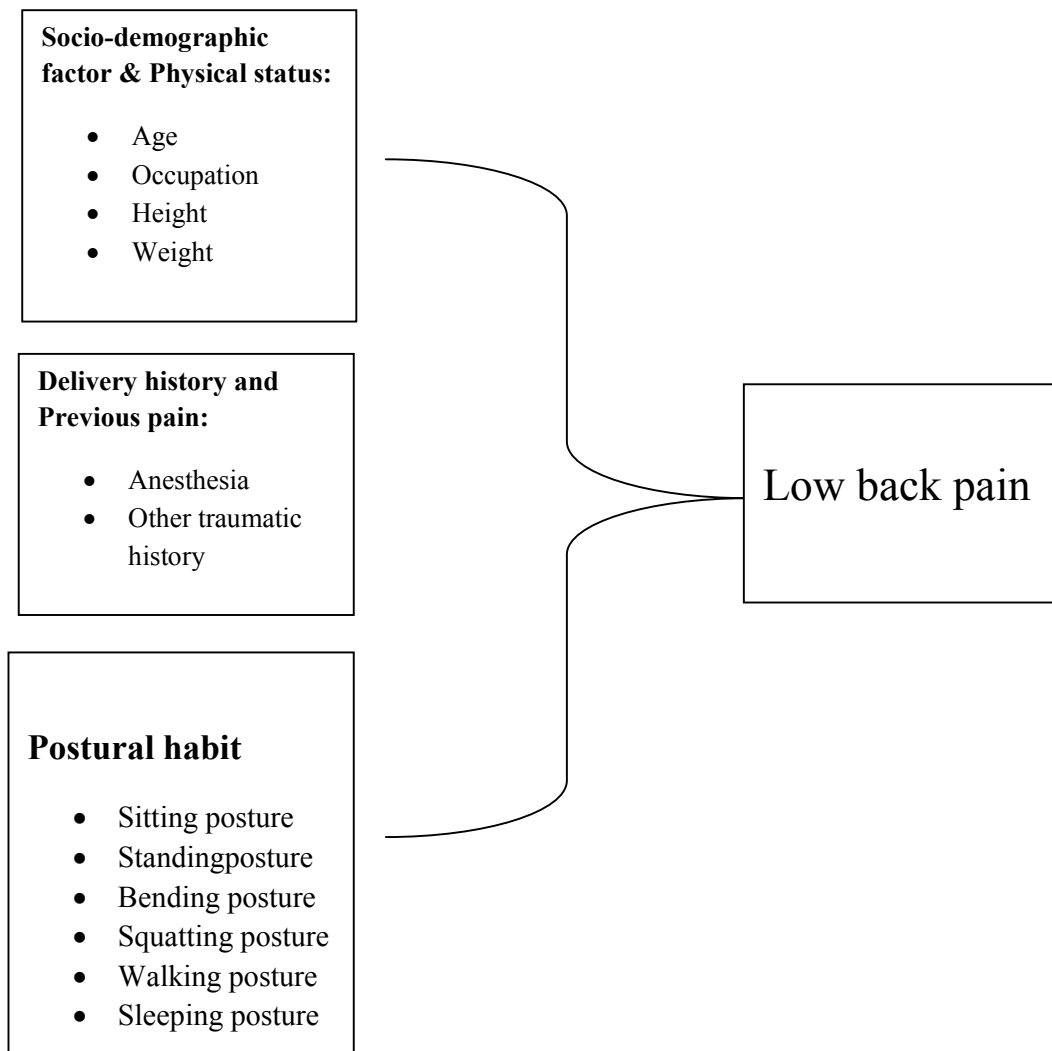
Figure 1: Conceptual Framework

1.6 Operational Definition

Low back pain: Pain in the lower back area 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. It may also have back stiffness, decreased movement of the lower back and difficulty in standing straight.

Pregnancy: Pregnancy is the term used to describe the period in which a fetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks, or just over 9 months, as measured from the last menstrual period to delivery.

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

Intermittent pain: Stopping or ceasing for a time, alternately ceasing and ginning 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.

Household Activities: Tasks such as cleaning, washing, and ironing that have to be done regularly at home. Household chores, such as cleaning and cooking.

Posture: Position or bear the body or body parts for a special purpose

Low back pain seems to be one of the most common health problems among the working population these days (Hoy et al., 2012). 84 % of people experience low back pain at some point in their lives, with 23 % of those experiencing chronic low back pain and 11 to 12 % of those being restricted by low back pain (LBP)(Balague et al., 2012). Pain in the adult general population showed a 12-33 % prevalence rate and a 22–65 % 1-year prevalence (Walker, 2000). LBP is the second most prevalent cause of disability in people in the United States, according to several studies, LBP is a common reason for poor job performance. They showed that over 149 million days of work are lost each year due to low back musculoskeletal discomfort and that the ailment costs the sufferers a large sum of money, with annual expenses estimated to be between $100 and $200 billion in the Western world (Freburger et al., 2009).

At some point in their lives, 80% of the active population will experience low back pain (Altinel et al.,2008). Low back pain (LBP) is a term used to describe pain in the lumbosacral area of the spine, which extends from the first lumbar vertebra to the first sacral vertebra. The lordotic curve is formed in this location. The 4th and 5th lumbar segments are the most common sites of low back pain (Chanda, 2012).

Back pain (sometimes called "dorsopathy") is a type of pain that occurs in the human back and that may appear from muscles, nerves, bones, joints, or other structures in the spine. The pain may be constant or intermittent, localized, or refer or radiate to other parts of the body. A dull ache, a sharp, piercing, or scorching sensation are all possibilities (Robinson, 2011). Nujhat(2013)found that low back pain is a pain and tightness in the lower back. This is one of the major causes why people are missing work. When a ligament or muscle that maintains a vertebra in its usual position is strained, it causes low back pain. The spinal cord goes through the vertebrae, which are the bones that make up the spinal column. The spine loses its stability when these muscles or ligaments become weak, resulting in pain. Because nerves from the spinal cord reach every area of the body, back disorders can cause pain or weakness in practically any portion of the body.

LBP affects both men and women throughout their adulthood, with the first episodes occurring more frequently in people in their 20s and 30s (Kelsey et al., 2013). Persistent low back pain (LBP) is more common in women than in males (Gutke et al.,2008). The lumbar spine, the discs between the vertebrae, the ligaments around the spine and discs, the spinal cord and nerves, the muscles of the low back, the internal organs of the pelvis and abdomen, or the skin covering the lumbar area can all cause pain in the lower back (Ostgaard et al., 1997).

Back pain is very frequent throughout pregnancy. When compared to non-pregnant women of the same age (6.3%), pregnant women have a higher prevalence of LBP (25%) than non-pregnant women of the same age (6.3%). (Gutke et al.,2008). Back pain affects around half of all pregnancies (John &Triano, 2012). According to reports, 50-90 % of pregnant women experience LBP symptoms (Shimul, 2014). One of the most common pregnancy symptoms is back pain, which includes soreness, stiffness, and agony (Ansari et al., 2010). Pregnancy is the condition of a woman carrying a developing embryo or fetus inside her body.

Positive results on an over-the-counter urine test can indicate this condition, which can be confirmed by a blood test, ultrasound, fetal heartbeat detection, or an X-ray. Pregnancy lasts around nine months, counting from the woman's last menstrual period (LMP). It is traditionally divided into three trimesters, each lasting approximately three months (Shimul, 2014). Back pain is commonly caused by changes that occur after pregnancy. Obesity Pregnancy can result in weight gain of up to a quarter of a person's total weight, putting additional strain on the back and other weight-bearing tissues (Montgomery & Sawyer, 2011). The multiple changes in load and body mechanism that occur during the carrying of a child are often attributed to low back discomfort during pregnancy. During pregnancy, it is common to gain 20 to 40 pounds (Sabino & Grauer, 2008).

Low back pain (LBP) is a common symptom after delivery. Most studies estimate that at least half of pregnant women are impacted (Mogren et al.,2005). In China, the prevalence of LBP was reported to be 76 percent during pregnancy and 21.1 % 24 months after delivery (n 326), respectively (Mousavi et al.,2007). Norenetet al.(2002) found that 20% of women still have recurrent LBP three years after childbirth. LBP has been reported to

last for at least 6 months in 5% to 40% of patients following delivery (Turgut et al.,1998). Sixteen percent of women with pregnancy-related LBP experience pain that continues after six years. As a result, pregnancy poses a unique risk for persistent LBP (Gutke et al.,2008).

LBP is a common effect of pregnancy and the postpartum period. Women usually recover between 1 to 3 months after giving birth. However, studies show that recovery from LBP after pregnancy is frequently incomplete and that LBP might last for years after birth. According to the research, the prevalence of postpartum persistent LBP ranges from 5 to 43 % six months after delivery to 20 % three years later (Matsudaet et al.,2020).

Persistent postpartum back pain, whether recurrent or continuous, has been related to pregnancy symptoms. While most low back pain goes away within 6 months of labor, some can cause long-term issues. Around 40% of the 464 women in the study felt pain 6 months after giving birth. Recurrent pain was experienced by the majority (36.2%), whereas chronic pain was experienced by only 6.9%. In a 3-year follow-up study, 20% of women who had back discomfort during pregnancy said it was still bothering them (Sabino & Grauer, 2008).

Pregnancy, on the other hand, can start a "back pain career" in a significant number of women, with about one-third of mothers experiencing persistent low back pain 6-12 months after giving birth. The long-term effects of childbirth on the risk of low back pain are unknown. According to one study, rising parity is related to low back discomfort in middle-aged women. Increased parity may cause low back pain by hormonal changes on the soft tissues that support the spine, abnormal posture, or direct pressure from the growing uterus. However, childrearing is correlated to a lot of lifting and carrying, which are factors that are known to have a big role in low back pain susceptibility(Silman et al.,1995).

Low back pain caused by pregnancy has a significant impact on women's lives. The most prevalent reason for postpartum sick leave is low back pain (Katonis et al., 2011). According to research, pain levels ranged from mild to severe; on average, respondents said LBP was moderate in severity. Nearly a third of the women with LBP said they had to stop doing at least one everyday activity because of their pain. They experienced mild-

to-severe difficulty with all other daily activities due to LBP (Wang et al., 2004). In an Iranian study, over half of the patients said their pain was moderate (44.1 %) (Ansari et al.,2010).

Depending on the studies, the appropriate time ranges for defining persistent low back pain have been 2 months, 3-6 months, or longer. In this study, chronic pain was defined as pain that lasted 6 weeks or more. Depending on the style of birth, postpartum women may experience a variety of various types of discomfort. Pregnancy is linked to a high prevalence of pain disorders, which can last well into the postpartum period. For example, depending on the cohort investigated and the methods employed, 20-90 % experience low back discomfort throughout pregnancy and develop pain after delivery(Komatsu et al.,2020).

It is estimated that nearly half of all pregnant women experience back pain at some point throughout their pregnancy or in the postpartum period. It is well known that the younger the patient, the more likely the younger is to experience pregnancy-related low back discomfort (Carvalho et al.,2017).

Weight gain is a natural part of pregnancy. A typical pregnancy includes an 11-kg total gestational weight gain (GWG) and a 40-week birth. The expected minimum quantity of GWG required for fetal growth and maternal energy deposits for postpartum nursing is 8 kg. Inactivity, gluttony, and psychosocial variables, on the other hand, induce significant weight gain during pregnancy. The musculoskeletal system is put under more stress as a result of excessive weight gain. Excessive weight gain during pregnancy was linked to LBP that persisted after delivery(Matsudaet al.,2020). Weight gain contributes to low back pain by causing sacroiliac joint instability, as well as greater spinal flexibility and the onset or aggravation of low back pain (Carvalho et al.,2017). Obesity is one of the numerous lifestyle variables implicated in the development of LBP. Bodyweight and other lifestyle factors have a significant impact on its development (Bener et al., 2003). According to some research, however, being overweight is not a risk factor for pregnancy-related LBP (Katonis et al., 2011). On the other hand, several researchers suggest that women who gain a lot of weight after giving birth are more likely to have postpartum LBP. As a result, losing weight may help to lessen the occurrence of postpartum LBP(To & Wong, 2003).

All of the participants wore light clothing without shoes and were assessed using standardized methods. Obesity was measured using the body mass index (BMI), which was calculated as weight (kg) 1 kg to allow for clothes, divided by height in meters squared. As an overall measure of obesity, the Body Mass Index (BMI = weight/height2) was utilized. Subjects were categorized into three groups: healthy weight (BMI 25–29.9), overweight (BMI 25–29.9), and obese (BMI >30) (Bener et al., 2003).

63.2 percent of women had had LBP at some point in their life, with housewives having the highest rate (64.2 %; p=0.0001), despite their age and BMI being greater than employed women. Increased BMI was observed to increase the risk of LBP (p=0.000), although smoking, hypertension, or diabetes were not associated with the prevalence of LBP (Altinelet al.,2008). Gutke et al.,2008 found that Low back pain has been correlated with BMI six months after delivery, but not two years later. Pre-pregnancy, post-pregnancy, and 6 months after pregnancy, a body mass index of greater than 25 is also a risk factor for chronic low back pain (Sabino & Grauer, 2008). There has been no continuous association established between the rate of back pain and the mother's height, weight increase, or the weight of the baby (Borg-stein & Dugan, 2007).

The frequency of low back pain was higher in females who had four or more pregnancies than those who had one to three pregnancies (Altinel et al.,2008). In a study of females in rural England, those who labor in heavy farm work and had had more than two pregnancies were found to have a higher risk of low back discomfort (Worku,2000). The number of previous pregnancies appears to raise the risk as well (Katonis et al., 2011).

Every year, 140 million babies are born across the whole world. The incidence of persistent low back pain after labor varies depending on the delivery method, the study population, and, probably most critically, the study design. According to a meta-analysis published in 2016 that included prospective and retrospective observational studies as well as RCTs, 11% of women who had Caesarean deliveries have persistent pain 12 months afterwards (Komatsu et al.,2020).

The use of an abdominal delivery by the mother has been related to an increase in the incidence of CS. According to a recent study conducted in Central Italy, roughly 7%

of CS was performed on maternal demand, with additional studies in certain European nations showing a gradual increase of this rate from 7% to 14.5 percent (Mancuso et al.,2006).

Many pregnant mothers and their doctors believe that spinal anesthesia will result in LBP (Wang et al.,1994). The use of an epidural or spinal anesthetic during birth is not related to the increased incidence of postpartum LBP (Katonis et al., 2011). There was no association between epidural analgesia for labor and back pain that persisted 24 months after delivery (To & Wong,2003). One study reported no difference in the incidence of postpartum LBP after natural childbirth against that after cesarean delivery (CD) with spinal anesthesia (SA) (Wang et al.,1994). The study's sample size was modest, and the authors did not compare CD to other types of anesthesia, such as epidural and general anesthetic, or vaginal birth (VD). A retrospective study of 11,701 women indicated that persistent LBP occurred more commonly after delivery in women who had received EA during labor than in women who had not (19% vs 11%), implying a causal connection between EA and back pain (MacArthur et al., 1990). However, the authors and others found no link between epidural labor analgesia and the development of chronic LBP in a series of prospective investigations (Howell et al., 2001). The majority of this research employed subjective questionnaires as the method of evaluation, looked at single hospital instances, and didn't rule out variables that could have skewed the results.

During pregnancy, about 30% of women are compelled to stop doing at least one everyday activity due to low back pain. In the postpartum period, 30 to 45 % report experiencing low back pain. Previous episodes of back pain are one of the key factors connected to the development of postpartum back pain (Borg-stein & Dugan, 2007). Only 10–25% of women with chronic back pain state that the pain begins during pregnancy, implying that long-term issues are frequently linked to past disorders (Sabino & Grauer, 2008). Women who had LBP before pregnancy are more likely to experience more severe pain and for a longer period of time after childbirth (Katonis et al., 2011).

In Sweden found that a history of heavy work prior to pregnancy was related to LBP over the 12-month postpartum period (Haakstad& Bo, 2015).Lumbar or lower back pain- Lumbar pain is the same as low back pain, which can happen before, during, or

after pregnancy. It may feel over and around the spine, approximately at the waist level. The pain may spread to the legs. Long periods of sitting or standing, as well as lifting, aggravate it, and it becomes more intense at the end of the day (Sabino & Grauer, 2008). The majority of housework is done by females and housewives. This could include long periods of sitting, standing or bending, as well as lifting large weights. If they were required to perform in a professional capacity or serve guests, the quantity of work may be increased. This could explain why housewives have such a high frequency of lower back pain, as well as why females, in general, have such a high prevalence (Bener et al., 2003). A study in Vietnam found that the number of hours spent sitting each week had no significant correlation with LBP (Ha et al., 2019). Total sitting time has no strong correlation with low back pain (Balling et al., 2019). Workplace physical exposures include bending, twisting, manual material handling, and whole-body vibrations are thought to be risk factors for LBP (Plouvier et al., 2011). Although heavy manual lifting is highly linked to LBP, the effect size is regarded to be small (Lederman, 2011).

The mean lifetime prevalence of low back pain (38.9%) was significantly lower than expected, and low rates from studies done in China, Nepal, Cuba, and Pakistan were particularly influential. The low prevalence of low back pain in these low- and middle-income nations could be due to a variety of factors (Hoy et al.,2012). Low back pain is associated to lower social status and educational level (Silman et al.,1995). Low economic status, heavy work, and demanding jobs all increase the prevalence of low back pain (Altinel et al.,2008). The low socioeconomic level is connected to LBP in general. In fact, education is the best sign of socioeconomic status since, unlike work and income, it is unlikely to be influenced by chronic diseases that begin in adulthood. There were 19 large studies that looked at the link between education and LBP, and 16 of them found that having a low educational status was associated with a higher prevalence of back pain (Bener et al., 2003).

The most important tool in determining the source of pregnancy-related back pain is the patient history. Patients should be asked to explain their pain, including its location, nature, and duration. Patients can be asked to represent the location and extent of their pain on an anatomic diagram for their medical records (Colliton, 1996).Low back pain is usually diagnosed based on symptoms because there are few tests available to aid in diagnosis due to concerns about damaging the fetus. Because

low back pain is subjective and frequently the result of a combination of issues, evaluating it during pregnancy is difficult. The most common way to assess pain is to use a horizontal visual analog scale from 1 to 100, with anchors at "no pain" and "worst pain imaginable" (Sabino & Grauer, 2008).A visual analogscale (VAS) was used by Mousavi et al.,2007 to measure pain severity. A VAS measure of pain is a 100-mm-long horizontal line with word descriptions at each end (no pain and worst pain possible).The patient selected a level on the line that best reflects her pain level perception. The pain VAS is a continuous scale with two verbal descriptions, one for each symptom extreme, and a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimeters (100 mm) in length (Jensen et al.,1986). Instructions, reporting timeframes, and verbal descriptor anchors have all varied substantially in the literature, depending on the scale's intended function (Burckhardt and Jones,2003). The VAS for pain is a one-item measure.

"No pain" (score of 0) and "pain as awful as it could be" or "worst imaginable pain" (score of 100 [100-mm scale]) are the most widely used anchors for severity of pain (Burckhardt & Jones,2003). Numbers or verbal descriptors at intermediate stages are not suggested to avoid clustering of results around a desired numeric value (Burckhardt & Jones,2003).

Physiotherapy is one of the most prevalent possible treatments for LBP. The association between sick leave and prepartum back education and training sessions was investigated in a study. Pregnant women who participated in an individualized back education and training program for both posterior pelvic pain and lumbar pain type had a 12 % in sick leave time (Shimul, 2014). Women's health physiotherapists or health care providers that specialize in women's health should plan and manage physiotherapy routines as a precaution. Exercise has long been known to promote strength, mobility, coordination, and endurance in various portions of the body. Exercise is prescribed for back pain for the following reasons: to relieve pain, strengthen muscles, reduce mechanical stress on spinal structures, increase fitness, prevent injury, stabilize hypermobile segments, improve posture, and improve mobility (Chanda,2012).

CHAPTER III	METHODOLOGY

3.1 Study Design:

The purpose of the study was to find out the factors of low back pain after the child birth of women at the selected village in Bangladesh. The design of the study was cross sectional. This design involved identifying group of people and then collecting the information that required when they use the particular service. 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.

3.2 Study Population:

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 after childbirth 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 was taken from a larger population. The methodology used to sample from a larger population will depend on the type of analysis being performed.

3.3 Study area

Villageand post: Talukjamira, Police Station: Palasbari, District: Gaibandha, Division: Rangpur

3.4 Sample Size:

There is no documented prevalence of low back pain after childbirth in Bangladesh. So, sample size was estimated according to the following criteria. The expected prevalence was taken to be 50%women after childbirth. Sampling procedure for cross sectional study done by following equation-

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

Here,

$Z(1-\frac{a}{2}) = 1.96$

P= 0.573

q= 1-p

  = 1- 0.573

  = 0.427

d = 0.05

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

  =375.97

So the investigator aimed to focus his study by 376 samples following the calculation above primarily. But as the study was performed as a part of the academic research project due to limitation of data collection time and COVID-19 pandemic it was not possible to collect 376 data. So, 110 pregnant women were selected as the samples of this study.

3.5 Sampling technique

Finding the appropriate number and type of people to take part in the study is called sampling. In this study, convenience sampling techniques were used to collect the samples.

3.6 Data collection technique:

The data was collected by self- structural questionnaire and a face-to-face interview. The sample was taken by using a convenience sampling procedure. 110 participants had been taken for this study through the inclusion criteria. A Bengali questionnaire was used for data collection.

3.7 Inclusion criteria:

- ➢ Age (18-40) years(Martinez et al.,2012)
- ➢ Women after delivery (From 1 month to 2 years)
- ➢ Willingly participation

3.8 Exclusion Criteria:

- ➢ Pregnant women.

- ➢ Mentally retardant.

- ➢ Age – not less than 18 years old and not more than 40 years old.

- ➢ Not within 1 month of delivery and not more than 2 years.

3.9 Pilot Study

The investigator had accomplished the pilot study with 10 participants from the women lives in Talukjamira village before starting the data collection. The test was performed as it helped the investigator to refine the data collection plan, to modify the questionnaire and to result analysis and design.

3.10 Data Analysis:

Descriptive statistics were used to analyze data. Descriptive statistics refers methods of describing a set of results in terms of their most interesting characteristics (Hicks, 2009). Data were analyzed with the software named Statistical Package for the Social Science (SPSS) version 20.0. The variables were labeled in a list and the researcher established a computer based data definition record file that consist of a list of variables in order. The researcher put the name of the variables in the variable view of SPSS and defined the types,

values, decimal, label alignment and measurement level of data. The next step was cleaning new data files to check the inputted data set to ensure that all data has been accurately transcribed from the questionnaire sheet to the SPSS data view. Then the raw data were ready for analysis in SPSS. Data were collected on frequency and contingency tables. For the study of the association of numeric variables chi squared test were used.

Data were analyzed by descriptive statistics and calculated as percentages and presented by using table, bar graph, pie charts etc. Microsoft office Excel 2017 was used to decorating the bar graph and pie charts. The results of this study were consisted of quantitative data. By this study a lot of information was collected.

Chi-squared test:

A chi-squared test, also written as χ^2 test, is any statistical hypothesis test where the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. The chi-squared test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

3.11 Data Collection Tool:

- ➢ Self-developed Questionnaire
- ➢ Weight machine
- ➢ Measuring tape
- ➢ Visual analog scale to measure the severity of pain

0	10

- ➢ Paper
- ➢ Pen
- ➢ Pencil
- ➢ File

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Socio-demographic characteristics of the participants (N=110)

In this study 110 participants were taken as a sample and they residing in selected rural area of Bangladesh. All of them were women for the achievement of the purpose of the study.The results which were found have been showed in different bar chart, pie charts and tables.

Table 1: Socio-demographic characteristics of the participants

Factors	Frequency	Percentage(%)
Age		
18-25	62	56.4%
26-32	37	33.6%
33-40	11	10%
EducationalQualifications		
Illiterate	3	2.7%
Primary	50	45.5%
Secondary	38	34.5%
Higher secondary	9	8.2%
Graduation	7	6.4%
Post-graduation	3	2.7%
Occupation		
Student	8	7.3%
Housewife	97	88.2%
Business	1	0.9%
Garment Worker	2	1.8%
Others	2	1.8%
Economic status		
Below 10000	67	60.9%
10,000-20,000	39	35.5%
20,000-40,000	4	3.6%

Table 1 illustrates that, the socio-demographic variables of the participants.Women after childbirth were included in the study. So, the participants who participated in the study were from 1 months to 24 months after delivery. Among the participants lowest age of women were 18 and highest age were 40. Most of the women was in age group 18-25which was56.4%(n=62),33.6%(n=37) participants were between the age of 26-32 years

and only 10% (n=11) participants were between the age of 33-40 years. Among the participants 2.7%(n=3) were totally illiterate whereas 45.5% (n=50) completed primary education, 34.5% (n=38) completedSecondary School Certificate,8.2%(n=9) completed higher secondary level education, few in numbers about6.4% (n=7) participants completedgraduation, and very few near about 2.7%(n=3) participants had post-graduation level education.Among the participants, highest frequency (n=97) 88.2% were housewife, (n=8) 7.3% were students, (n=2) 1.8% were garment workers, (n=2) 1.8% were do other things and only (n=1) 0.9% was business woman. Among all the them60.9%(n=60)monthly familyincome was less than 10,000tk.

Physical status(BMI)of the participants (N=110)

The frequency of BMI of the participantsis shown in the **Figure 1**. Among 110 participants,most of the participants were in normal weight which was 64.5% (n=71), 21.8% (n=24) of the participants were in overweight,12.7%(n=14) ofthe participants were in underweight and only one(0.9%) participant was in obesity.
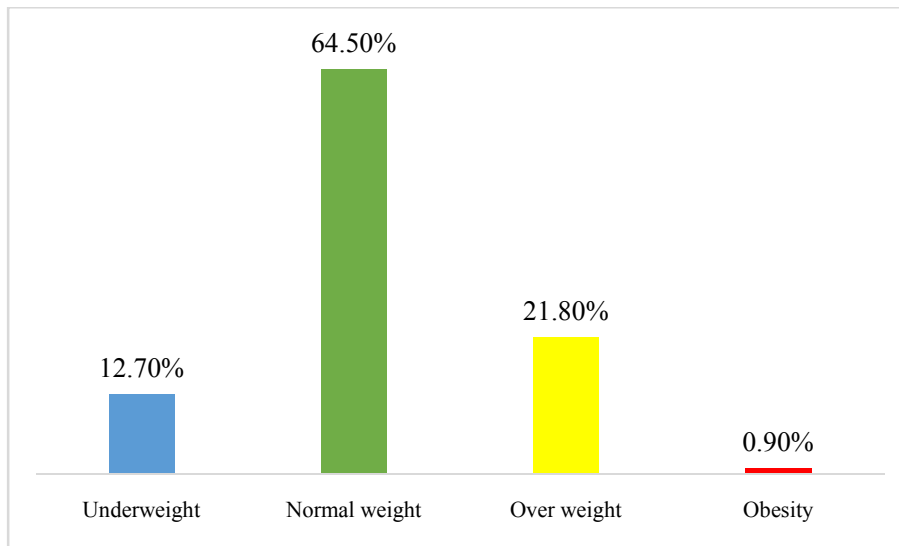
Figure 2: BMI of the participants

Way of delivery&Anesthesia of the participants(N=110)

Figure 3 & figure 4 illustrated that frequency of the way of delivery andanesthesia of women who were participated in this study. In Bangladesh most of the women have vaginal delivery. Out of the110 participants, 65% (n=72) choose vaginal delivery. 35% (n=38) of women had a cesarean delivery and all of them received anesthesia whereas most of the women 66% (n=72) did not received anesthesia.
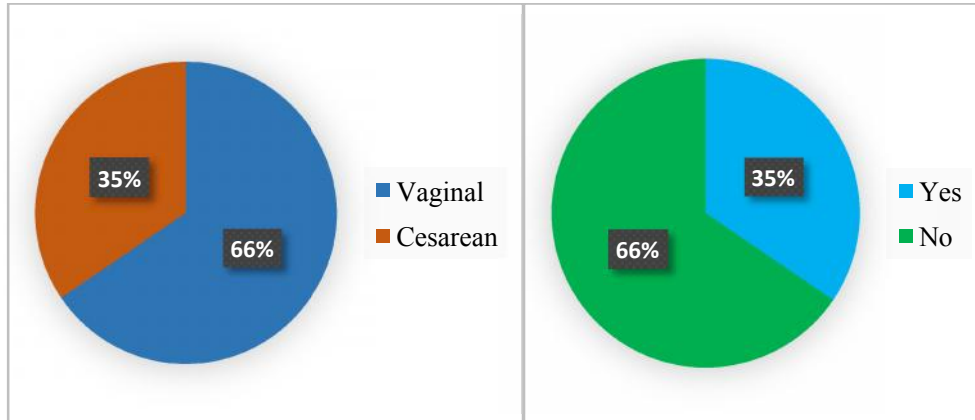
Figure 3: Way of delivery of the participantsFigure 4: Anesthesia of the participants

Behavior of the painof the participants (N=110)

Figure 5 illustrated that the frequency of thebehavior of the pain of the participants.Among 110 participants,the largest number ofwomen 67.3% (n=74) suffering from occasional low back pain, 16.4% (n=18) participants suffering from intermittent low back pain and also only 16.4% (n=18) participants suffering fromconstant low back pain.
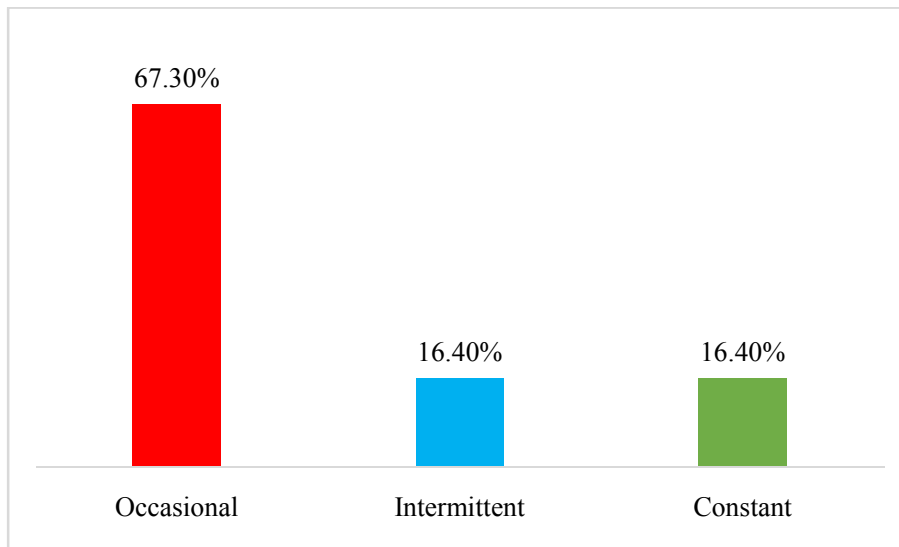
Figure 5: Behavior of the pain of the participants

Previous pain history of the participants (N=110)

Table 2: Previous pain history of the participants

History of pain	Number of participants	Cause of pain	Percentage
Present	27	Lifting heavy object	2.7
		Direct Trauma	0.9
		Household Activities	20.9
Absent	83		

Table 2 illustrated that the Previous pain history of the participants. The number of women withprevious low back pain was 27 whereas83 women had no previous low back pain.Out of the 27 participants, 20.9% (n=23) of the participants did household activities, 2.7% (n=3) of the participants lifted heavy objects and only 0.9% (n=1) of the participant had direct Trauma.

Duration of past LBP:

The previous pain duration of 27 participants was 1-15 months.

2months of pain was in 25.93% (n=7) of participants, 3months of pain was in 14.81% (n=4) of participants, 1month of pain was in 11.11% (n=3) of participants, 4months of pain was in 11.11% (n=3) of participants, 5months of pain was in 14.81% (n=4) of participants, 6months of pain was in 7.41% (n=2) of participants, 7months of pain was in 7.41% (n=2) of participants, 8months of pain was in only 3.70% (n=1) of the participant and also 3.70% (n=1) of participant was in 15months of pain.
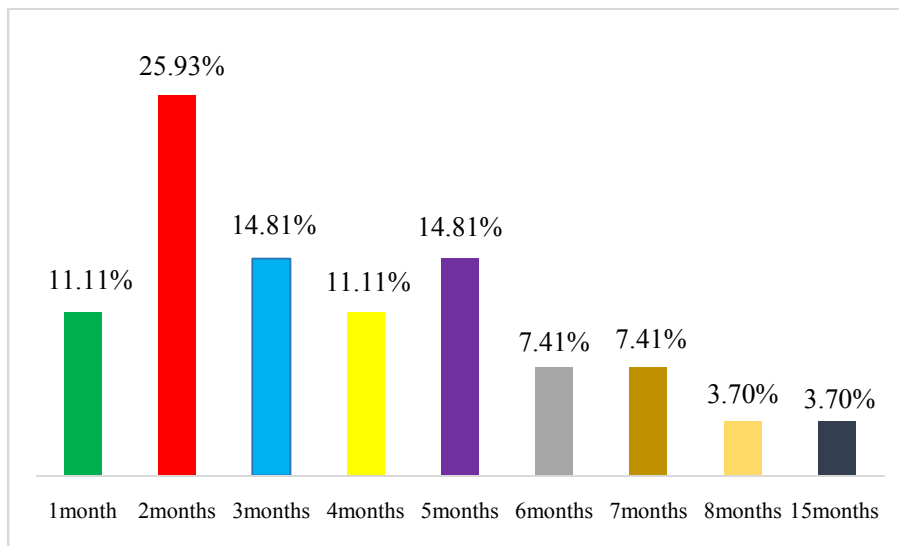
Figure 6: Duration of past LBP of the participants

Medical investigation/ Diagnosis of the participants (N=110)

Table 3: Medical investigation of the participants

Medical investigation	Frequency	Categories	Number of participants
Present		X-ray	20
	20	MRI	2
		CT scan	3
Absent	90		

Out of the 110 participants, 90 women had no medical investigation and there were 20 women under medical investigation. All 20 women 18.2% (n=20) had an X-ray report, 1.8% (n=2) had MRI report and 2.7% (n=3) had CT-Scan report.

Association between Occupation and mode of delivery

Out of 110 participants 97 women were housewife.Among them in the mode of delivery, 64 was vaginal and 33 was cesarean.The **figure 7** showed thatthe Pearson Chi-Square value is2.651and the P-valueis 0.618. Which is more thanthe significant valueof 0.05. So, it is implying that the occupation of residents is not associated with the mode of delivery.
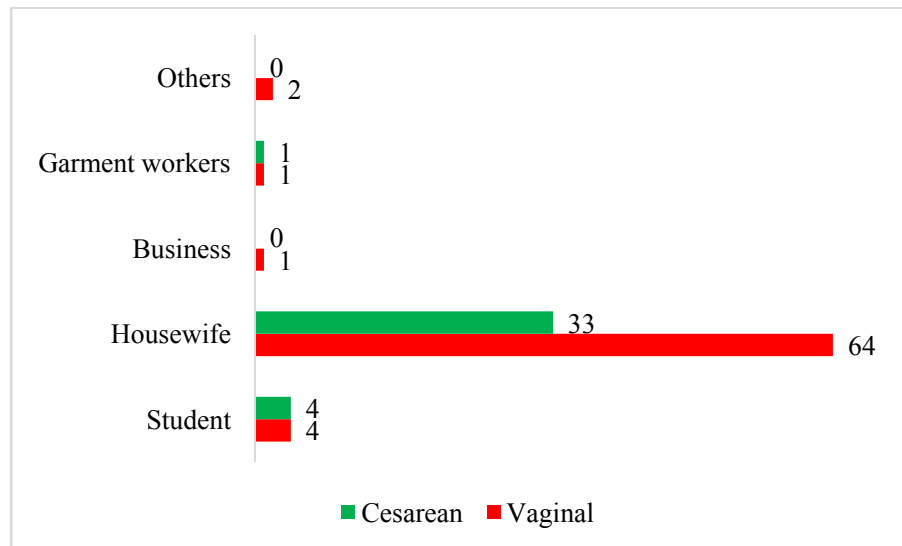
Figure 7: Association between occupation and mode of delivery

Association between Age and Low back pain

Figure 8 illustrated that the association betweenage and Low back pain of the participants. The Pearson Chi-Square value is 23.406 and the p value is 0.024 which is less than the significant P-value of 0.05. In this case, a bar chart revealed a relationship between age of residents is associated with low back pain.
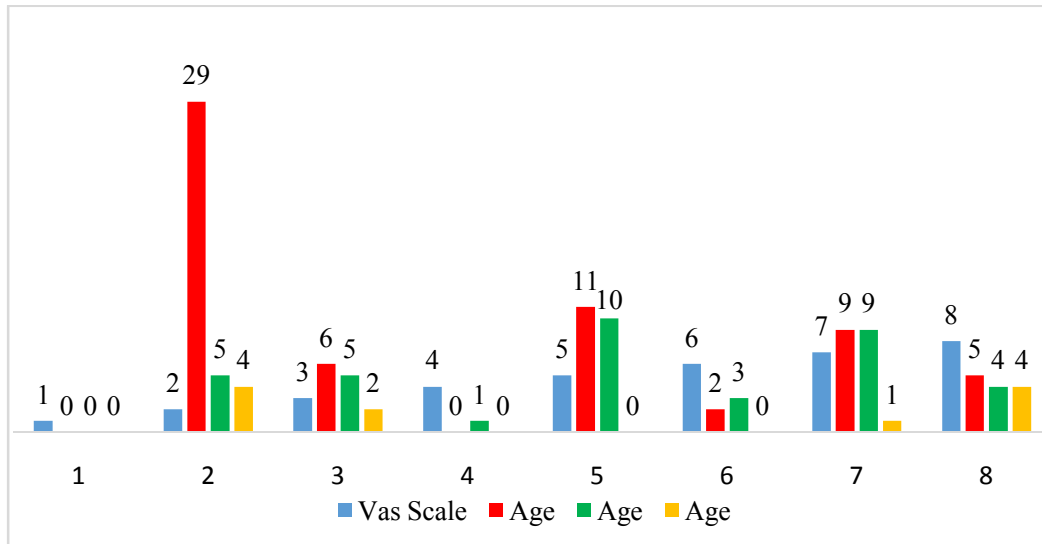
Figure 8: Association between age and Low back pain

Association between Occupation and Low back pain

The Chi-Square test was used to examine the relationship betweenoccupation and Low back pain of the participants. The Pearson Chi-Square value is 22.684and the p value is 0.54 which is more than the significant P-value of 0.05. In this case, a bar chart revealed a relationship between age of residents is associated with low back pain which is implying that the occupation of residents is not associated with low back pain.

Figure 9: Association between occupation and Low back pain

Association between BMI and Low back pain

Table 4: Association between BMI and Low back pain

Vas Scale	BMI				Chi-square	P-value
	Under weight	Normal weight	Over weight	Obesity		
2	6	26	5	1		
3	3	8	2	0		
4	0	1	0	0		
5	2	13	6	0	10.996	0.89
6	0	3	2	0		
7	1	14	4	0		
8	2	6	5	0		

Among the participants35women felt mild pain, 30 women felt moderate pain and 6women felt severe pain where the woman's BMI was in normal weight.Here, p value is 0.89and Pearson Chi-Square value is 10.996which is implying that the BMI of residents is not associated with low back pain.

Association between Number of parturition and Low back pain

Among the participants, 32 women had one child, 45 women had two children, 24women had three children, 8women had four children and only one women had five children.To see the association Chi-Square test was done where Pearson Chi-Square is 39.417p value is 0.025which is less than the significant P-value of 0.05. So, it is implying that the number of parturition of residents is associated with low back pain.
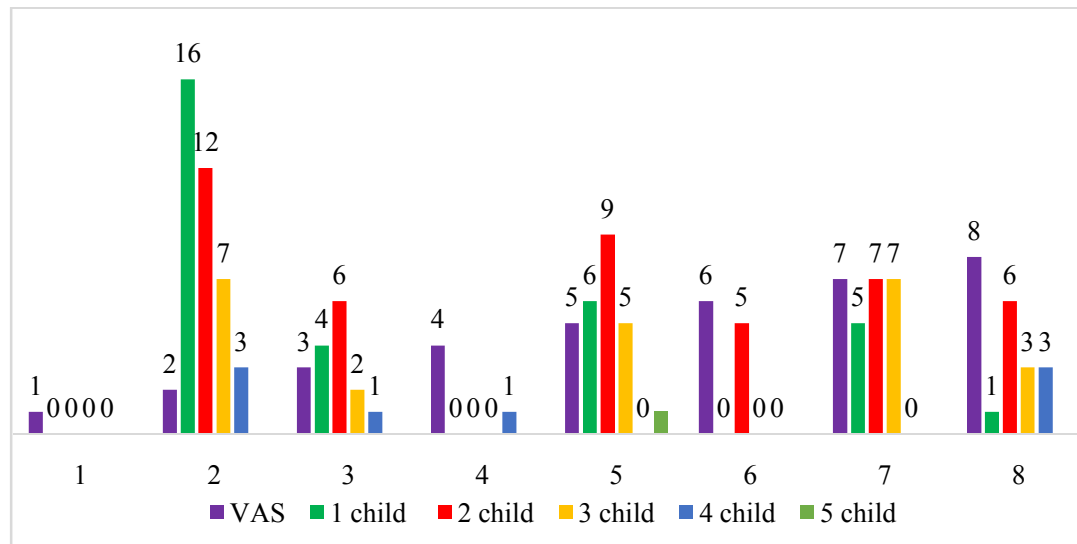
Figure 10: Association between number of parturition and Low back pain

Association between Way of delivery and Low back pain

Out of 110 participants, 72 women had a vaginal delivery. Among them 39 women suffering from mild LBP, 25suffering from moderate LBP and only 8women suffering from severe LBP.To see the association Chi-Square test was done where p value is 0.350and Pearson Chi-Square is 6.695. So, there have non-significant association between way of delivery and Low back pain.
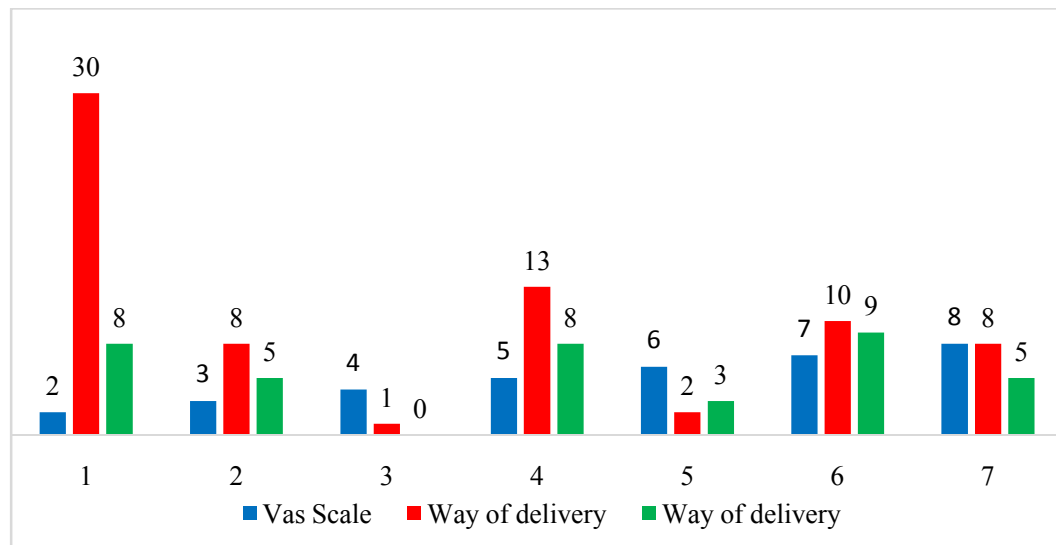
Figure 11: Association between way of deliveryand Low back pain

Association between Anesthesia and Low back pain

Table 5: Association between anesthesia and Low back pain

Vas Scale	Anesthesia		Chi-square	P-value
	Yes	No		
2	8	30		
3	5	8		
4	0	1		
5	8	13	6.695	0.350
6	3	2		
7	9	10		
8	5	8		

Among 110 participants, 38 women received anesthesia. To see the association Chi-Square test was done where Pearson Chi-Square is6.695and p value is0.350 which is more than the significant P-value of 0.05. So, it is implying that the anesthesia of residents is not associated with low back pain.

Association betweenManners of the pain and Low back pain

Among 110 participants most of the women(n=74) occasionally felt LBP. To see the association Chi-Square test was done where Pearson Chi-Square is51.605 and the P-value is 0.000 which is less than the significant P-value of 0.05. So, it is implying that the manners of the pain of resident are associated with low back pain.
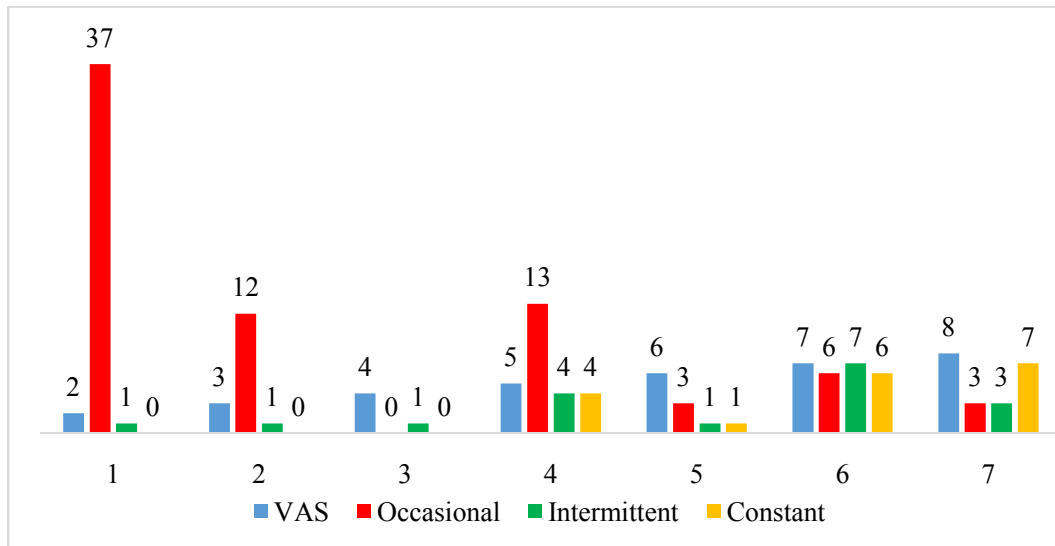

Figure 12: Association between manners of the pain and Low back pain

Association between Duration of sitting posture and Low back pain

In**Figure 13**the Chi-Square test was used to examine the relationship betweenduration of sitting postureand Low back pain of the participants. The Pearson Chi-Square value is 9.413and the p value is 0.667which is more than the significant P-value of 0.05which is more than the significant P-value of 0.05. In this case, a bar chart revealed no relationship between duration of sitting posture of residents is associated with low back pain.

Figure 13: Association between duration of sitting posture and Low back pain

Association between Duration of standing posture and low back pain

Table 6: Association between duration of standing posture and low back pain

Vas Scale	Duration of standing posture				Chi-square	P-value
	Almost always	Often	Sometimes	Seldom		
2	12	15	10	1		
3	4	5	4	0		
4	0	1	0	0		
5	8	10	3	0	6.797	0.992
6	1	2	2	0		
7	7	8	4	0		
8	6	4	3	0		

Table 6illustrates that, theassociation betweenduration of standing postureand Low back pain of the participants. The Pearson Chi-Square value is 6.797and the p value is 0.992which is more than the significant P-value of 0.05which is more than the significant P-value of 0.05.So, it is implying that the duration of the standing posture of participants is not associated with low back pain.

Association between Duration of bending posture and Low back pain

Table 7: Association between duration of bending posture and Low back pain

Vas Scale	Duration of bending posture				Chi-square	P-value
	Almost always	Often	Sometimes	Seldom		
2	4	5	18	11		
3	0	1	5	7		
4	0	0	1	0		
5	1	2	12	6	14.145	0.720
6	0	1	3	1		
7	0	5	11	3		
8	2	2	6	3		

The Chi-Square test was used to examine the association betweenduration of bending postureand Low back pain of the participants. The Pearson Chi-Square value is 14.145and the p value is 0.720which is more than the significant P-value of 0.05which is more than the significant P-value of 0.05. In this case, a bar chart revealed no relationship between duration of bending posture of residents with low back pain.

Association between Duration of squatting posture and Low back pain

Infigure 14showed that theassociation between duration of squatting posture and Low back pain of the participants. P-value is 0.442 which is more than the significant P-value of 0.05. So, it is implying that the duration of the squatting posture of residents is not associated with low back pain.
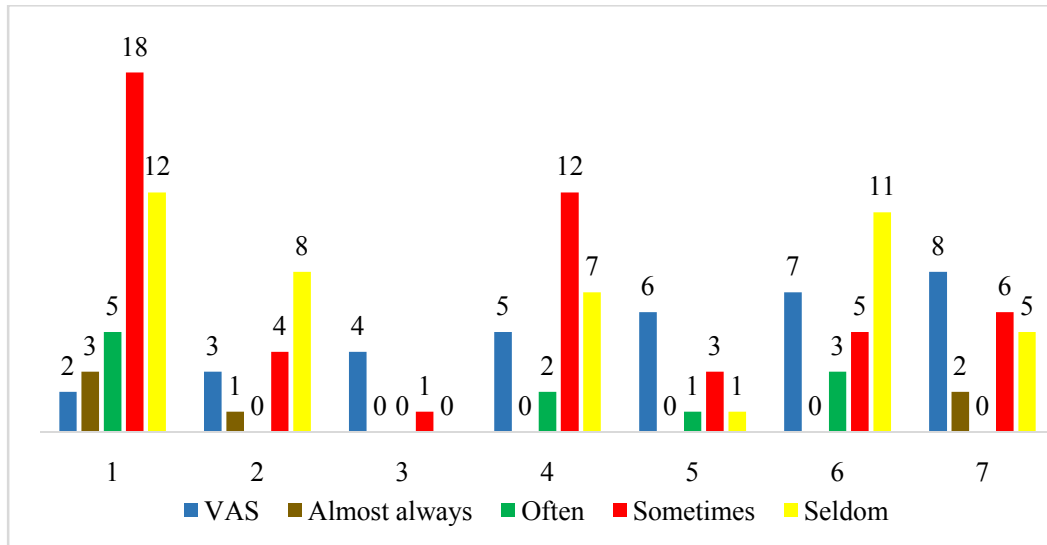
Figure 14: Association between duration of squatting posture and Low back pain

Association between Duration of walking posture and Low back pain

The Chi-Square test was used to examine the association betweenduration of walking postureand Low back pain of the participants. The Pearson Chi-Square value is 22.872and the p value is 0.196 which is more than the significant P-value of 0.05which is more than the significant P-value of 0.05. In this case, a bar chart revealed no relationship between duration of bending posture of residents with low back pain.

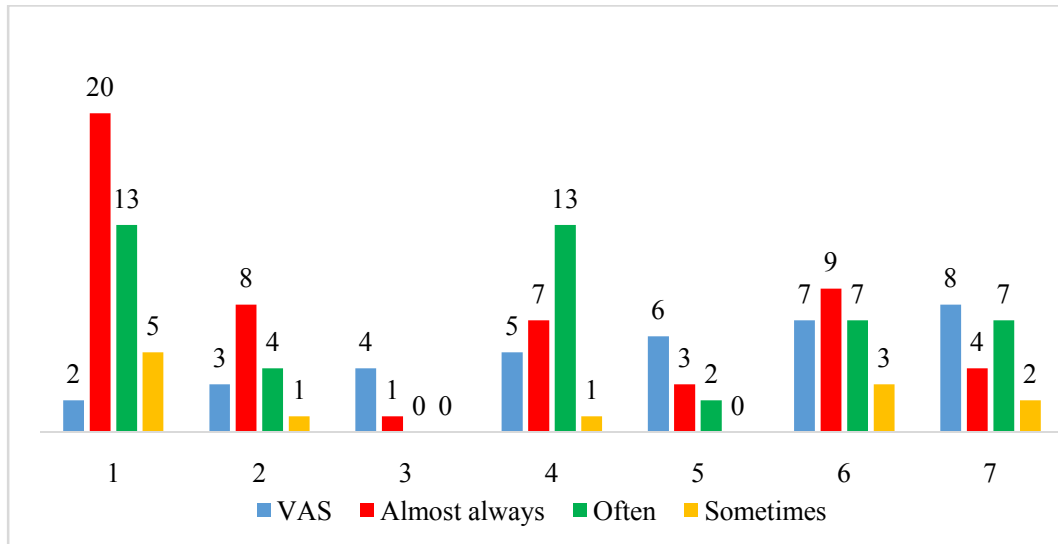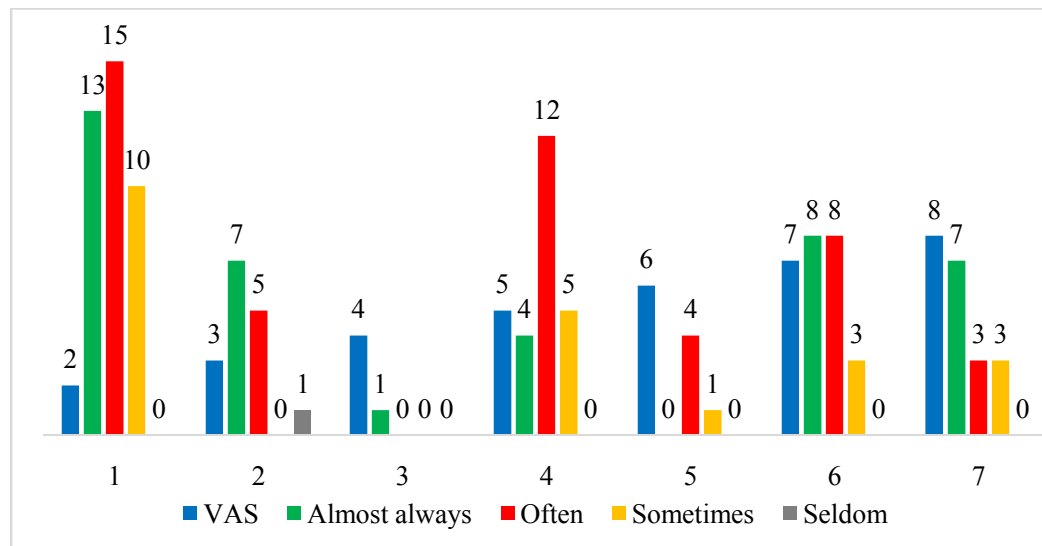**Figure 15: Association between duration of walking posture and Low back pain**

Association between Duration of sleeping and low back pain

Table 8: Association between duration of sleeping and low back pain

Vas Scale	Duration of sleeping			Chi-square	P-value
	Often	Sometimes	Seldom		
2	1	25	12		
3	0	9	4		
4	0	1	0		
5	0	17	4	8.925	0.709
6	0	2	3		
7	0	11	8		
8	1	7	5		

The **table 8** illustrated that the P-value of the duration of sleeping of the participants and low back pain is 0.709 which is more than the significant P-value of 0.05. So, it is implying that the duration of sleeping of residents is not associated with low back pain.

Association between Preferable sleeping posture and Low back pain

Among the 110participants, 104 women slept in side lying position whereas 3 women slept in supine lying position and also another 3 women slept in prone lying position.The Pearson Chi-Square value is 6.360and the p value is 0.897indicating that the Chi-Square test is statistically non-significant. In this case, a bar chart revealed no association between preferable sleeping posture and Low back pain of the participants.
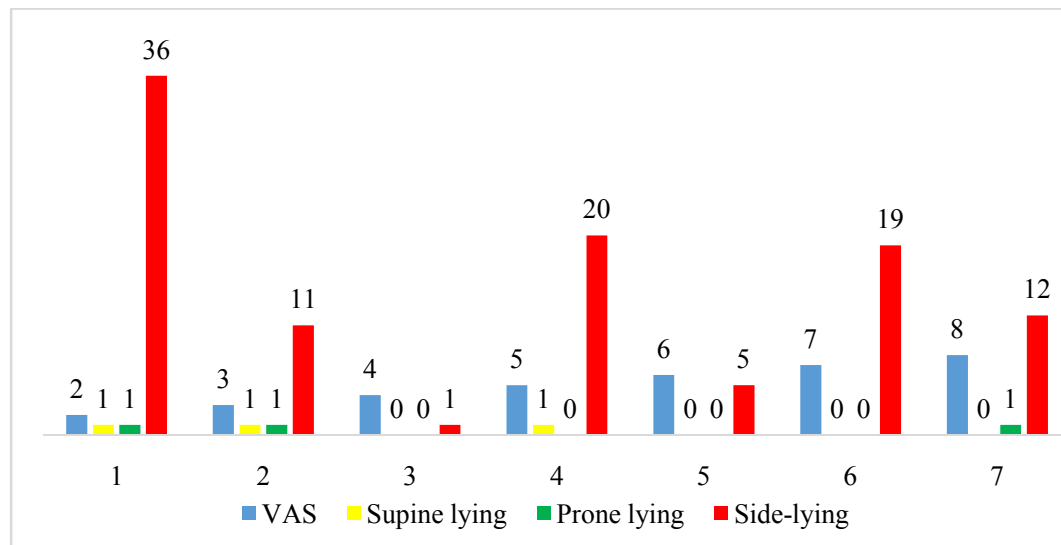
Figure 16: Association between preferable sleeping posture and Low back pain

Association between Mattress and Low back pain

Among the 110 participants, 44 women slept on soft\ cushioned mattress, 35 women slept on firm\normal mattress 31 women slept on wooden\ hard mattress, The Pearson Chi-Square value is 15.249and the p value is 0.228indicating that the Chi-Square test is statistically non-significant. In this case, a bar chart revealed no association between mattress and Low back pain of the participants.

Figure 17: Association between mattress and Low back pain

Table 9: Chi-Square tests

Variables	Pearson Chi-Square value	p value
Occupation ~ Mode of delivery	2.651	0.618
Age of patient ~ Low Back Pain	23.406	0.024**
Occupation of patient ~ Low Back Pain	22.684	0.54
BMI of patient ~ Low Back Pain	10.996	0.89
Number of parturition of participants ~ Low Back Pain	39.417	0.025**
Way of delivery of participants ~ Low Back Pain	6.695	0.350
Anesthesia of participants ~ Low Back Pain	6.695	0.350
Manners of pain of participants ~ Low Back Pain	51.605	0.000***
Duration of sitting posture of participants ~ Low Back Pain	9.413	0.667
Duration of standing posture of participants ~ Low Back Pain	6.797	0.992
Duration of bending posture of participants ~ Low Back Pain	14.145	0.720
Duration of squatting posture of participants ~ Low Back Pain	18.211	0.442
Duration of walking posture of participants ~ Low Back Pain	22.872	0.196
Duration of sleeping of participants ~ Low Back Pain	8.925	0.709
Preferable sleeping posture of participants ~ Low Back Pain	6.360	0.897
Mattress of participants ~ Low Back Pain	15.249	0.228

Note: $*P \leq 0.05$; $**P \leq 0.01$; $***P \leq 0.001$.

CHAPTER V	DISCUSSION

5.1 Discussion

In New Haven County, LBP was reported by 90 percent of women under the age of 20, 67 percent of women experienced low back pain in 2o to 30 years old and 61 percent of women experienced LBP in 31 to 40 years old (Wang et al.,2004). Another study said that pregnancy-related low back pain is more likely to occur in younger age pregnancy (Carvalho et al.,2017). Which also similar to the study where 56 percent of the participants were young people between the ages of 18-25 who complained of LBP, 33 percent of women experienced LBP between the age of 26-32, 33 percent of women experienced LBP in 33-40 years old.

According to the Bangladesh Literacy Survey (BLS) report from 2019, 74 percent of Bangladesh's population is literate, with 71.18 percent of women able to read and write. Similar findings also showed in this study that among 110 participants 2.7% (n=3) were totally illiterate, 45.5% (n=5 0) had only primary education, 34.5% (n=38) had passed Secondary School Certificate, 8.2%(n=9) had higher secondary level education, 6.4% (n=7) participants had graduation and only 2.7%(n=3) participants had post-graduation level education.

In Turkey, study showed that housewives (64.2%) had the highest rate of LBP (Altinel et al.,2008). In this study, 88 percent of the women were housewives and many of them experienced severe low back pain, 7 percent of the women were students, 2 percent of the women were garment workers and only one was involved in the business.

Morgren(2006)found that nutritional intake and physical activity are both highly linked to a healthy weight. In Turkey, the study showed that increased BMI has been linked to an increased risk of LBP (Altinel et al.,2008). Another study showed that pre-pregnancy, post-pregnancy, and 6 months after pregnancy, a body mass index of greater than 25 is also a risk factor for persistent low back pain (Sabino & Grauer, 2008). On the opposing in North America, the study showed that there is no consistent association between the rate of LBP with the mother's height or weight gain (Borgstein &Dugan, 2007). In 1994

Orvieto et al. found that height, weight, and BMI were not discovered to be risk factor for LBP. Similar findings also showed in this study that the BMI of 64.5% of the participants was between 18.5- 24.9 which indicates healthy\ normal weight and only one person's BMI was above 25.

In Turkey, study showed that out of 1588 women only 15.9% of women chose ancesarean delivery, while 84.1 percent chose vaginal birth (Buyukbayrak et al.,2010). In Singapore, 3.7% of pregnant women choose caesarean delivery (Chong &Mongelli, 2003). In South Korea, 10.6% of women wish caesarean birth (Lee et al., 2004). In England, Wales and Northern Ireland an caesarean rate was 7% (Penna&Arulkumaran, 2003). But in Latin-American countries, this rate is said to be significantly higher. 40% in Chile (Angeja et al., 2006). In Bangladesh, 4.98 percent caesarian delivery occur in 2004 and 24.21 percent caesarian delivery occur in 2014(Khan et al., 2018),although cesarean delivery is increasing day by day, most women prefer vaginal delivery. In this study, also vaginal delivery(65.5%) rate was higher than cesarean delivery(34.5%).

In Sweden, study showed that those with remission of LBP and women with chronic LBP after pregnancy had the same distribution of epidural anesthesia and spinal anesthesia (Mogren, 2007). Several research showed that, the use of an epidural or spinal anesthetic during labor is not linked to an increased incidence of postpartum LBP (Katonis et al., 2011). Which is similar to this studies where 65.5% (n=72) did not receive anesthesia and 34.5% (n=38) received anesthesia and has no impact on low back pain after childbirth.

Women who had four or more pregnancies had increased low back pain than those who had one to three pregnancies(Altinelet al.,2008). In this study found a significant association with number of parturition and low back pain after child birth.

Low back pain due to pregnancy has a significant impact on women's lives. In Netherlands, study showed that at 3 months after giving birth, 38% of women experienced occasional low back pain and 13.8% experienced low back pain after a year(Katonis et al., 2011). Among110 participants 67.3% (n=74) experienced occasional LBP, 16.4% (n=18) experienced intermittent LBP and16.4% (n=18) experienced constant LBP.

In Netherlands, study showed that women with history of suffering LBP showed more severe pain at longer period of time after childbirth (Katonis, 2011). In North

America, study showed that previous experiences of low back pain are the most important factors linked to the development of postpartum back pain (Borg-stein and Dugan, 2007). Another study said that, Pregnant women with previously experienced low back pain are more likely to suffer it again. (Brynhildsen et al.,1998). Among 110 participants 27 had previous low back pain history which showed the similar findings.

Sindiani et al. (2020) said that there were no significant association between the mode of delivery and occupation. In Southern Italy, study results recommended that the mode of delivery and occupation had no important relation (Mancuso et al.,2006). Similar findings also showed in this study that occupation had no effect on the method of delivery.

In this study, researcher found that out of 110 participants, 20 women were medically examined. Among them 20 women had X-rays, 2 women had MRI and 3 women had CT-Scan.

In Japan, a study showed that standing up from a chair, bending, squatting, lying down, and sitting up were all found to be strongly associated to the severity of LBP(Morino et al.,2017). Another study said that prolonged sitting in the same position, or frequent bending and turning of the trunk enhanced the risk of LBP (Picavet&Schouten, 2000). But in Denmark, study showed that total sitting time has no statistically significant relationship with low back pain (Balling et al., 2019). In 1998, Franklin and Conner-Kerr. stated that there was no significant relationship found between the duration of posture and low back pain. Similar findings also found in this study that there were no significant association between duration of sitting posture, standing posture, bending posture, squatting posture, walking posture, sleeping posture and LBP-after child birth.

5.2 Limitations of the study

The investigator tried her level best to complete the study but still, there were some situational limitations and barriers while considering the result of the study.

- Due to the Covid-19 situation, the investigator collected data from the community area as collecting data from a different area like urban and semi-urban would have had different outcomes.
- Study was not able to achieve the proposed sample size for the study due to COVID-19 pandemic situation. Adequate sample size is highly impact on the significance of the results and validity.
- In the study, data was collected from a rural area. If the investigator got more time, larger data could be collected from a different area of Bangladesh and the result would be more generalized.
- Convenience sampling often chances to biases because this method may represent the views of a selected group and not the entire population.
- No research has been done before on this topic specifically. So there was little evidence to support the result of this project on the perspective of Bangladesh.

CHAPTER VI   CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Low back pain is a common health problem in the world. Many women report low back pain after the postpartum period. The study revealed that most of the women was in young between the ages of 18-25 years after delivery. Majority of the women were housewives and suffered from severe low back pain.In the meantime, the study showed thattwo third of the participants showed accurate BMI as most of the people in the village had their weight and height adjustment, so their BMI had no effect on low back pain. It showed that two thirdof women choose vaginal delivery, and another one third of women had a cesarean delivery. Anesthesia was used for those women who had cesarean delivery only. Low back pain had no significant association with a way of delivery.Similarly, it revealed that there is no association between low back pain and anesthesia. The majority of women experienced low back pain on a regular basis which is highly related to LBP. previous low back pain was an important factorwhich is linked to the development of postpartum back pain. Occupation had no correlation with way of delivery and at the same time had no link with low back pain. Women who had more children were more likely to have low back pain. There was no significant association of low back pain with postural changes in women after childbirth. The characteristics of participants who were able to observe through this study were related to the type of low back pain after childbirth, age, number of childbirth and the severity of previous pain.

6.2 Recommendations

The aim of this study was to explore the factors associated with low back pain after childbirth and the result found from the study has fulfilled the aim of this research project. The following recommendations are-

- Should take more samples for generating the result and make it more valid and reliable.
- Sample should collect from different areas both rural, urban, and semi-urban Bangladesh to generalize the result.
- To find out an effective and efficient result in generalized form, other measurement scales should be used in consideration.

This is an undergraduate study and doing the same study at a future level will give a more precise output. There was some limitation of this study mentioned in the relevant section; it is recommended to overcome those limitations during the further study. So for further study, it is strongly recommended to increase the sample size with adequate time to generalize the result in all areas of Bangladesh for better results and perspectives.

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মৌখিকঅনুমতিপত্র

(অংশগ্রহণকারীকে   শোনাতে   )

আলাইকুং /   চৌধুরী।   টি   কার্যক্রম শুরু
হেলথ প্রফেশনস ইনস্টিটিউ (   )
কোর্সের অন্তর্ভূক্ত। য   "সন্তান জন্মের   কোমড় ব্যাখ্যার   "।
এক্ষেত্রে | ব্যাক্তিগত ঃ   প্রশ্ন   চাচ্ছি।   –
যে,   অধ্যয়নের   অন্য কোন উদ্দেশ্যে এ ব্যাবহৃত
অধ্যা   অর্ন্তভুক্ত ঃ   অংশগ্রহ   বর্তমান
ভবিষ্যত চিকিৎসায় কোন প্রভা ফেলবেনা।   যে   তথ্য প্রদান   গোপনীয়ত
প্রতিবেদনের   প্রবাহে   নিশ্চিত   যে,   তথ্যের উৎস
অপ্রকাশিত

ধ্যায়নে   অংশগ্রহ স্বেচ্ছাপ্রনোদিত এব   যেকোন   অধ্যায়ন থেকে কোন
নেতিবাচক   প্রত্যাহার ক   কোন নির্দিষ্ট প্রশ্ন অপছন   উত্তর
দেওয়া   সাক্ষাৎকারের স   কোন উত্ত

অধ্যা   অংশগ্রহনকার্   কোন প্রশ্ন   জে
উন্মুে আন্ষিয়, লেকচারার রিহ্যাবিলিটেশন সাই,   রিহ্যাবিলিটেশন সাই   ,
হেলথ প্রফেশন্স ইনস্টিটিউ,   ,   ,   –   যোগাযোগ

শুর   কোন প্রশ্ন   ?

সাক্ষাৎকার শুর   যাচ্ছি?

হ্যা [   ]   [   ]

অংশগ্রহনকারী
সাক্ষর ....
          ....

সাক্ষাৎগ্রহনকারীর
সাক্ষর ....
          ....

Informed Consent

(Please read out to the participant)

Assalamualaikum,

My name is Farheen Islam Chowdhury. I am conducting this research study which is the part of B.Sc. in Physiotherapy program and my research title is **"Factors Associated with Low Back Pain After Child Birth"** under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information who having back pain after child birth. You have to answer some questions which are mention in the attached form. This will take approximately 30-40 minutes.

I would like to inform you that this is a purely professional study and will not be used for any other purpose. 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 researcher Farheen Islam Chowdhury or my supervisor S. J. M Ummul Ambia, Lecturer- Rehabilitation Science, Department of M. Sc in Rehabilitation Science (MRS), Bangladesh Health Professions Institute (BHPI), CRP, Savar, Dhaka-1343.

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's.. Date………………

Signature of the Witness's……………………………………………. Date………………

সন্তান জন্মেঃ   কোমড় ব্যথার

) আর্থ–   অবস্থার তথ্যাবলীঃ

- সনা   ন
-
- ঠিকান
-       সদস্য সংখ্যাঃ
-

  □ গ্রাম   □

- মোবাইল নাম্বারঃ
-

  □ –   □ –   □ –

- শিক্ষাগত যোগ্যতাঃ
  - ☐ প্রাতিষ্ঠানিক শিক্ষা নে
  - ☐ প্রাথমিক পর্যায়
  - ☐ মাধ্যমিক পর্যায়
  - ☐ উষ্–মাধ্যমিক পর্যায়
  - ☐ স্নাতক
  - ☐ স্নাতকোত্তর
- পেশাঃ
  - ☐ শিক্ষার্থী
  - ☐
  - ☐   কর্মকর্তা
  - ☐ স্বাস্থ্য সেবক
  - ☐ ব্যাবসায়ী
  - ☐ পোশাক শ্রমিক
  - ☐ অন্যান্য
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)   অবস্থ , প্রসব   পূর্ববর্তী ব্যাথা সম্পর্কিত তথ্যাবলীঃ

- উষ্ণতা
-
-      (উষ্ণত   সাম্যাবস্থা)
-     বাচ্চা প্রসব   ? . . . .
- সর্বশেষ প্রসবকৃত শিশুর প্রসব কেমন

  ☐
  ☐   মাধ্যমে

- অ্যানে

  ☐ হ্যা   ☐

-     বাচ্চা প্রসবের   কোমড় ব্যাথা শুরু   ?
  . . . .

- প্রাথমিকভাবে কোমড় ব্যাথার   কেমন   ?

  ☐
  ☐ বিরতিযুক্ত
  ☐
  ☐ অন্যান্য

-     মধ্যে কিকোমড়ব্যাথারজন্য চিকিৎসকের   যেতে   ?

  ☐ হ্যা   ☐

- হ্যা   ?

  ☐   মাধ্যমে
  ☐   উত্তোলনের মাধ্যমে
  ☐
  ☐

-     পর্যন্ত ব্যাথা   ? . . . .

-     কোন এক্স-রে   ?

  ☐ হ্যা   ☐

-            ?

  ☐ হ্যা   ☐

-     সিটি স্ক্যান ক

  ☐ হ্যা   ☐

) দেহের অবস্হ (অঙ্গভঙ্গি) সম্পর্কিত তথ্যঃ

	বেশিরভাগ			প্রায়	
কতক্ষ					
কতক্ষ ?					
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মেঝেতেকাত ?					
কতক্ষ ?					
কতক্ষ ?					

-                      ?
  - ☐ চিৎ
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  - ☐
-        তোষক/   ব্যাবহার   ?
  - ☐
  - ☐ / কুশনের
  - ☐ / শ
-     স্কেলঃ

_____

ব্যাথা নেই   অসহ্য ব্যাথা

<center>**Part-I: Socio-demographic Information**</center>

- **Name:**
- **Address:**
- **Family member:**
- **Living area:**
    - ☐ **Rural**
    - ☐ **Urban**
- **Mobile Number:**
- **Age:**
    - ☐ **18-25**
    - ☐ **26-32**
    - ☐ **33-40**

- **Educational Qualifications**
    - ☐ Illiterate
    - ☐ Primary
    - ☐ Secondary
    - ☐ Higher secondary
    - ☐ Graduation
    - ☐ Post graduation
- **Occupation**
    - ☐ Student
    - ☐ Housewife
    - ☐ Office worker
    - ☐ Health service provider
    - ☐ Business
    - ☐ Garments workers
    - ☐ Others

- **Economical status**
  - ☐ Below 10,000
  - ☐ 10,000- 20,000
  - ☐ 20,000- 40,000
  - ☐ Above 40,000

Part-II: Physical status, delivery history and previous pain history

- Height:
- Weight :
- BMI:
- Number of Parturition:

- **How was the baby born?**
  - ☐ Vaginal
  - ☐ Cesarean
- **Anesthesia:**
  - ☐ Yes
  - ☐ No
- **After how many deliveries did the lumber pain start?** ……………………

- **What is the behavior of pain?**
  - ☐ Occasional
  - ☐ Intermittent
  - ☐ Constant
  - ☐ Others

- **Have you had to take medical help in the last 2 years for lumber region?**
  - ☐ Yes
  - ☐ No

- **If yes, how did it happen?**

    ☐ Direct trauma

    ☐ Twisting

    ☐ Lifting heavy objects

    ☐ Carrying heavy load

    ☐ Falling on the ground

- **How long you suffer?**

    ……………………………….........

- **Have you done any x-ray?**

    ☐ **Yes**

    ☐ **No**

- **Have you done any MRI?**

    ☐ **Yes**

    ☐ **No**

- **Have you done any CT Scan?**

    ☐ **Yes**

    ☐ **No**

Part-III:Posture

Statement	Almost always	Often	Sometimes	Seldom	Never
Period of sitting posture					
Period of standing posture					
Period of bending posture					

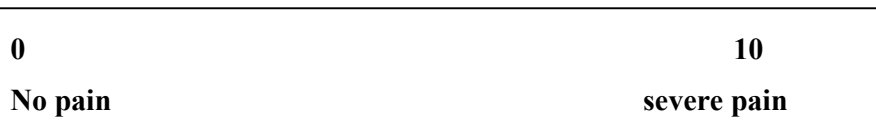| Period of squatting posture					
Period of walking posture					
Period of sleeping posture					

- **Which posture do you prefer during sleeping?**

☐ Supine lying
☐ Prone lying
☐ Side lying

- **Which type of mattress you use during sleeping?**

☐ Firm/Normal mattress
☐ Soft/Cushioned mattress
☐ Wooden/Hard mattress

- **VAS Scale**

0   **10**

No pain   **severe pain**

IRB Permission letter

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

Ref.
CRP/BHPI/IRB/11/2020/407

Date:.......................

28th November 2020

To
Farheen Islam Chowdhury
4th year B.Sc. in Physiotherapy
Session: 2015-16, Student ID: 112150298
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal **"Factors associated with low back pain after child birth"** by ethics committee.

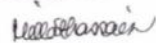Dear Farheen Islam Chowdhury,
Congratulations.
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned dissertation, with yourself as the Principal investigator. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation Proposal
2	Questionnaire (Bengali & English version)
3	Information sheet & consent form.

The purpose of the study is to determine the Factors associated with low back pain after child birth. The study involves use of a questionnaire to identify the factors of low back pain after child birth, that may take 10 to 15 minutes to answer the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 8 AM on 29/02/2020 at BHPI (23rd IRB Meeting).

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 ask 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,

Muaddasasen

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