

PREVALENCE OF LOW BACK PAIN AMONG THE SHOPKEEPERS

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Bachelor of Science in Physiotherapy (B.Sc. PT)

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

**PREVALENCE OF LOW BACK PAIN AMONG THE
SHOPKEEPERS**

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Declaration

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of information of the study I would be bound to take written consent of my supervisor.

Signature:

Date:

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Abbreviations

BHPI:	Bangladesh Health Professions Institute
CRP:	Center for the Rehabilitation of the Paralyzed
LBP:	Low Back Pain
MSD:	Musculoskeletal Disorder
SPSS:	Statistical Package for the Social Sciences
WRMD:	Work Related Musculoskeletal Disorder

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Abstract

Purpose: The purpose of this study is to identify the prevalence of low back pain (LBP) among the shopkeepers. *Objectives:* To identify the percentage of LBP among the shopkeepers, to find Sociodemographic information, to identify working posture, working hours, severity of pain, to explore whether shopkeepers stay away from work due to LBP & whether shopkeepers received physiotherapy treatment or not. *Methodology:* Cross sectional study design was selected for this study. Total 100 samples were selected by convenience sampling from different shops at Savar bazaar, Dhaka. Data was collected by mixed type questionnaire. Descriptive statistics were used for data analysis which focused pie chart and bar chart. *Results:* The Prevalence of LBP was 51% among the shopkeepers and the prevalence of LBP was higher among male shopkeepers 86.3% than female shopkeepers. The highest prevalence was found among long duration workers 49% who worked for 12 hours & 49% who worked for 14 hours. The most vulnerable age of LBP was 31-38 years. Outcome of this study showed that among the 51 participants who were suffering from LBP 39.2% had sudden onset of pain & 60.80% had gradual onset of pain. The study concludes that shopkeepers who were suffering from LBP 45.1% had mild pain, 33.3% had moderate pain & 21.6% had severe pain. 23.5% had work interruption & 76.5% had continued the work among the shopkeepers who were suffering from LBP. In this study shopkeepers who were suffering from LBP 9.8% were received physiotherapy treatment & 90.2% were not received physiotherapy treatment. *Conclusion:* The findings of this study suggest that LBP is prevalent among the shopkeepers at Savar bazar in Dhaka, Bangladesh, and this may be associated with the repetitive body movement during serving the customers, poor posture & long duration working hours.

Key words: Low back pain, Prevalence, Shopkeepers.

1.1 Background

International surveys of low back pain (LBP) was reported a point prevalence of 15% to 30%, a 1-month prevalence of 19% to 43% and worldwide estimates of lifetime prevalence of LBP vary from 50% to 84% (Ghaffari et al, 2006). In developed countries such as the United States of America and Australia, LBP prevalence is 26.4% to 79.2% (Walker et al, 2004). The 1 year prevalence of LBP in Britain was 49% and in the Nordic countries the 1 month prevalence of LBP was 35% (Torill et al, 2004). In Netherland & Belgium LBP prevalence rates are 30% and 40% was recorded among workers, in Italy 60% of LBP are recognized as occupational diseases, in France LBP accounted for 40% (Fernandes et al, 2011). In Canada, low back pain (LBP) is an important occupational health problem and also in most industrialized countries (Tissot et al, 2009). LBP is one of the most common subjective health complaints in Western populations (Torill et al, 2004). Physical work demands that have been clearly associated with LBP include heavy physical work, manual materials handling, frequent bending and twisting and whole body vibration (Tissot et al, 2009). In the working-age population, LBP has the highest health care use among all chronic diseases, resulting in a heavy economic burden given its prevalence and consequences; LBP is a major occupational health concern (Wai et al, 2010). 26% of American adults reporting pain of at least one day in duration every three months, 41% of adults aged between 26 and 44 years reported having back pain in the previous 6 months, & in the United States, estimates of the costs of low back pain range between \$38 and \$50 billion a year (Farnandes et al, 2004). A significantly larger proportion of men than women usually work in standing position (58% versus 51%), the prevalence of LBP in male workers were significantly higher among those who work in a standing posture to compared to those who usually work sitting (27.8% versus 21.7%), 28.6% for moving around and 30.4% for standing in a fixed posture versus 17.4% for standing with freedom to sit, among those who work seated, men are more likely to work in a fixed position 5.9% of men versus 1.2% of women (Tissot et al, 2009). Low back pain is the most common causes for chronic or permanent impairment in United State adults under the age of 65, & the most common cause of activity limitations in persons

under the age of 45 (Sabino & Grauer, 2008). Approximately 5% of people with back pain disability are thought to account for 75% of the costs associated with low back pain. LBP affects 80% of adults during their lifetime and is a major medical condition that causes disability (Bhargava et al, 2006). Shopkeepers are the group of people involves in shop keeping & this is the only source of income for them most of the cases (Answer, 2012). Bangladesh one of the developing country in the world having high density (901/Sq.Km) of population where only 40% male & 30% female are literate (Bellamy, 2004). Only 26% people are urbanized, rest of the part live in the rural areas, in this situation there were 67487000 sales workers in Bangladesh (BBS, 2002).

1.2 Rationale

Low back pain (LBP) is the common problem in both developed & developing countries. LBP is more common in working population. Severity is gradually increased with the work in a long time or inappropriate way or poor posture. Among the work related musculoskeletal disorders LBP is common health problem throughout the world and major cause of disability among workplace (Choobineh et al, 2007). The worker in a shop is not aware about their posture (Poor posture) which cause back pain. They are doing their activities with poor posture, long working hours, repetitive movements of the body and poor work centre design are main risk factors for these problems. Many of the shopkeepers come from low socio-economic conditions. They are not aware of their health condition. They don't disclose their health problem due to fear of losing salary or income from the shop. This study help finding out prevalence of back pain among the shopkeepers. Finding of this study were brought to physiotherapist concerned for intervention whereby physiotherapist may extend their cooperation to bring ease in the lives of shopkeepers.

1.3 Research question

- What is the prevalence of low back pain among the shopkeepers?

1.4 Objectives

1.4.1 General objective

- To identify the prevalence of low back pain among the shopkeepers.

1.4.2 Specific Objective

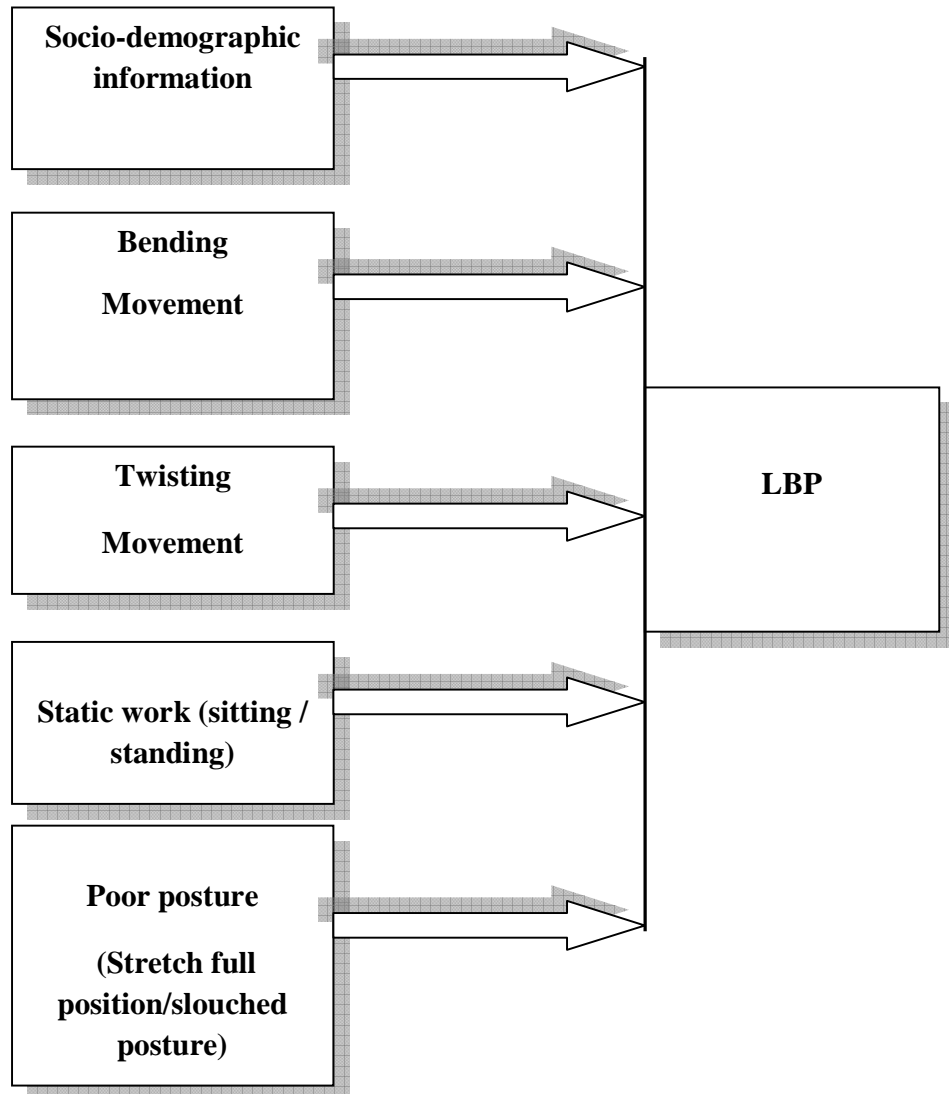
- To identify the Sociodemographic information among the shopkeepers.
- To find out how many participants experience low back pain among the shopkeepers.
- To identify working posture among the shopkeepers.
- To clarify the pattern of onset of pain.
- To measure the severity of symptoms at VAS scale.
- To explore how many shopkeepers stay away from work due to LBP.
- To figure out how many shopkeepers received physiotherapy treatment.

1.5 List of Variables

Conceptual Framework

Independent variables

Dependent variable



1.6 Operational Definition

Prevalence

The degree to which something is prevalent, especially the percentage of a population that is affected with a particular disease at a given time.

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 standing straight.

Shopkeeper

One who owns or manages a shop or owner or manager of small retail business. A person with the aims of business or to earn money by selling some products from his shop by receiving money from customers is known as a shopkeeper.

Bangladesh is one of the developing country in the world having high density (901/Sq.Km) of population where only 40% male & 30% female are literate (Bellamy, 2004). BBS (2002) state that only 26% people are urbanized, rest of the part live in the rural areas, in this situation there were 67487000 sales workers in Bangladesh, though all sales worker are not shopkeeper.

Shopkeepers are the group of people involves in shop keeping & this is the only source of income for them most of the cases (Answer, 2012). Those people have low assets & have no other way of income, being involved in shop keeping so, most of the NGO's working in the country for economic development through rehabilitation of unemployed people provide micro credit loan for shop keeping (Kader, 2005).

Back muscles act to support the spine and maintain the stability of the spine; weakness of back muscles can lead to low back pain and is known as a main cause of recurrence (Lee et al, 2012). Generally we found that these people sit for long time from early in the morning to night continuously, but the sitting system is poor, most of the cases poor posture in a low stool where the height of the chair is not equal to the leg length, knees are not kept in 90 degree (Kader, 2005). The back is not supported and they do not use arm rest. As a result their lumbar spine stays in fully slump position placing various Ligamentous structures on full stretch. The basic vertical alignment of trunk & head are not maintained. So staying in prolonged sitting in bad posture with flexed lumbar spine without lumbar support & continuous overstretching of Ligamentous structures made them one of the most vulnerable groups of being suffered from LBP (Lee et al, 2012). They have to do all type of activities themselves to maintain the shop. These types of activity include lifting goods, measuring goods, transferring goods. To do these types of activities forward bending, twisting & vibratory movements have to do very frequently. Due to lack of funding they cannot put sufficient place in the shop. For this reason they had to work in narrow space (Kader, 2005).

LBP can be defined as pain or discomfort located between the lower costal arch and the gluteal folds, with or without referred leg pain (Tulder, 2003). 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 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). The term low back pain 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 of the spine where the lordotic curve forms. The most frequent site of low back pain is in the 4th and 5th lumbar segment (Kravitz & Andrews, 2011). Shiel (2009) 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 (Tulder, 2003). 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 (Ostgaard, 1991).

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, 1984). Kelsey et al (1990) expressed that LBP is common throughout the adults 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, 1991).

The typical postures & activities of shopkeepers make them one of the most vulnerable groups of being LBP. They bend frequently, twist right & left, lift up heavy objects & transfer (Bellamy, 2004). The sitting systems of the shopkeepers are inappropriate, low height & without back support (BBS, 2002). They stay in one sitting position for long time (Bellamy, 2004). Most of the cases the posture is too poor to cause the LBP (Ebnezer, 2003). Though there is no statistics on shopkeepers how many are being suffered from LBP, so this is the right time to explore prevalence of LBP among the shopkeepers to set up both preventive & curative management as a physiotherapist (Kader, 2005).

Wiesel (1989) state that the mechanical causes of back pain (muscle strain, herniated disc) have an acute sudden onset & the onset of pain is frequently associated with a specific task done in a mechanically disadvantaged position; muscle may be torn, fascia stretched & facet joint irritated. Pain starts instantly or within a few hours (Ostgaard, 1991). Medical causes of low back pain have a more gradual onset of a pain. Tumors pain start insidiously excepts for episodes of acute pain associated with pathologic fractures of skeletal structures. The duration of LBP episode can be classified as: Acute (0-6 weeks), Sub-acute (7-12 weeks), Chronic (longer than 12 weeks) (Bekkering et al, 2003).

The causes of LBP are multifactorial, including physical, environmental, pathological factors. Back injuries in the work place are rarely caused by direct trauma; typically they are the result of overexertion of individual factors. Age is the most important whereas sex, height (greater than 72 inch tall), weight and smoking >20 cigarettes per day probable risk factors ((Hestbaek et al, 2003). Occupational factors associated with an increased risk of LBP are : heavy physical work, static work posture, frequent bending & twisting & lifting, pushing & pulling, repetitive work, psychological & psychosocial (Cox, 1999). Over two third of back strains are caused by lifting & other exertions like pushing & pulling. The common causes of LBP are muscle strain, vertebral compression fractures, spinal stenosis, intervertebral disc lesion, spondylolysis or spondylolisthesis, & exercise programme (Painting et al, 1998).

Growing evidence shows that low back pain starts early in life between 8-10 years (Croft et al, 1998). Low back pain affects men & women in their best productive years, with the peak frequency of symptoms occurring in the age range of 35-55 (Wai, 2010). In his study, (Ghaffari, 2006) confirmed that LBP prevalence is significant as early as age 12-14 in both sexes. Workers compensation from 16 states, the scope of LBP in the workforce peaked in the 20-24 year old age group for men & 30-34 years old group for women (Wadell & Burton, 2005).

Gender differences vary from country to country. In USA the higher prevalence of back pain in male workers & a study on LBP in Japan showed that the incidence in male workers was about four times greater than in female workers, in a representative prevalence study in Germany, seven day back pain prevalence was significantly higher for women (Croft et al, 1998).

Flexion of the spine (trunk) forward or lateral direction is known as bending (Wadell & Burton, 2005). Twisting refers to spine rotation or torsion. Awkward postures include non neutral trunk postures (related to bending & twisting) in extreme position or at extreme angles. A study (Robinson, 2011) examined the relationship between low back disorder & bending, twisting & awkward postures & found that flexion or lateral bending of the spine & bending or rotation of the spine are considered potential risk factors for LBP.

The length of the daily working hours is risk factors for developing musculoskeletal disorders (LBP). Static work posture include position where very little movement occurs, along with cramped or inactive postures that cause static loading on the muscles. This include prolonged standing or sitting & sedentary work (Tulder, 2003). During sitting the continuous activity of some type 1 motor units (back) muscle may contribute to the development of fatigue (Ghaffari, 2007).

Pain has mechanical origin & occurs when the joint between two bones have been placed in a position that over stretches the surrounding soft tissues. This is true for mechanical low back pain in any joints of the body, including the spine (McKenzie, 1980). Centralization is the phenomenon where pain moves from a distal to a more central location in response to the application of mechanical forces. It is a clear indicator for mechanical pain (Painting et al, 1998). Stretching, compression or distortion of connective tissue structure stimulating the innervating nociceptors produce mechanical pain. Mechanical stress ultimately produces vascular change & ischemia which activates nociceptors ((Robinson, 2011)). Mechanical type back pain results from inflammation caused by irritation or injury to the disc, the facet joints, the ligaments, or the muscles of the back. Disc degeneration is the common cause of mechanical pain. A typical muscle strain or lumbar strain can also produce mechanical symptoms. Mechanical type low back pain usually starts from near the lower spine. Mechanical type pain may refer to the buttock & thigh areas. It may also referred to the below knee (Maniadakis & Gray, 2000). Causes of mechanical LBP are forceful flexion, forceful extension, flexion with torsion, compression from excessive axial loading, fall from top on the buttocks, lifting, bad posture, abrupt unbalanced movements, disc rupture. Most episode of back pain is related to mechanical regional abnormalities. This accounts for 80% of LBP. The muscle strain or sprain due to sudden unaccustomed activities & improper postures (Ebnezer, 2003).

Visceral pathology sometimes may provide pain to the lower lumbar areas & tuberculosis, spondylitis also cause of LBP. The nerves that leave the lower lumbar spine join to form the sciatic nerve. This nerve provides sensation & controls the muscles of the lower legs (Ostgaard, 1991). Sacroilitis may spread pain around the lower back and gluteal region (Maniadakis & Gray, 2000).

The sign & sympyomes of LBP includes Pain, numbness, tingling, burning, cramping, stiffness, decreased range of motion, deformity, decreased functional strength and loss of muscle function (Office ergonomics, 2010).

The patient history is perhaps the most useful tool in differentiating the cause of 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, 1996). 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).

Assessments of LBP include the visual analogue scale and body charts or pain diagrams but they may be inadequate to distinguish the lumbar pain. The neurological examination usually is negative dural tension signs including the straight leg raise. 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).

Typically people are treated symptomatically without exact determination of the underlying cause. Only in cases with worrisome signs is diagnostic imaging needed (Chou, 2011).

X-rays, CT or MRI scans are not required in lower back pain except in the cases where red flags are present. If the pain is of a long duration X-rays may increase patient satisfaction. However routine imaging may be harmful to a person's health and more imaging is associated with higher rates of surgery but no resultant benefit (Cart, 2010). Red flags are Recent significant trauma, Milder trauma if age is greater than 50 years, Unexplained weight loss, Unexplained fever, Immunosuppression, Previous or current cancer, Intravenous drug use, Osteoporosis, Chronic corticosteroid use, Age greater than 70 years, Focal neurological deficit, Duration greater than 6 weeks (Chou, 2011).

Low back pain (LBP) is one of the most common reasons for patients to seek primary care (Wadell & Burton, 2005). One of the most common treatments for LBP is physiotherapy. Physical Therapist assess an individual's physical ability to do a specific

job or activity and aids in developing a safe return to work program or reduce symptoms (Lee et al, 2012).

All exercises should be performed slowly and comfortably to avoid injury. When performing strengthening and flexibility exercises, remember to breathe naturally and do NOT hold your breath; exhale during exertion and inhale during relaxation (Healthy Back Exercises: Strengthen and Stretch, 2011). Physiotherapy seems to enhance personal healing factors such as positive expectations of trust and confidence in the individual's ability to manage problems, which promote patient recovery (Rasmussen-Barr et al, 2009). A program of strengthening, stretching, and aerobic exercises will improve fitness level. Research has shown that people who are physically fit are more resistant to back injuries and pain and recover quicker when they do have injuries than those who are less physically fit (Healthy Back Exercises: Strengthen and Stretch, 2011).

For acute cases that are not debilitating, low back pain may be best treated with conservative self-care (Chou et al, 2007) including: application of heat or cold and continued activity within the limits of the pain, Firm mattresses have demonstrated less effectiveness than medium-firm mattresses (Atlas, 2010).

Engaging in physical activity within the limits of pain aids recovery. Prolonged bed rest (more than 2 days) is considered counterproductive (Koes & Tulder, 2006). Even with cases of severe pain, some activity is preferred to prolonged sitting or lying down - excluding movements that would further strain the back. Structured exercise in acute low back pain has demonstrated neither improvement nor harm (Choi et al, 2010).

Strengthening exercises help increase muscle tone and improve the quality of muscles. Muscle strength and endurance provide energy and a feeling of wellness to help you perform daily, routine activities (Wadell & Burton, 2005).

Adequate core strength that comes from abdominal and back muscles helps stabilize the spine, allows proper spinal movement, and makes it easier to maintain correct posture.

Strong hip and leg muscles are important to perform proper lifting techniques and body mechanics. (Healthy Back Exercises: Strengthen and Stretch, 2011).

Tulder (2003) said these are specific exercises to strengthen the abdominal muscles and low back muscles (erector spinae) to provide the aforementioned 'belt of muscle' around the spine. These exercises typically include: specific abdominal strengthening such as sit-ups, crunches, abdominal machines, & leg rises.

Flexibility is the ability to move arms and legs through their full range of motion. Stretching will help improve your flexibility (Lee et al, 2012).

Croft et al (1998) said that adequate flexibility of tissues around the spine and pelvis allows full, normal spinal movement, prevents abnormal force on the joints and decreases the possibility of injury. Stretching also prepares muscles for activity; stretching should be done both before and after each vigorous workout to prevent muscle strain and soreness and to help avoid injuries.

When performing flexibility exercises, stretch as far as you can and hold the stretch for 10 seconds and then ease back. Each stretching exercise should be performed slowly in both directions, with no sudden jerking or bouncing. Bouncing is more likely to injure or strain a muscle or joint. (Healthy Back Exercises: Strengthen and Stretch, 2011).

Dynamic stabilizing exercises involve the use of a variety of exercises & many include use of exercise balls, balancing machines or specific stabilizing exercises. The point of dynamic stabilization exercises is to strengthen the secondary muscles of the spine and help support the spine through various ranges of motion (Leeuw et al, 2007).

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 (Lee et al, 2012). 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 a sustained period is very beneficial for helping back problems (Wadell & Burton, 2005). 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, 1997).

Spinal manipulation is not known if chiropractic care improves clinical outcomes in those with lower back pain more or less than other possible treatments. A 2004 Cochrane review found that spinal manipulation (SM) was no more or less effective than other commonly used therapies such as pain medication, physical therapy, exercises, back school or the care given by a general practitioner which was supported by a 2006 and 2008 review (Murphy et al, 2006). A 2010 systematic review found that most studies suggest SM achieves equal or superior improvement in pain and function when compared with other commonly used interventions for short, intermediate, and long-term follow-up.

Postural education and ergonomic recommendations for minimizing the risks of back injuries focus on improving working posture and equipment design. These include: Change Posture - Alternate between sitting and standing to reduce postural fatigue and maximize postural variety, which helps to reduce static muscle fatigue & LBP (Ergonomics Risk Factors, 2007).

Use Support - When sitting or standing, don't lean forwards or stoop in an unsupported posture for prolonged periods. If you are sitting, sit up straight or recline slightly in a chair with good back support, and use a good footrest if necessary (Ergonomics Risk

Factors, 2007). If you are standing for prolonged periods try to find something to help you lean against. LBP in daily life determines the treatment outcome in terms of perceived quality of life and limitation of activity and also that each patient must be considered individually to achieve optimal care (Leeuw et al, 2007).

Safe reaching - Avoid having to reach awkwardly to equipment and work close to the objects (Ergonomics Risk Factors, 2007). Maintain Neutral Postures- The optimal design of work provides tasks that can be performed while maintaining a neutral range of postures (Leeuw et al, 2007). A neutral range of postures is not just one posture or position of a joint, but includes a range of postures where the muscles are at or near their resting length, and the joint is naturally aligned. Neutral ranges of postures are usually the most comfortable positions for our joints and can reduce the risk of injury (Ergonomics Risk Factors, 2007).

Most people with acute lower back pain recover completely over a few weeks regardless of treatments. 60% of people recover after seven weeks, regardless of the treatments they receive (Croft et al, 1998). Consistent with these statistics, a recent study found that almost 30% of patients did not recover from the presenting episode of low back pain within a year. For those patients whose low back pain continues on to chronicity, it is rarely self limiting, as fewer than 10% of those patients whose low back pain becomes chronic report no pain five years later (Hestbaek et al, 2003).

3.1 Study design

The purpose of the study was to find out the prevalence of low back pain among the shopkeepers. Cross sectional study design was selected for this study. This design involves identifying group of people and then collecting the information that researcher requires when they will be use the particular service (Hicks, 2000). Cross-sectional studies can be thought of as providing a "snapshot" of the frequency and characteristics of a disease in a population at a particular point in time. This type of data can be used to assess the prevalence of acute or chronic conditions in a population (Depoy & Gitlon, 1998). 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. Survey is a method of collecting data which involves the researcher measuring relevant sample variables (often using s questionnaire) without any form of manipulation or systemic intervention (Hicks, 2000). The idea with the survey the researcher usually approaches a sample of target group of interest, interviews them or ask them questionnaire (Bowling, 1997). 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 area

This study was conducted at Savar Bazar which is situated under the Savar thana at Dhaka district.

3.3 Population

In this study population were shopkeepers within the Savar bazar.

3.4 Sample size

Sample size for this study was calculated by the following equation-

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

Here,

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

$$P = 0.78$$

$$q = 1 - p$$

$$d = 0.05$$

So the researcher aim was to focus his study by 263 samples following the calculation above initially. As this research is in course curriculum, there are varieties of limitation e.g. Time length. There is lot of shopkeepers; from this population 100 samples were selected for the study.

3.5 Sampling procedure

Sample was taken by using convenience sampling method due to time limitation and as it is the one of the easiest, cheapest and quicker method of sample selection.

3.6 Inclusion criteria

- Both male and female was selected. (The body structures of male and female are not same, duration of work varies from male to female, but they both are worker in a shop. So both male and female were selected).
- Age group is from 18 years to 60 years. (Because in Bangladesh the working age is ranging from 18-60 years. Below the age of 18 years will break the law and over 60 years are the retirement age).
- Shopkeeper who are active worker (who serve the customers most commonly) at the shop.

3.7 Exclusion criteria

- Subject who were not active worker in the shop.
- Subject who had kidney problem and accident were excluded because these are responsible for LBP.
- Mentally retarded person.

3.8 Method of data collection

In this study data was collected by questionnaire form set on a paper. Questionnaire form was including both open and close ended questions. Following that before the data collection informed consent was taken from the participant. Firstly, identity of author and the research project as well its purpose were delivered verbally among them. Then individual subject was selected to find out if they were interested in participating. For data collection, the Bengali type of questionnaire was delivered. On the other hand the Bengali version about disease condition might be helpful. After that a date was fixed to collect the questionnaire from the recipients.

3.9 Questionnaire

Data was collected by using a questionnaire on paper and the questions types were both closed and open ended questions. These questions were used to collect nominal and ordinal data for research findings and were setup sequentially. There were questions relating to low back pain among the shopkeepers.

A piloting study showed that shopkeepers were work in a shop in various time length as for example they work in a shop from 8am-10pm (14 hours), or from 8am-8pm (12 hours), or from 4pm-9pm (5 hours). Both male and female were work in a shop. The age range varies from adult to older age. Some of the shopkeepers were suffering from low back pain. They were work in their shop with poor postural arrangements. So the questionnaire was developed based on the piloting study.

3.10 Materials and tools

The materials and tools for this study were consent form, questionnaire, pencil, pen, pages, computer and SPSS (Statistical Package for the Social Sciences) software-16 version to analyze data.

3.11 Analysis

After completion of data collection the data was entries into the SPSS software. Than data was analyses by descriptive statistics and the results were shows by pie and bar charts.

3.12 Ethical consideration

A research proposal was submitted to the ethical committee of BHPI to get approval & after approved this study was conducted. The participant was ensuring that their comments would not affect their occupational role. When researcher had received an approval letter from the ethical committee then data collection was started. The Bangladesh Medical Research Council (BMRC) & World Health Organization (WHO) guideline were followed.

3.13 Informed Consent

For this study a consent form was given and the purpose of the research and consent forms was explained to the subject verbally. Participants were fully voluntary and they have the right to withdraw at any time. Participants were also ensured that their confidentiality will be maintained. Information might be published in any presentations or writing but they will not be identified. The study results might not have any direct effects on them but the members of Physiotherapy population may be benefited from the study in future. They would not be embarrassed by the study.

3.14 Rigor

During the data collection and data analysis it was always tried not to influence the process by own perspectives, values and biases. No leading questions were asked and judgments were avoided. When conducting the study the researcher was taken help from the supervisor when needed.

3.15 Limitation of the study

Though the expected sample size was 263 for this study but due to resource constrain & time limitation researcher could manage just 100 samples which is very small to generalize the result for the wider population of the shopkeepers. There are no literatures about LBP among the shopkeepers in the perspective of Bangladesh so it is difficult to compare the study with the other research. The researcher was able to collect data only from Savar bazaar for a short period of time which will affect the result of the study to generalize for wider population. The questionnaire was developed only through searching sufficient literature but considering the context of the demography of the population a pilot study would substantial before developing questionnaire.

4.1 Sociodemographic information

4.1.1 Age range

Outcome showed that among the 51 participants who were suffered from low back pain lowest age were 18 and highest age was 58 years. Their mean age was 32.62 years. And frequency were 21.6% (11) participants in between 18-25 years, 23.5% (12) participants in between 26-30 years, 31.4% (16) participants in between 31-38 years and 23.5% (12) participants more than 39 years (Figure: 1).

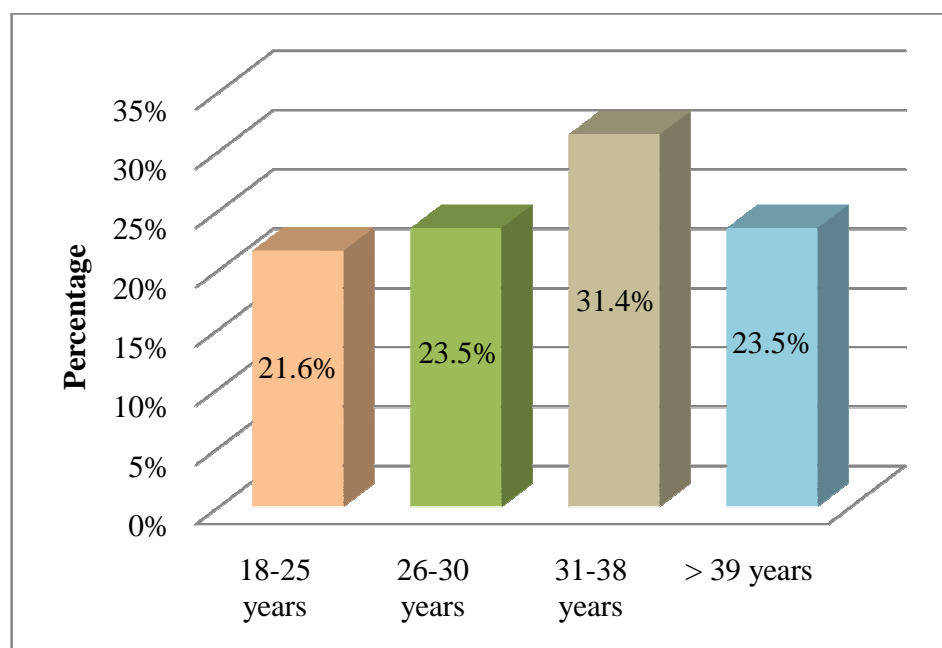


Figure -1: Age range of the participants.

4.1.2 Sex

The result reveals that among the 100 participants 92 were male and 8 were female. And

among the 51 participants who were suffered from low back pain (LBP) 86.3% (44) were male and 13.7% (7) were female (Figure: 2).

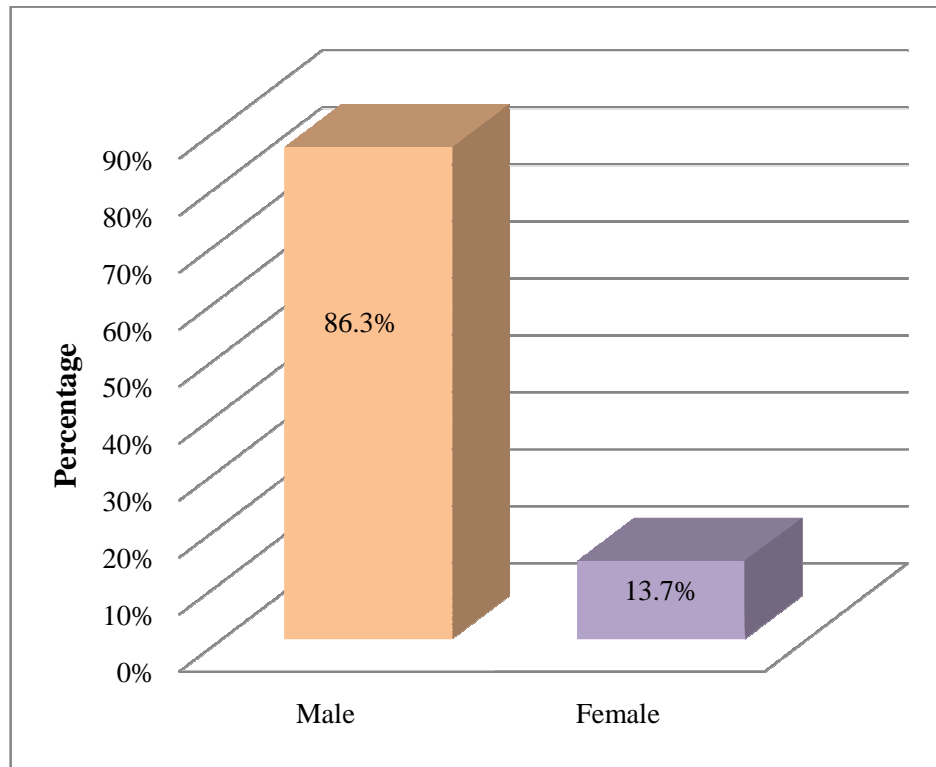


Figure -2: sex of the participants.

4.1.3 Religion

Study showed that among the 100 participants there were 87% (87) Muslim, 10% (10) Hindu & 3% (3) Christian (Figure: 3).

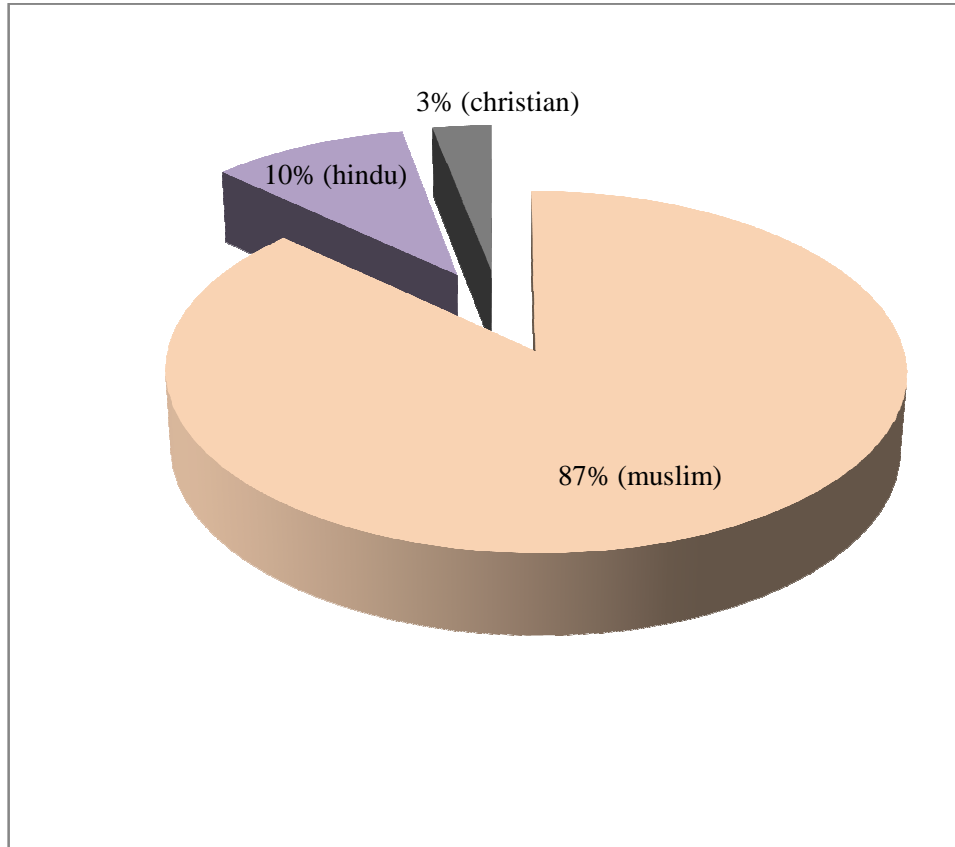


Figure -3: Religion of the participants.

4.1.4 Living place

Outcome reveals that 44% (44) were lived in urban & 56% (56) were lived in rural area among the 100 participants (Figure: 4).

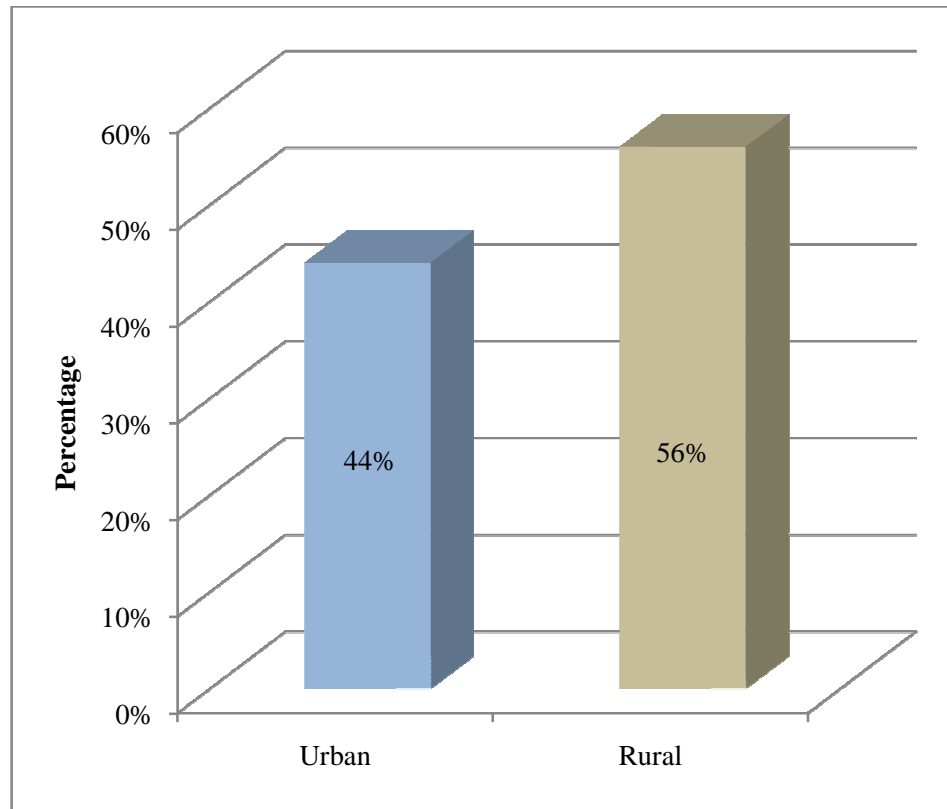


Figure -4: Living place of the participants.

4.1.5 Educational level

The study finds that among the 100 participants 12 (12%) were illiterate, 44 (44%) were primary passed, 27 (27%) were secondary study completed & 17 (17%) were higher secondary completed or more educated (Figure: 5).

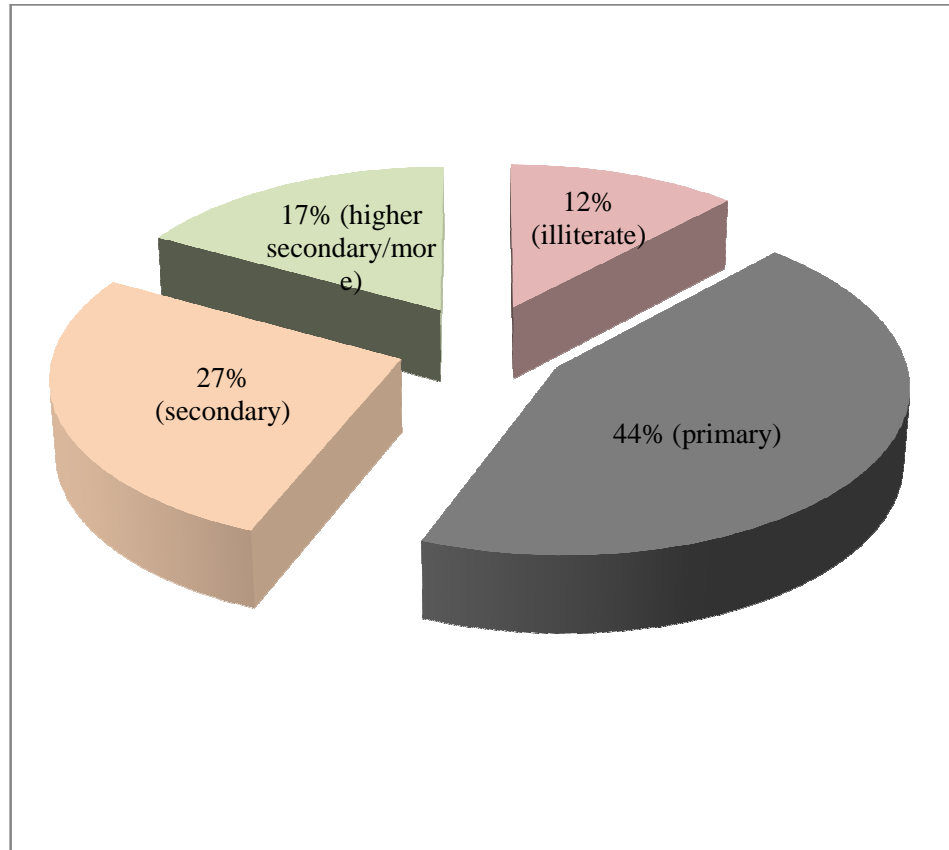


Figure -5: Educational level of the participants.

4.1.6 Working hours

Final analysis demonstrates that 3 participants were work 5 hours, 50 participants were working 12 hours & 47 participants were working 14 hours among the 100 participants. Among the 100 participants 51 participants were suffering from LBP & among them 2% (1) were work 5 hours, 49% (25) were work 12 hours & 49% (25) were work 14 hours (Figure: 6).

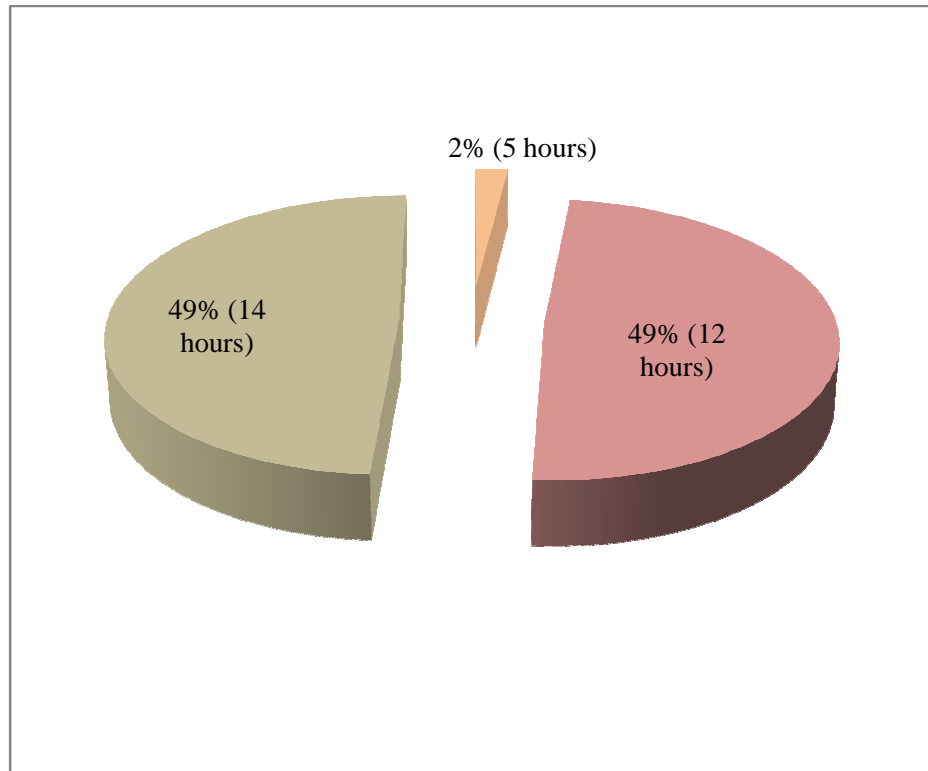


Figure -6: Working hours of the participants.

4.1.7 Type of family

Study finds out that among the 100 participants 52% (52) had nuclear family & 48% (48) had extended family (Figure: 7).

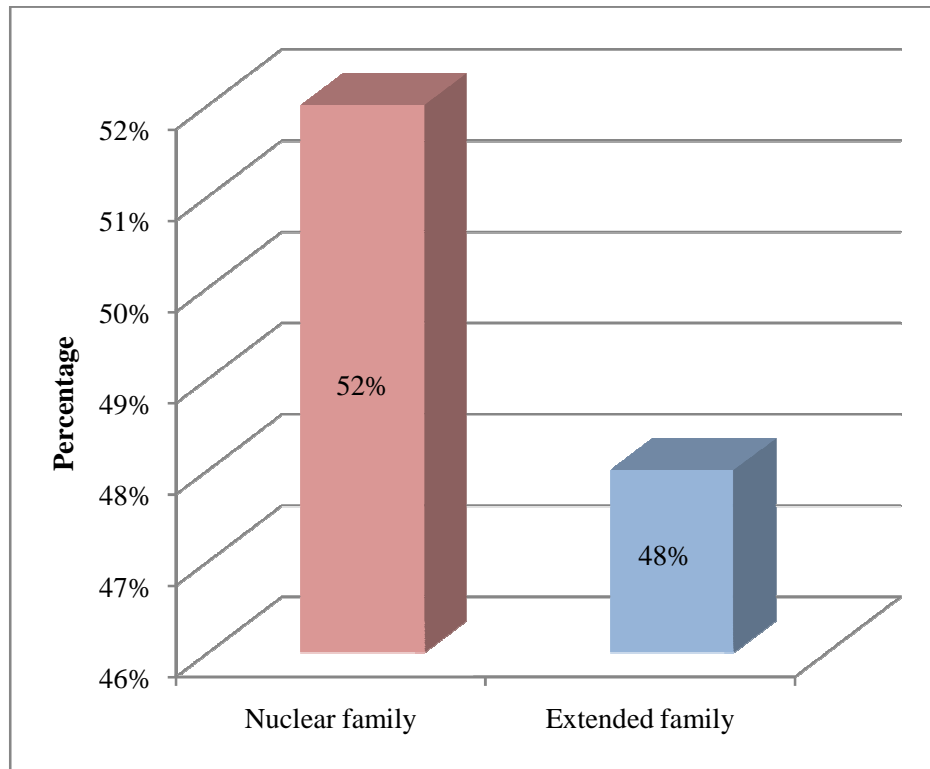


Figure -7: Type of family of the participants.

4.2 Prevalence of LBP

Outcome showed that 51% (51) participants out of 100 participants have suffered from low back pain (LBP) (Figure: 8).

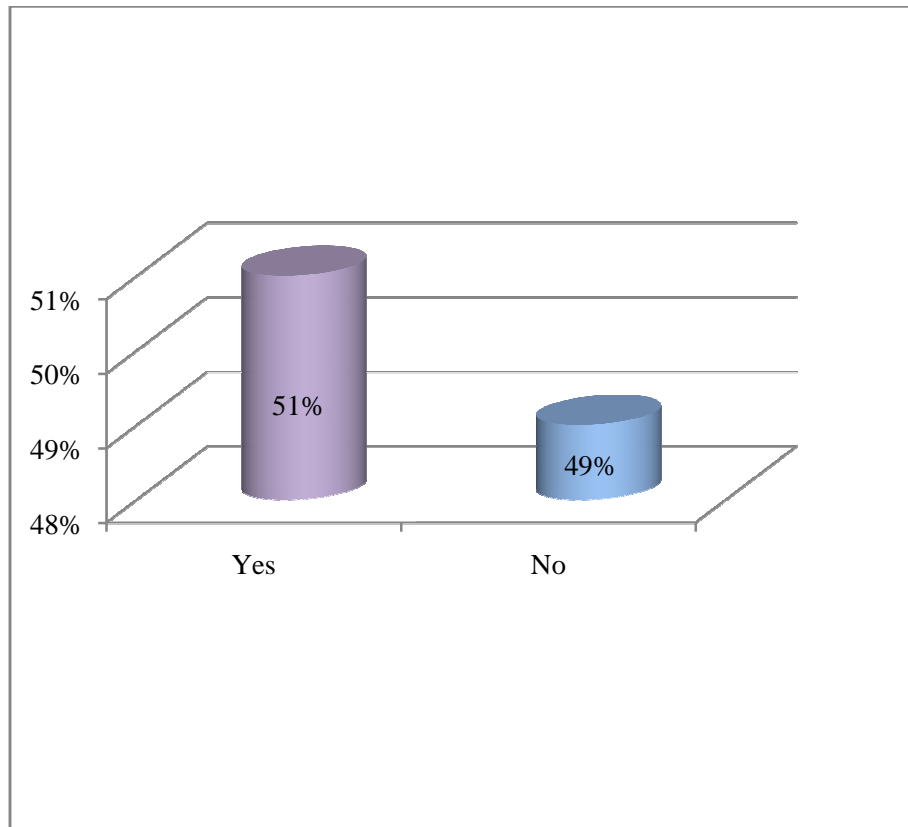


Figure -8: Prevalence of LBP of the participants.

4.3 Working posture

Study proved that 51 participants were suffering from low back pain among the 100 participants. Among them 15.7% (8) were work with the sitting on floor, 45.1% (23) were work with the sitting on chair & 39.2% (20) were work with the standing postures (Figure: 9).

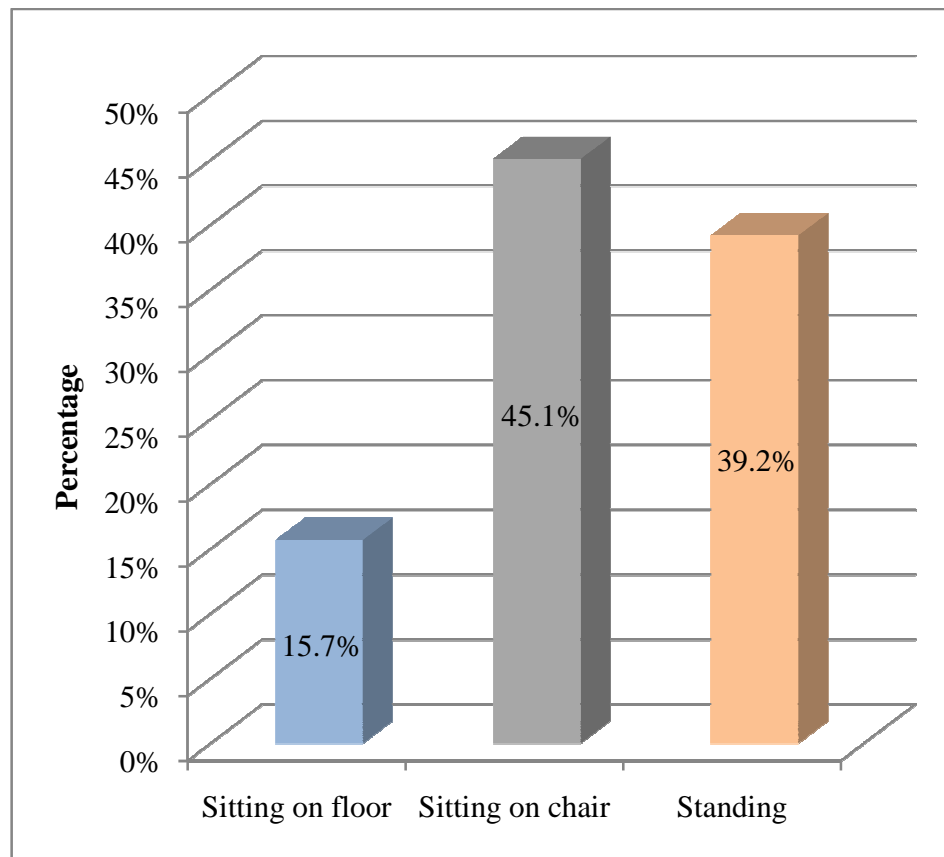


Figure -9: Working posture of the participants.

4.4 Onset of pain

Outcome showed that among the 51 participants who were suffering from LBP 20 (39.2%) had sudden onset of pain & 31 (60.8%) had gradual onset of pain (Figure: 10).

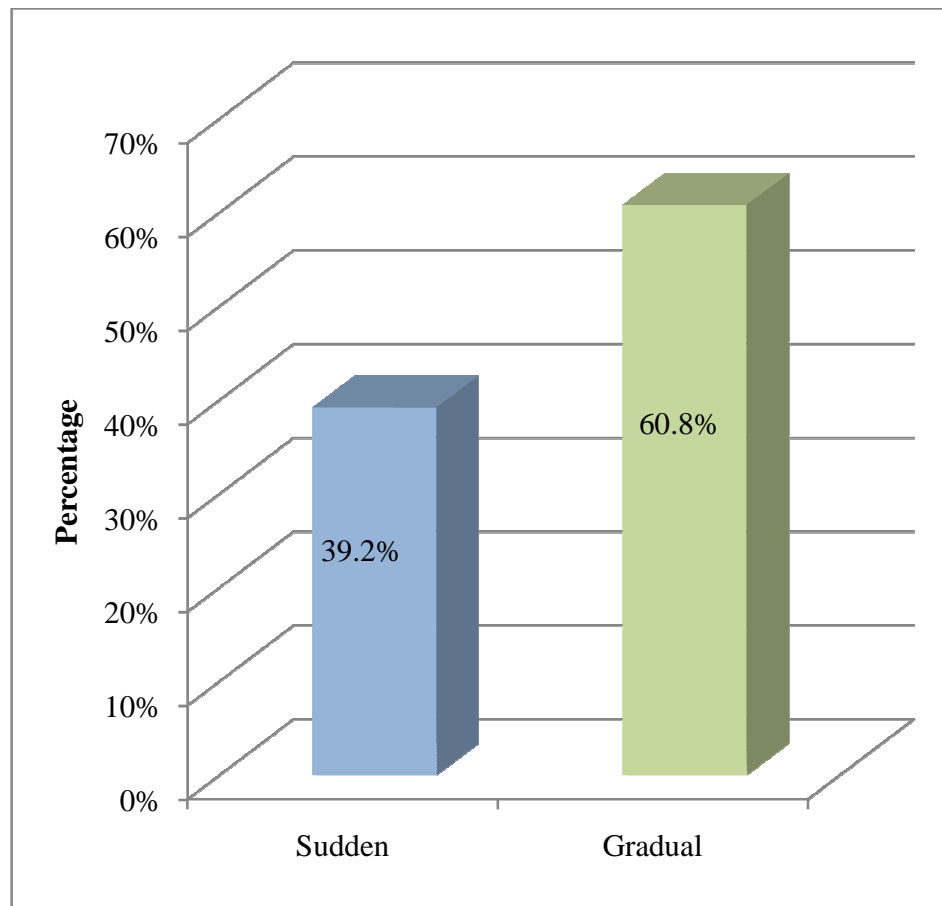


Figure -10: Onset of pain of the participants.

4.5 Severity of pain

The study find that among the 51 participants who were suffering from LBP 45.1% (23) had mild pain, 33.3% (17) had moderate pain & 21.6% (11) had severe pain. (Figure: 11).

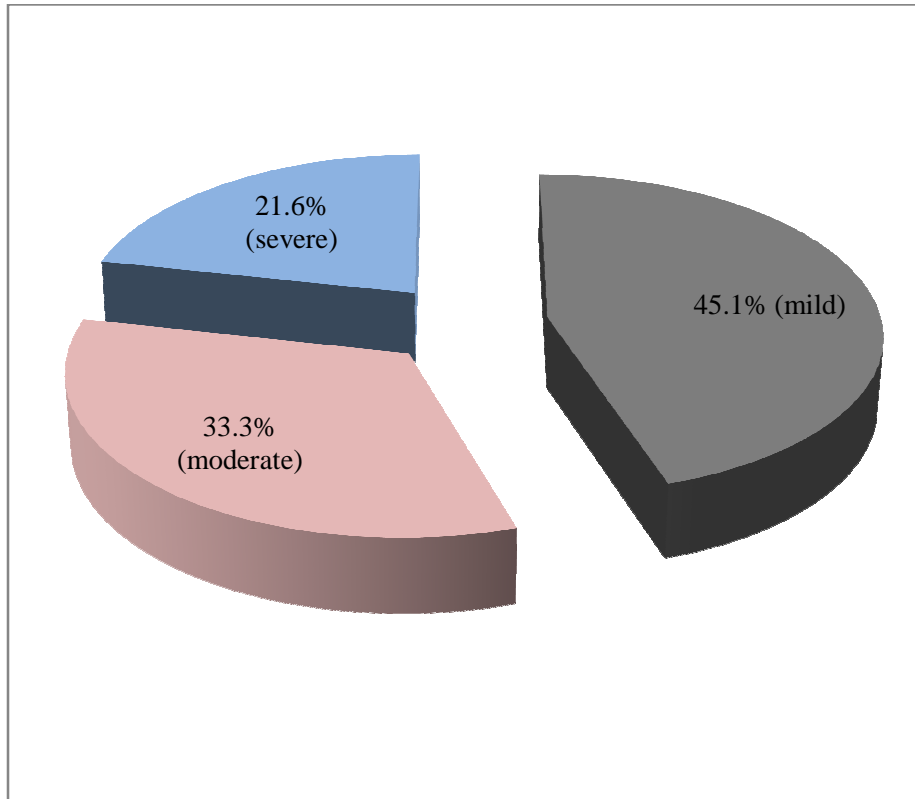


Figure -11: Severity of pain of the participants.

4.6 work interruption

23.5% (12) had work interruption & 76.5% (39) had continued the work among the 51 participants who were suffering from LBP (Figure: 12).

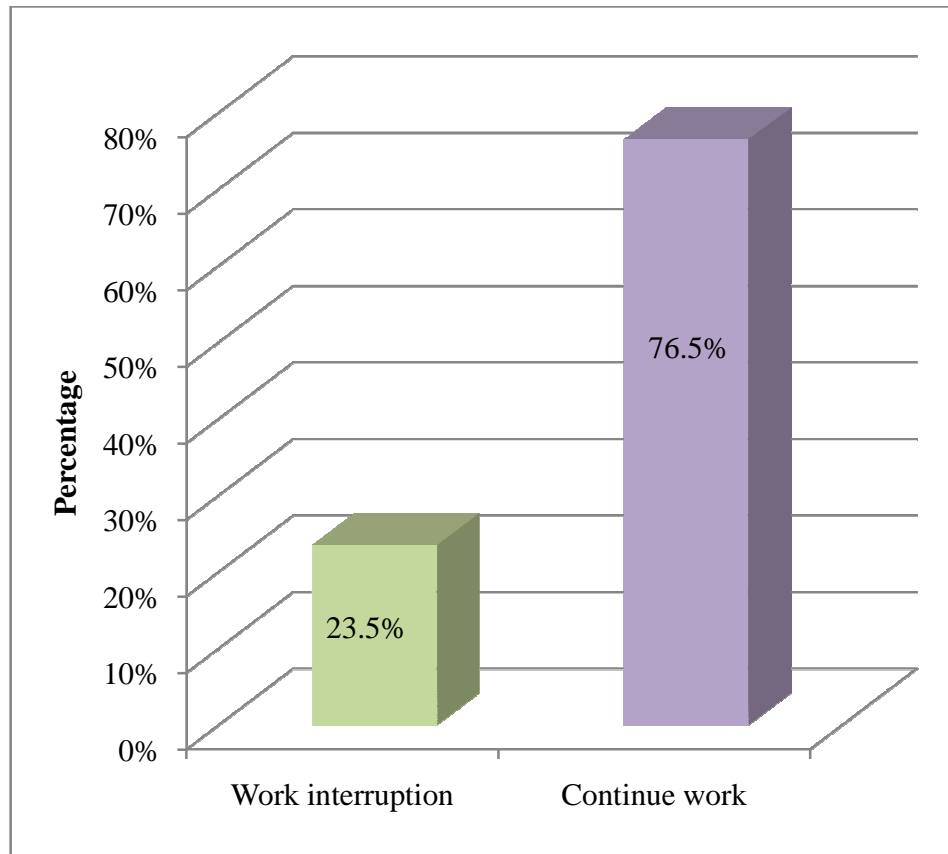


Figure -12: work interruption of the participants.

4.7 Physiotherapy treatment

Study explored that among the 51 participants who were sufferings from LBP 9.8% (5) were received physiotherapy treatment & 90.2% (46) were not received physiotherapy treatment. (Figure: 13).

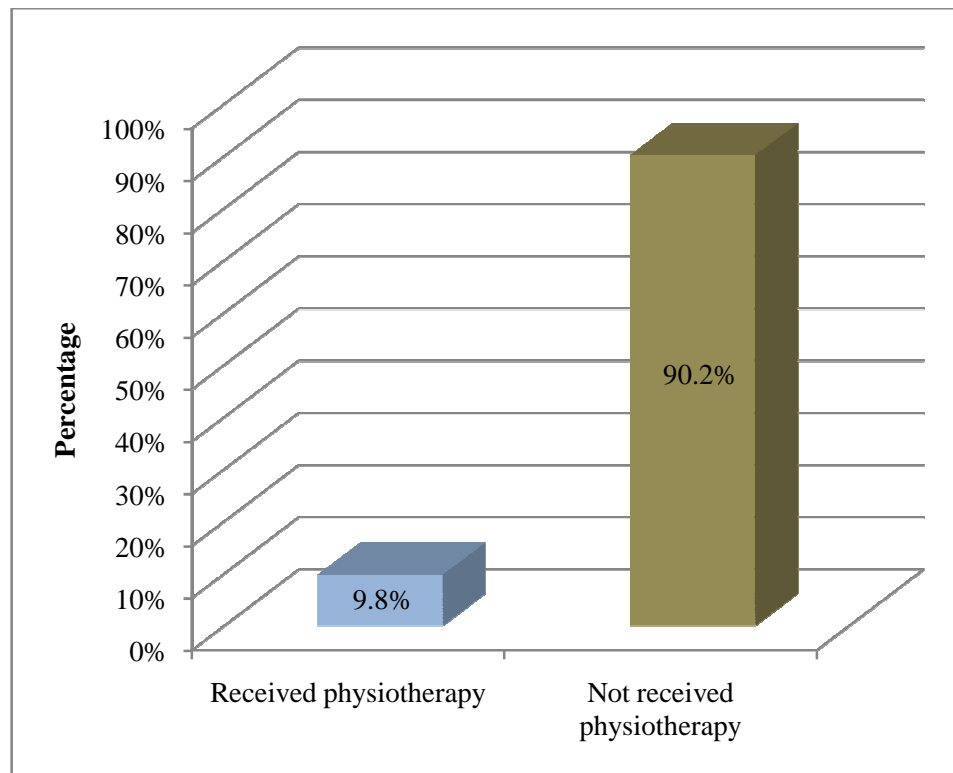


Figure -13: Physiotherapy treatment.

Low back pain has been found to be a major health problem for shopkeepers. Deyo et al (2006) showed that 26% of American adults reporting low back pain between the age of 26-40 years. In this study most frequent age range of participants was (31.4%) who suffered from low back pain in between 31-38 years followed by (23.5%) participants more than 39 years. It was observed from this study that the prevalence of low back pain was higher among the male (86.3%) than the female (13.7%). In a research that was published by Tissot et al (2009) a significantly larger proportion of men (58%) than women (51%) usually stand at work, the prevalence of LBP in male workers was significantly higher among those who work in a standing posture (27.8%) to compared to those who usually work sitting (21.7%) in their shop. In this study (87%) Muslim, (10%) Hindu and (3%) were Christian among the 100 participants and majority of them are lived in rural area (56%) and (44%) were lived in urban area. Study explored that among the all participants (12%) had illiterate, (44%) had primarily, (27%) had secondarily and (17%) had higher secondarily or more educated. The findings from this study showed that among the 100 participants 51 participants were suffering from LBP & among them 1 (2%) were work 5 hours, 25 (49%) were work 12 hours & 25 (49%) were work 14 hours, so finally it was estimated that highest prevalence among those who worked for long time 12-14 hours. Estimated result of this study showed that (52%) participants were lived in nuclear and (48%) were lived in the extended family. The study result shows that low back pain is prevalent among the shopkeepers. This is concordance with a research by Ghaffari et al (2006) who reported the worldwide estimates of lifetime prevalence of LBP vary from 50% to 84%. In this study the prevalence was 51%. In Britain, the 1 year prevalence was 49% and in the Nordic countries the 1 month prevalence of LBP was 35% (Torill et al, 2004). Poor posture affects low back pain among the shopkeepers who worked by sitting on the floor 15.7%, sitting on the chair 45.1% and standing 39.2%. 23.50% had work interruption & 76.50% had continued the work among the 51 participants who were suffering from LBP. In European Union countries, prevalence rates of LBP 40% are recorded among workers (Fernandes et al, 2011). In this study risk factor found on participants that 15.7% were working on sitting on the floor, 45.1% were working by sitting on the chair, 39.2% were working by standing and long working hours (12-14 hours) & they were serving the customers by repetitive twisting, rotating &

bending movements of the body. Physical work demands that have been clearly associated with LBP in the scientific literature include heavy physical work, manual materials handling, frequent bending and twisting and whole body vibration (Tissot et al, 2009). Outcome of this study showed that among the 51 participants who were suffering from LBP 39.2% had sudden onset of pain & 60.80% had gradual onset of pain. Croft et al (1998) state that the mechanical causes of back pain (muscle strain, herniated disc) have an acute sudden onset & the onset of pain is frequently associated with a specific task done in a mechanically disadvantaged position; muscle may be torn, fascia stretched & facet joint irritated. The study concludes that shopkeepers who were suffering from LBP 45.1% had mild pain, 33.3% had moderate pain & 21.6% had severe pain. 23.5% had work interruption & 76.5% had continued the work among the shopkeepers who were suffering from LBP. Low back pain is the most common causes for chronic or temporary impairment in U.S. adults under the age of 65, & the most common cause of activity limitations in persons under the age of 45 & it is established by Sabino & Grauer (2008). In this study shopkeepers who were suffering from LBP 9.8% were received physiotherapy treatment & 90.2% were not received physiotherapy treatment. This study revealed that shopkeepers in the shop have a relationship with low back pain and their posture & working hours. This is probably because many shopkeepers need different body motion to serve the customers, unequal workload and demand. This study shows that most of the shopkeepers who suffering from low back pain were working in a poor posture, worked for long time duration, did not get rest when felt pain. Correct poor posture, dividation of the working hours, need to take rest if feel pain or discomfort and modify the work station within the shop will bring to healthy life and will improve performance level of the shopkeepers in their shops.

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. There are few studies on shopkeepers. These cannot cover all aspect of the vast area. So the next generation of physiotherapy members should continue study regarding this area, this may involve-use of large sample size and participants form different Bazar, shopping mall etc. Conduct research on other musculoskeletal problems among the shopkeepers where physiotherapist can work. So it is very important to conduct such type research in this area.

The result of this study showed that the prevalence of low back pain is 51% among shopkeepers at Savar Bazar in Dhaka, Bangladesh. And this may be associated with the type of repetitive body movements, poor posture, and long working hours. The author recommend that working hour should be reduced or need adequate rest within the working hours, avoid twisting & excessive rotational movements during serving the customers, postural correction such as maintain erect posture who are working on floor sitting, need back rest who are working by sitting on the chair, need to sit or walk for few times who are working with standing posture because those are the main causes of low back pain in case of shopkeepers. Shopkeepers should be educated on ergonomics, posture, working hour breaks in between work and relaxation as this will ultimately improve healthy life & performance in the shops.

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ANNEXURE

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CONSENT FORM (English)

Dear Sir,

Assalamualaikum, my name is S.M. Mustofa Kamal I am conducting a study for partial fulfillment of Bachelor of Science in Physiotherapy degree, titled, “prevalence of low back pain among the shopkeepers.” from Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some information. You will answer some questions which are mentioned in this form. This will take approximately 10-15 minutes. The objectives of this study is to establish the prevalence of low back pain among the shopkeepers, the Sociodemographic information, the working area which causes more work related low back pain, & identify the necessity of physiotherapy treatment among the shopkeepers. Your participation will be voluntary. You have the right to withdraw consent and discontinue participation at any time. You might not be benefited, but in future may benefit and would not harmful. This project is only for the development of the profession.

If you have any query about the study or your right as a participant, you may contact with, researcher S.M. Mustofa Kamal or Md. Obaidul Haque, Associate Professor & course coordinator, Department of physiotherapy, BHPI, CRP, Savar, Dhaka-1343.

I (participant) have read and understand the contents of the form. I agree to participant in the research without any force. 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 _____

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Questionnaire sheet (English)

Title: Prevalence of low back pain among the shopkeepers

Code no:

Date:

Name:

Address:

1. Sociodemographic information:

a) Age (as at last birthday): _____

b) Gender:

1. Male 2. Female

c) Religion:

1. Muslim 2. Hindu 3. Buddha 4. Christian

d) Living area:

1. Urban 2. Rural

e) Educational level:

1. Illiterate 2. Primary 3. Secondary 4. H.S.C & above

f) Work status (in hours):

1. 5 hours 2. 12 hours 3. 14 hours

g) Family type:

1. Nuclear family 2. Extended family

2. Have you ever feel pain on back?

1. Yes 2. No

3. Working posture

1. Sitting on floor 2. Sitting on chair 3. Standing

4. Pattern of signs & symptoms

1. Sudden 2. Gradual

5. VAS scale (severity of pain)

0-----10

6. Did you stay away from work due to pain/discomfort?

1. Yes 2. No

7. Have you ever taken physiotherapy management for this condition?

1. Yes 2. No

“Thank you for your participation”

Permission letter

To

Date:01.08.12

The Course co-ordinator,
Department of Physiotherapy,
BHPI, CRP, Savar, Dhaka .

Subject: Prayer for permission of data collection for research.

Sir ,

I beg most respectfully to state that I am a student of 4th year, B.Sc in Physiotherapy . I am doing research on "Prevalence of low back pain among the shopkeepers" as a part of our course curriculum , under supervision of Md. Obaidul Haque, Assisstant Professor , BHPI. I want to collect data from savar bazar.

I therefore, pray and hope that you would be kind enough to grant me and thus oblige thereby.

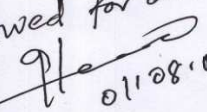
Sincerely yours ,
S.M. MUSTOFA KAMAL
S.M. Mustofa Kamal

B.Sc in physiotherapy

4th year, Roll-09,

Session: 2006-2007

BHPI,CRP,Savar, Dhaka.

Allowed for data collection
He 
01/08/12