IMPACT OF CHRONIC LOW BACK PAIN ON ACTIVITIES OF DAILY LIVING AMONG PATIENTS WITH LOW BACK PAIN ATTENDED AT THE MUSCULOSKELETAL DEPARTMENT, CRP, SAVAR, DHAKA, BANGLADESH

By

BIJAY LAXMI GOPALI

Submitted in Partial Fulfillment of the Requirements for the Degree of MSc in Rehabilitation Science

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Faculty of Medicine

University of Dhaka

SUPERVISOR'S STATEMENT

As the supervisor of Ms Bijay Laxmi Gopali's Thesis work, I certify that I consider her thesis "**IMPACT OF CHRONIC LOW BACK PAIN ON ACTIVITIES OF DAILY LIVING AMONG PATIENTS WITH LOW BACK PAIN ATTENDED AT MUSCULOSKELETAL DEPARTMENT, CRP, DHAKA, BANGLADESH**" to be suitable for examination.

.....22/05/19.....

Mohammad Anwar Hossain
Associate Professor (BHPI)
Head of Department of Physiotherapy
CRP, Savar, Dhaka-1343

Date: ..22/05/..2019

(Supervisor)

We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this thesis entitled, **"IMPACT OF CHRONIC LOW BACK PAIN ON ACTIVITIES OF DAILY LIVING AMONG PATIENTS WITH LOW BACK PAIN ATTENDED AT MUSCULOSKELETAL DEPARTMENT, CRP, SAVAR, BANGLADESH"** submitted by **Bijay Laxmi Gopali**, for the partial fulfillment of the requirements for the degree of M.Sc. in Rehabilitation Science.

Mohammad Anwar Hossain
Associate Professor and Head,
Department of Physiotherapy,
BHPI, CRP, Savar, Dhaka-1343

Feroz Ahmed Mamin
Associate Professor,
Department of Rehabilitation Science,
BHPI, CRP, Savar, Dhaka-1343

Dr. Md. Alamgir Kabir
Professor, Department of Statistics,
Jahangirnagar University,
Savar, Dhaka-1343

Muhammad Millat Hossain
Associate Professor,
Department of Rehabilitation Science,
BHPI, CRP, Savar, Dhaka-1343

Date of approval: ..16/06/..2019

DECLARATION

• This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.

• This dissertation is being submitted in partial fulfillment of the requirements for the degree of MSc in Rehabilitation Science.

• This dissertation is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references.

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Signature: Bijay Laxmi Gopali

Name: Bijay Laxmi Gopali

Date: 22-05-2019

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ABBREVIATIONS

ADL	Activities of Daily Living
AIHW	Australian Institute of Health and Welfare
BHPI	Bangladesh Health Professions Institute
CLBP	Chronic Low Back Pain
CRP	Centre for Rehabilitation of Paralyzed
COPCORD	Community Oriented Programme for Control of Rheumatic Disorder
$\chi 2$	Chi-square
DALYs	Disability Adjusted Life Years
df	degree of freedom
FABQ	Fear Avoidance Belief Questionnaire
FABQ-PA	Fear Avoidance Belief Questionnaire-Physical Activity
GBD	Global Burden of Disease
IHME	Institute of Health Metrics and Evaluation
LBP	Low Back Pain
p-value	Probability value
SD	Standard Deviation
SPSS	Statistical Package for Social Science
VAS	Visual Analog Scale
WHO	World Health Organization
YLDs	Year Lived with Disabilities

ABSTRACT

Background: Low back pain (LBP) is extremely prevalent musculoskeletal condition affecting about 60-80% of world population at some points in their lives. It is considered as a leading cause of activity limitation causing difficulty and interference in executing the tasks including basic activities of daily living to work related activities.

Objective: The major aim of the present study was to assess the effect of chronic LBP on activities of daily living and to describe the associations between outcome measures with different variables.

Methods: A descriptive cross-sectional study was carried out, 190 patients with chronic LBP (pain duration >3 months) of age range 18-65 years were recruited. Data was collected through convenience sampling. Tools used were Visual Analog Scale, Low back Specific Version of SF-36 Physical Functioning Questionnaire and Fear Avoidance Belief on Physical activities Questionnaire. Data was analyzed in SPSS-25 version, and tests employed were Chi square ($\chi 2$), Spearman rank correlation, Independent t-test and Multiple regression.

Results: Mean age was 39.04±11.4 years with high prevalence among females, and majority had difficulty in ADL since 0-5 months. Severe limitation in ADL found were lifting heavy objects, vigorous activities, prolong sitting, bending/kneeling, standing, walking 1km distance, climbing several flights of stairs, getting in and out of the bus/rickshaw, and turning over in bed respectively. A negative, intermediate, significant correlation was found between pain intensity and FAB-PA with ADL (p-value = 0.000) and weak-positive, significant correlation between pain intensity and FAB-PA (p-value = 0.05). Statistical significant difference in mean ADL score was found between male and female but the effect size of these difference was small. A step-wise multiple regression analysis evaluated that pain intensity, FAB-PA and age had significant effect (p-value = 0.000) on patient ADL function.

Conclusion: Functional capacity among CLBP patients is limited either severely or moderately by pain. Pain intensity and FAB-PA found to have the potential to decrease capacity to perform ADL in patients with CLBP.

Key words: **Low back pain, CLBP, ADL, Activity limitation, Fear Avoidance Belief on Physical Activity.**

CHAPTER I INTRODUCTION

1.1. Background

Low back pain is extremely prevalent musculoskeletal disorder worldwide and it is worsening day by day due to the increasing and ageing world's population (Vos et al., 2016). It is the second most common reason for medical consultation after headache (Kose & Hatipoglu, 2012). Almost all individuals of age group from children to the elderly experience LBP once in a lifetime. About 50-80% of working population are experiencing at least one episode of back pain at some point during their life (Rubin, 2007). The clinical review study conducted by Andersson (1999) has reported LBP incidence about 10-15% and point prevalence of 15-30% yearly among the adult population worldwide (Ganesan, Acharya, Chauhan, & Acharya, 2017).

The Global Burden Disease (GBD) Study done in the year 2015, have categorized musculoskeletal disorders to be the chief cause of Year Lived with Disability (YLDs) worldwide, out of 18.5% about 17.2% accounted for LBP prevalence, in turn affecting 540 million people at some point of life (Vos et al., 2016). In a systematic review of the global prevalence of LBP has shown the increased mean prevalence in high-economic countries to that of middle and lower-economic accounting for 32.9%, 25.4% and 16.7% respectively, with the unchanged rate between rural (31.9%) and urban (30.7%) areas but the estimates were witnessed to be high among females (35.3%) compare to male populations (29.4%) (Hoy et al., 2012).

The point prevalence of chronic LBP among adults population of USA accounts for 13.1% (Shmagel, Foley, & Ibrahim, 2016). About 59% of UK adults are reported to have LBP in some point of their lifetime. In Canada, lower back was found to be the most common anatomical site for chronic pain constituting about 35.5% (Schopflocher, Taenzer, & Jovey, 2011). While in Australia, about 16% (i.e. 3.7 million Australians) are reported to have chronic back pain, 77% of them are working age groups (Australian Institute of Health and Welfare, 2016). In Asian countries, the point prevalence of LBP is estimated to be 28.5% (Khan, Uddin, Chowdhury, & Guha, 2014).

The study done to find prevalence in China from 1990-2016, have shown the overall rose in the prevalence estimates by 23.5% in the year 2016 (as it was $5.45x10^7$ individuals with LBP in 1990 while $6.73x10^7$ in 2016) (Wu et al., 2018). In Korea, over

5 million adults have experienced LBP, of which 37.1% (2 million) adults had chronic LBP and 55.5% (3 million) are expected to have back pain at a certain phase (Jhun & Park, 2009). While in Japan, the lifetime LBP prevalence was 83% (Fujii & Matsudaira, 2012). Similarly, in Tibet, the point prevalence was 34.1% and 1-year prevalence was 41.9% (Hoy, Toole, Morgan, & Morgan, 2003). In Iran, it was 29.3% (Biglarian et al., 2012).

The prevalence study done in India reported 6.2% to 92% population are suffering from LBP (Bindra, K. Sinha, & Benjamin, 2015). In Pakistan, it was 19.5% (Farooqi & Gibson, 1998). In Nepal, it was 18.4% (Anderson, 1984). Another study have found prevalence among elderly population in South Asians countries was 64.8% (in Bangladesh), 19.8% (India), 69.5% (Nepal), 40.6% (Pakistan) and 36.2% in Srilanka (Bishwajit, Shangfeng, Yaya, & Zhanchun, 2017).

The survey on prevalence of rheumatic disorders among Bangladeshi adults (18 years and above) done in 7 divisions of the country, have found the point prevalence of non-specific LBP as 12.7%, with increased prevalence among female, living in rural areas (Ahmed, Haq, Al-qadir, Rahman, & Paul, 2017). A Community Oriented Programme for Control of Rheumatic Disorder (COPCORD) study conducted in rural and urban communities of Bangladesh, have reported the point prevalence of non-specific LBP as 6.6% in rural, 9.9% in urban slum community, and 9.2% in the urban affluent community (Haq et al., 2005). Another study in rural Bangladesh has reported the point prevalence as 63% (Khan et al., 2014). Moreover, the prevalence studies based on professions have shown different estimates, 58.6% among housewives (Akter, 2014), 78% among professional drivers (Nahar, Ashan, & Khan, 2013), 31.8% in nurses (Sanjoy, Ahsan, Nabi, Joy, & Hossain, 2017) etc.

LBP is a group of symptoms rather than a disease as it is defined as a pain felt around the spinal region between the costal margins and the inferior gluteal folds, either present with or without referral pain in the leg which limits or change the daily activities or routine for more than 1 day (Dionne et al., 2008). It is classified as specific or non-specific LBP. About 85–95% of cases of LBP have no identifiable causes, therefore termed as non-specific LBP. While in 5–15% cases, the symptoms are due specific causes such as spinal fracture, malignancy, infections, vascular, metabolic or endocrine related processes, injuries in musculo-ligamentous structure, inflammatory and

degenerative changes in the intervertebral disks and facet joints (Hartvigsen et al., 2018; Manek & MacGregor, 2005; Ehrlich, 2003; Deyo, & Weinstein, 2001).

Back pain can be acute, sub-acute and chronic. Acute pain is pain persisting for less than 6 weeks while subacute case is 6-12 weeks and chronic pain last for more than 12 weeks or 3 months. Majority of LBP cases resolve by 6 weeks or more within 8-12 weeks, but 5-15% of cases develop persistent pain and become chronic (Meucci, Fassa, & Faria, 2015). It affects individuals of all ages but predominantly among productive groups, with highest prevalence among third decade of life, till 60 years and decreases with increase in the age, rare among first decades of life with equal distribution in both men and women (Hartvigsen et al., 2018; Meucci et al., 2015; Kopec, Sayre, & Esdaile, 2004).

Most studies have stated that LBP is a long-run course and remain persistent among approximately 50% of patients after a 1-year period. As reported in the epidemiological study, the chronic LBP accounts for 15%-45% of overall annual prevalence, with a point prevalence of 30% (Manchikanti, Singh, Falco, Benyamin, & Hirsch, 2014). Chronic low back pain (CLBP) as described by GBD 2010, is a constant low back with or without leg pain, causing difficulty in performing activities such as dressing, sitting, standing, walking, and lifting objects, poor sleep and maintaining social relationship, that was expressed in disability weight as 0.366-0.374 (Hoy et al., 2014). The most significant symptoms of CLBP is pain and associated disability causing activity limitation (Khan et al., 2014).

It is estimated that point prevalence of activity-limiting LBP that lasted more than one day was 11.9% and the one-month prevalence was 23.2% (Hoy et al., 2012). The chronicity is more disabling condition that increases pain intensity with substantial impact on daily functioning (Gore, Sadosky, Stacey, Tai, & Leslie, 2012) and the patients are often crippled with the condition affecting physical, psychosocial well-being with higher financial cost (Stokes, Evans, Pompilus, Shields, & Summers, 2013).

The disabling LBP is multi-factorial and several risk factors have been identified that includes personal, physical, environmental, psychological, social factors, as well as the availability of treatment and rehabilitation services including the failure of the previous treatment (Hartvigsen et al., 2018; Hoy, Brooks, Blyth, & Buchbinder, 2010; Deyo, & Weinstein, 2001). Many studies have highlighted that LBP is associated with lower

socioeconomic status, low educational status, obesity, previous episode of LBP, physical factors including demanding jobs requiring lifting and carrying heavy objects, working in a same position and posture for prolonged period of time, and psychosocial factors such as anxiety, depression, dissatisfaction on job, performing monotonous tasks, poor relationship and support within the colleagues in workplace, lack of job control and mental stress (Bindra et al., 2015).

LBP imposes considerable impact on the individuals, economy and health and social systems. These impacts are classified as slighter impact including physical symptoms as pain and activity limitations while broader impacts consists of participation restrictions, burden on family, employer, health care and finance of the country (Hoy et al., 2010). It is estimated in USA a LBP is responsible for 149 million workdays lost (Freburger et al., 2009) with the annual cost of $100 billion or more of which two-thirds cost is due to lost wages and decrement in productivity (Katz, 2006,) while in United Kingdom about 11billion pound (Sá, Dias, Souza, Lessa, & Baptista, 2015) followed by 90 million working days lost with 8-12 million of patients visiting physicians annually (Froud et al., 2014). Similar was observed in Australia, about 1.8% of total cost (i.e. AUS$ 1.2 billion) was expense on LBP (AIHW, 2016). However, these costs are expected to rise with the increase prevalence rate of back pain (Freburger et al., 2009).

1.2. Justification

At present, world is suffering from double burden of diseases, as it is epidemiological transitioning from a greater prevalence of communicable diseases to non-communicable diseases. With the ageing and growing population, the world is facing challenges through non-communicable diseases, including musculoskeletal disorders constituting heavy prevalence rate and burden. As reported by the GBD study, musculoskeletal disorders are ranked as the fourth greatest burden on world's health in terms of morbidity or DALYs. And among these disorders (about 291 conditions) studied, LBP is categorized in the first place for disability and sixth for the global burden (Woolf, 2015). The findings from GBD study done in Bangladesh (1990-2013) have shown that LBP is the 1st ranked condition in terms of YLDs (IHME, 2013).

Therefore, LBP is a major cause of long-term disability and burden in both developed and developing countries. The world have exposed to about 54% increase in year lived with disability from 1990 to 2015 (Hartvigsen et al., 2018). Meanwhile, this burden is predicted to increase especially among working populations of low and middle-income countries including Asian countries in the recent decades and near future imposing additionally challenges on health care and social systems, as the resources are not well managed and equipped to withstand the rising needs (Hartvigsen et al., 2018). Also the general populations of these countries are involved in the heavy loaded work force which is significance for the occurrence of LBP.

LBP was once seen as a major condition prevailing only in developed countries but this trend has been reversed recently. The incident now is growing among developing and underdeveloped nations too. The evidence have shown that about 40 to 60% of working adults in high-economic countries are suffering from LBP which adversely impacts the overall quality of life, frequently on a daily basis (Yiengprugsawan et al., 2017). So, it can be imaginable how it would be the figure in middle and low-income settings.

Despite the advancement in the diagnosis and intervention, there is least improvement in outcomes of LBP patients. The patient with CLBP are often considered to have reduced levels of everyday physical activity. As reported, patients with LBP will have difficulty in executing the task that can be from basic activities of daily living such as walking and dressing to many work related activities (Ogunlana, Odole, Adejumo, & Odunaiya, 2015). Most significantly, chronic LBP individuals experiences both

physical and psychological problems. Psychological factors such as preoccupation with LBP and fear avoidance belief, act as a catalyst on chronic pain thereby restricting the individuals to participate and become engage in various activities (Dehkordi, Khankeh, Hassani Mehraban, & Hosseini, 2016).

Importantly, there are substantially fewer data on their activity level (Berg-Emons, Schasfoort, Vos, Bussmann, & Stam, 2007) and the information about how chronic back patients live with their condition are comparatively less (De Souza & Frank, 2007). Moreover no evidence relating to effects of LBP exists in developing countries as it is confined to western setting. Therefore, it is an utmost necessary to conduct the study on CLBP and its impact on day to day activities so that governments can invest in the health system to enhance on cost-effective rehabilitation and to promote the preventive measure together with educating the LBP individuals in order to reduce the growing economic burden on the individuals, families, society and government as a whole that is imposed by this disabling condition (Williams et al., 2015).

Furthermore, the findings of this study can be used to establish the profile on the functional level of the study population which can be used as a tool for future guidance to develop a precise health policies and clinical guidelines together with planning for further research and scientific investigation (Sá et al., 2015). Additionally, the study regarding the impact of chronic LBP on ADL have not been carried out in Bangladesh.

Therefore, the research on this study area will help to address how individuals with chronic LPB are living and dealing their routine life, and performing their daily activities and functions. Also this study can be the guidance to aware people and professionals as well, and also can be used as a medium for health promotion and advocacy to government that will help to quantify the burden. Meanwhile, it also helps to enhance the evidence based practice in Physiotherapy profession and the rehabilitation field as well because the findings of this study can be used as tool for outcome evaluation, determining treatments decisions, developing treatment protocols, and its application in clinical settings.

1.3. Research question

Does chronic low back pain affect ADL among patients with LBP seen at musculoskeletal department, CRP, Savar?

1.4. Operational definition

Pain - is an unpleasant sensation to any stimuli that have a potentiality to damage or cause damage on the tissues.

Low back pain - is any kind of spinal pain that is located in the space between the lower posterior aspect of coastal margin and the horizontal gluteal fold with or with radiating pain on leg.

Chronic low back pain – back pain more than 3months duration.

Non-specific low back pain - is a type of back pain where the patho-anatomical cause of the pain is not known and the treatment purely focuses on reducing pain and its consequences.

Activities of daily living - are series of basic activities required to be performed by an individuals on a daily basis which is necessary for independent living at home or in the community such as personal care (bathing, dressing, grooming etc.), sitting, standing, walking, travelling, climbing stairs, lifting and carrying objects.

Physical Activities - are the activities that link with the ADLs activities such as bending, lifting, walking, travelling etc.

Pain-related Disability - implies to difficulties a person experiences to carry out activities due to pain.

Activity limitation - is the difficulty level experienced by an individual in executing any activities due to LBP.

Pain-related fear - is the fear emerged in an individual due to pain which is perceived as threat to any movement.

CHAPTER II LITERATURE REVIEW

LBP is the most extremely common cause of morbidity than other musculoskeletal condition resulting to severe and long term impairment (Hoy et al., 2014). Broadly classified as non-specific and specific LBP. Non-specific LBP is most common form of LBP (Maher, Underwood, & Buchbinder, 2017). Many experimental studies have identified that LBP arises from the anatomical structures such are ligaments, muscles, facet joints, intervertebral discs, neural and bony structures, fascia, and blood vessels (Hoy, Brooks, Blyth, & Buchbinder, 2010). Whereas the pathological causes are from spinal fracture, tumor, inflections, inflammatory disorders (Hartvigsen et al., 2018).

A systematic review on the global prevalence of LBP has presented the overall mean prevalence rate as 31%, with approximately 18.3% as point prevalence, 38% as a 1-year prevalence and 38.9% as a lifetime prevalence, and these estimates are observed to be higher in developed countries compared to developing and under-developed countries (Hoy et al., 2012). A study has presented a variable range of 1-year incidence rate of LBP episodes, about 6.3% to 15.4% of individuals are reported to have first-ever episode while 1.5% to 36% will have any episodes (can be first-ever or recurrent) (Hoy et al., 2010).

In the meantime, the rising prevalence of chronic disabling LBP has been observed over the 14-years interval (1992-2006) that range from 3.9% to 10.2% (Freburger et al., 2009). The author Wasiak et al. (2006) have found that recurrence over a period of time directly contributes to the burden from non-specific work related LBP via both additional care seeking and work disability (Hoy et al., 2010). Majority of LBP patients do not seek care even though there are best evidence based treatment approaches. The factors underlying care-seeking behavior includes gender, individuals having previous history of LBP, poor health status and those complaining severe painful episodes and disabling LBP (Maher, Underwood, & Buchbinder, 2017).

In a meta-analysis of population based survey, it has been shown that the pooled prevalence of care-seeking behavior is about 58%, and there is a strong association between care-seeking behavior and gender difference (female>male) and intensity of disability (8 times more with higher disability level) to that of determinants like

intensity of pain, previous history of LBP and being in poor state of overall health (Ferreira et al., 2010).

Moreover, there exists an observable variation on natural history of LBP that extends from a few days to many years and those individuals who are experiencing activity limiting LBP have higher incidence of recurrence (Hoy et al., 2010). According to Van Tulder et al. (2002), the recurrence extends from 24% to 44% of cases within a year to 85% lifetime (Freburger et al., 2009). Von Korff et al. (1993) had studied the outcomes of back pain in primary care at 1 year found out that those individuals who had LBP less than 3months from baseline had the median pain days of 15.5 days at 1 year follow-up and 128.5 days in the patients who had low back pain lasted for 3 and 6 months from baseline (Hoy et al., 2010).

LBP is the number one cause of disability globally, and in this age to understand the complexity of disability secondary to LBP only biomedical model is not efficient, so the biopyshosocial model has been used as a framework (Hartvigsen et al., 2018). Factors such as biophysical, psychological, occupational, lifestyle or socio-demographic and social factors influences LBP (Hartvigsen et al., 2018; Manchikanti et al., 2014). Among these risk factors, evidence have shown that the psychosocial plays a vital role in transition of acute pain to chronic pain (Cohen, Argoff, & Carragee, 2008).

Biophysical factors include pain intensity, structural changes in the back musculature (Goubert, Van Oosterwijck, Meeus, & Danneels, 2016), decreased flexibility and mobility of muscles (Vujcic et al., 2018), radiating pain (Fujii & Matsudaira, 2012). The physical factors includes physically demanding jobs requiring heavy manual labor, work in which the whole body is exposed to vibration, heavy lifting, handling multiple tasks, pushing and pulling objects, and prolonged walking or standing are responsible for future back pain (Hartvigsen et al., 2018; Dehkordi et al., 2016; Manchikanti et al., 2014).

The societal factors includes socio-demographic details like age, sex, occupation, marital status, place of residence, low level of education, low family income, smoking, low physical activity, obesity, family size and support (Biglarian et al., 2012). Finally, psychological factors includes anxiety and depression, work-related stress and job

dissatisfaction, pain catastrophizing, kinesiophobia, self-efficacy, coping strategy, somatizations (Hartvigsen et al., 2018; Manchikanti et al., 2014).

Chronic pain is the principal factor for causing severe, long-term impairment as well as impact on both physical and social activities (Hartvigsen, Natvig, & Ferreira, 2013). As supported by the evidence, pain is the most dominant and disturbing symptoms that result in decrease in the mobility and functional capacity of an individual (Sugai, Tsuji, Matsumoto, Nishiwaki, & Nakamura, 2017). According to the study done by kose et al among Turkish LBP patients admitted in the Department of Neurosurgery of a military education and training hospital to assess the effect of low back pain on the ADL, found that the intensity of pain is the prime source causing difficulty among patients to perform functional activities which is consequently affecting the daily functioning (Kose & Hatipoglu, 2011).

In terms of physical factors, finding from many studies have reported that lifting activities at work or as an ADL is both contributor and predictor among other physical factors leading to significant occurrence of LBP. To prove this statement, a meta-analysis study on lifting activities as a work (10kg per 10 lifts) have revealed the increased risk of LBP, for example those who are exposed to 25kg per 25 lifts per day will have annual incidence of 3.5% to 4.3% (Coenen et al., 2014). Likewise, a study in USA among 1.82 million LBP patients visiting emergency department, found that most of LBP episodes are followed while performing ADLs, and lifting being the most common mechanism accounting one-third (32.70%) of that population (Waterman, Belmont, & Schoenfeld, 2012).

But the physical factor cannot always be taken into consideration and the result obtained cannot be used for generalization. Therefore, many researches have opined this association and have shown the significant association between bio-psychosocial model and LBP. A systematic review have shown the importance of considering social components in the impact study on LBP, which is crucial in improving patient's experience of health care (Froud et al., 2014). As the individual who are facing difficulty to perform a day-day activities as well as maintaining the professional activities because of pain, feel disabled and powerless, and they tend to get isolated from social contact and do not participate in recreational activities (Salvetti, Pimenta, Braga, & Corrêa, 2012).

On the other hand, the fear-avoidance belief model of musculoskeletal pain highlighted the importance of chronic pain. The study have found the strong relationship between fear-avoidance beliefs and lower activity level in ADL. It says that although chronic pain in itself cannot be avoided the person tries to avoid activities and situations requiring physical effort and ignores the activities that are expected to produce and increase pain which indirectly reduces the level of daily functioning and hence results in functional incapacity (Crombez, Eccleston, Van Damme, Vlaeyen, & Karoly, 2012; Leeuw et al., 2007; Buer & Linton, 2002,). However, considering this facts, the treatments for any chronic musculoskeletal conditions including LBP must target towards changing the beliefs and avoidance behaviors among the follow up patients (Hartvigsen et al., 2018).

When socioeconomic status comes into play, age is one of the more common risk factors for low back pain. A systemic review to find the association between age and back pain prevalence showed that the productive age groups are more vulnerable to back pain, and the incidence is higher among 3rd decade with overall prevalence increases till the middle to sixth decade of life (60 or 65 years), and then it declines gradually (Hoy et al., 2010; Dionne, Dunn, & Croft, 2006). Similarly, a review study on global prevalence of LBP have stated that the prevalence are higher among adolescence followed by a gradual decline in the figure among age group between 20-29 years and then steadily escalated among the middle age groups of 40 to 69 years, after that decrease between 80-99 years (Hoy et al., 2012).

Another systematic review on the prevalence of CLBP based on the age has shown the prevalence rate as 4.2% among age groups of 24 to 39 years and 19.6% among age groups between 20 to 59 years (Meucci et al., 2015). The review study on prevalence of persistent LBP in Africa, Asia, the Middle East, and South America found that the working population are at 2.5 times risk of developing CLBP than in general population (Jackson et al., 2016).

Moreover, the study have also proven that the LBP prevalence is higher among females than males. This sex difference is multifactorial, and factors such as psychological, biological and sociocultural influences the symptoms (Wu et al., 2018). Women are more likely to experience recurrent back pain and lower functional capacity compare to men do (Chenot et al., 2008) because female patients are considered to be shorter in

height and have more weight compare to male patients, and consequently, BMI is higher in them (Kose & Hatipoglu, 2012).

It is also evident from the study that the women with lower socioeconomically state and minimum educational level are at greater risk to develop chronic LBP as compared to the male population having better socio-economical and educational status (Meucci et al., 2015). Beside these, pain during menstruation cycle, pregnancy or menopause, the differences on perceiving pain symptoms between the sexes, and variability in the growth pattern during adolescent period can also be an influencing factor of pain among female population (Hoy et al., 2012; Wu et al., 2018).

Many researchers have identified that level of education determines the prevalence as well as the outcome of low back pain. People with low educational status are likely to the work in physically demanding jobs that risk the lumbar spine and after the episode of back pain they are continuously being engage due to fear of losing work and less provision of sick leaves which is indirectly creating even more stress on the injured tissue (Dionne et al., 2001).

The research on the impact of social deprivation on chronic LBP and its treatment outcomes have confirmed that lower income and low literacy rate are the most common form of socioeconomic variables associated with increased prevalence and severity of any musculoskeletal conditions, similar was found with the prevalence of LBP. Therefore, it is necessary to give social support and include social rehabilitation along with the functional therapy as the treatment approach to overcome the impact (Carr & Klaber Moffett, 2005).

Various literatures supports the fact that overweight or obesity are directly associated with LBP. The obese people are at greater risk of developing CLBP compared to normal weight individuals as the spine is subjected to constant axial and compressional forces (Peng, Pérez, & Pettee Gabriel, 2018; Oliveira et al., 2018). Hirsh and colleagues (2007) found that the overweight and obese individuals are 1.7 to 2.3 times likely to complain and perceive the pain compared to normal weight individuals (Miller et al., 2018).

However, the National Health and Wellness Survey done among 5 European countries reported that off 53 million people, about 49.7 million people are experiencing moderate to severe daily pain, which is approximately 8.85% of total population

studied, lower back being most complaint area for pain, that reflects the increased number of health care visits thereby causing substantial economic burden on the individual, society, and health care system (Langley, 2011).

The cost of LBP includes both direct cost as health care costs (like transportation, appointments and consultations with health care professionals, follow ups, investigations, referral to different settings) whereas indirect cost as lost productivity at work and household activities (Hartvigsen et al., 2018). It is stated that indirect cost associated with LBP is higher than direct cost (Maher et al., 2017). For example, in USA, LBP is responsible for 149 million workdays lost (Freburger et al., 2009) with the annual cost of $100 billion or more of which two-thirds cost is due to lost wages and decrement in productivity (Katz, 2006,) while in UK about 11billion pound (Sá et al., 2015) followed by 90 million working days are lost with 8-12 million of patients visiting physicians annually (Froud et al., 2014). Similarly, estimates from Australia, out of AUS$9.17 billion, about AUS$1 billion cost is accounted for direct heath care cost and rest all are spent for indirect cost (Hoy et al., 2010).

And these costs are expected to rise with the increase prevalence rate of back pain (Freburger et al., 2009). A study done by Côté et al. (2008) have shown the association between taking sick leaves and health outcomes among back pain employees. They found that workers who had a higher episodes of recurrence took maximum sick leaves which is directly associated with their pain level, decreased functional activities and overall quality of life in comparison to those who did not have recurrent back pain.

Beside sick leaves, many old-adult workers are forced to take retirement early in life due to disabling LBP. The study done in Australia to explore on the financial status among early retired individuals of age group 45-64 years have found that the people who left the job earlier has about 87% less in the total income and wealth collected compare to full-time employer with no back pain (Schofield et al., 2011). Additionally, the study on US population have revealed that patient with CLBP will have higher prevalence of comorbid conditions and enormous economic burden compared to those without CLBP (Gore et al., 2012).

In addition to cost and lost productivity, chronic LBP causes enormous disease burden in terms of YLDs due to disability (AIHW, 2016). The GBD study (2010) on 291 musculoskeletal conditions concluded that LBP is categorize as the top most condition

contributing to global disability expressed in YLDs and 6th in terms of overall burden expressed in DALYs thereby reflecting the need to pay attention by governments, health service systems, researchers (Hoy et al., 2014).

Furthermore, in 2015, LBP and neck pain was the primary cause of disability throughout the world. Similar was observed in 24 out of 28 South-east Asian, East Asian, Oceania countries and territories and three out of five South Asian countries (Nepal, Bangladesh and Bhutan) but in the India and Pakistan LBP was second cause of YLDs after iron-deficiency anemia (Vos et al., 2016).

The chronic LBP individuals will have a greater impact on performing various activities and overall their daily lifestyle (Dehkordi, Khankeh, Hassani Mehraban, & Hosseini, 2016). As reported, chronic LBP and concomitant disability, are more likely to limit activity and restrict in terms of movement, personal care, daily routine, employment and social participation (AIHW, 2016). The study have shown evidence on the strong association between restricting low back pain and its functional impact on ADL and the need for consideration of the impact on daily functional activities is sought during the evaluation and treatment of back pain (Makris et al., 2017).

A longitudinal study done on low back pain and limitation of daily living among Thai cohort group found an association between low back pain and functional limitations on ADL (i.e. on climbing stairs, walking 100 meters, bending, kneeling or stooping) with increased limitation among severe LBP and chronic LBP category (Yiengprugsawan et al., 2017). Similarly, a cross-sectional study conducted at faculty of medicine among 459 medical students in Belgrade, found that LBP has a significant impact on daily functioning, about 14.6% students reported problem during sleep and 12% while walking (Vujcic et al., 2018).

In a qualitative study conducted in Iran, with an objective to identify the impact of chronic LBP on daily occupations observed the three themes associated with LBP. Based on this themes, this study has explained the experiences, challenges and difficulties of an individuals with chronic LBP on performing daily activities (such as personal care, sleeping, grooming etc.), interference with the job (lifting work, handling multiple tasks, manual jobs), participation on leisure activities, carrying out physical activities (like walking, playing sports, running, doing exercises) and remaining in static positions for prolonged period of time. This study also showed a significant role

of pre-mindset with LBP and fear of movement on chronic LBP (Dehkordi, Khankeh, Hassani Mehraban, & Hosseini, 2016).

Likewise, a qualitative study on the experience of patients living with chronic back pain have describe the in-depth information on how it has affected their everyday activities and its impact on daily life. Among four themes i.e. sleep/rest, mobility, independence and leisure, the concern was on loss and limitation in daily life. The participants have expressed their regrets and feelings on the loss of functional capability and they have recommended that it would be helpful in coping the situation by facilitating the adjustment to loss rather than expecting the life free of pain with therapy (De Souza & Frank, 2007).

However, another study in Uganda suggested that low back is a significant cause of disability on daily activities. Their findings suggested that people with low back pain have difficulty in performing all the activities with most on lifting with a mean score of 4.5, followed by walking and running (3.6), standing (3.3), sex life (2.9), travelling (2.9), sitting (2.7), social and recreation activities (2.7), getting dressed (2.1) and sleeping (1.8) (Galukande, Muwazi, & Mugisa, 2006).

The 3-years longitudinal study done in Japan found the strong association between chronic musculoskeletal pain and decline in ADL with higher risk of future disability and highlighted the need to take preventive measure and proper treatment for to reduce disability rate, main focus was on LBP (Sugai et al., 2017). Similarly, a literature on functional impact of LBP among Brazilian population, reveals that there is a negative association between chronic LBP with activities such as lifting objects and prolong sitting while walking prove to be a protector for function and disability though the speed of walking may interfere (Sá et al., 2015).

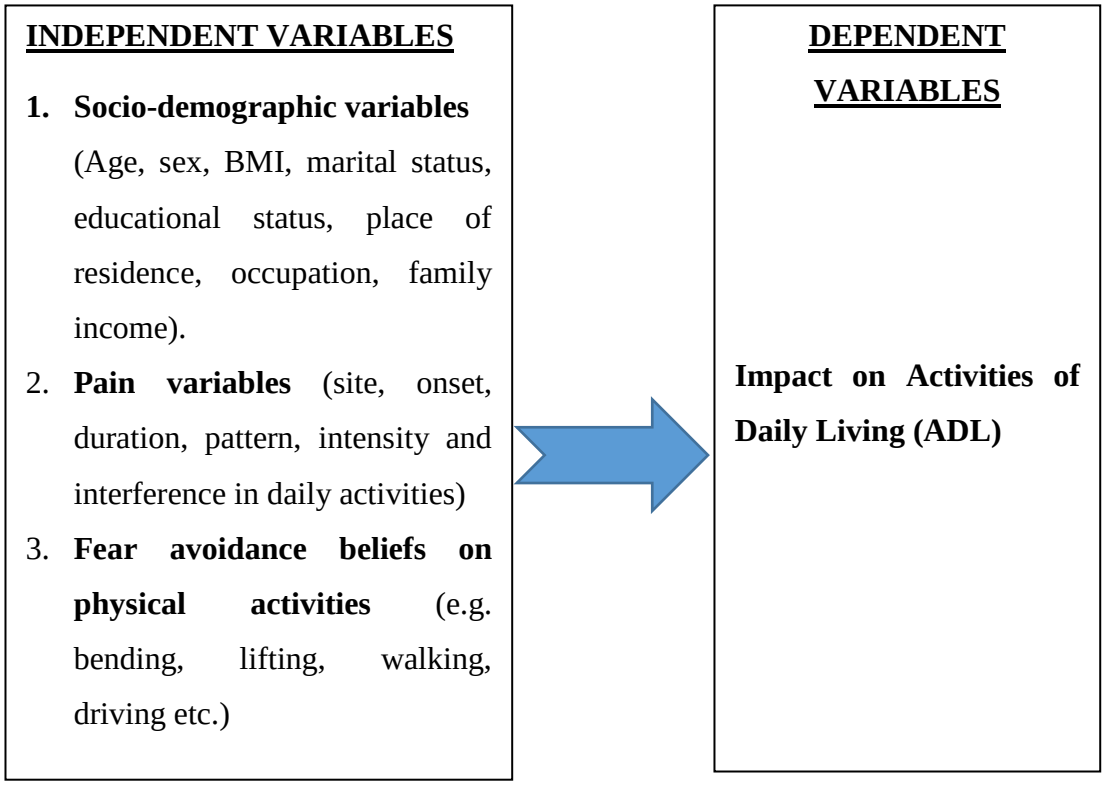
Additionally, a systemic review have shown a weak relationship between physical activity and disability in acute or subacute (<3 months) LBP because the levels of physical activity is different among this individuals. While, a moderate and negative relationship is observed among chronic (>3 months) LBP individuals because chronic back pain patients will have higher levels of disability and low levels of physical activity (Lin et al., 2011). The observational study which experimented the time spend on standing, walking and number of steps on an average over 24hrs per day using

activity monitoring device, have shown that the CLBP patients have a lower level, and an altered pattern of physical activity compared to control groups (Ryan et al., 2009).

The report from 3 years (2010-2013) longitudinal study on chronic musculoskeletal pain done in Japan with an objective to find its association with future decline in ADLs, have revealed that the individuals with chronic pain had about 50% or more deterioration in ADL activities. Meanwhile, LBP stands for strong association on decline in ADL, as because the lower back is located at the central zone of the body, and both the static and dynamic motion of upper and lower extremities are directly dependent on the stability and coordinated movements of the spine, hence pain in the back affecting most of the ADLs (Sugai et al., 2017). Meanwhile, the expertise in the field of chronic back pain have published the "Report of the NIH Task Force on Research Standards for CLBP" that emphasizes on the evaluation of functional activities among back pain (Deyo et al., 2014).

CHAPTER III METHODOLOGY

3.1. Conceptual Framework



3.2. Study objectives

3.2.1 General Objectives

- To determine the impact of chronic low back pain on ADL among the patients with LBP attended in musculoskeletal department, CRP, Savar.

3.2.2 Specific Objectives

- To find out the most affected ADL among the participants.
- To identify the association between pain intensity and ADL.
- To determine the association between fear–avoidance belief on physical activity and ADL.
- To assess the association between pain intensity and fear–avoidance belief on physical activity.
- To identify whether there is difference in mean ADL score between male and female groups.
- To explore on the factors responsible for causing decrease in functional capacity to perform ADL.

3.3. Study Design

The study was done using quantitative, non-experimental cross-sectional design, as the information that needed to be collected from the participants are purely of a descriptive nature. Also this study design best suited with the research question under study and meet the objectives of the study.

3.4. Study population

The study population were chronic non-specific LBP patients presenting with or without radiculopathy, who attended musculoskeletal department of CRP, Savar, for the treatment purpose within age group 18 to 65 years.

3.5. Place and site of the study

This study was conducted in musculoskeletal department, CRP, Savar, Dhaka

3.6. Study period

This study was carried out for 10 months, extended from August 2018 to May 2019 from the approval of the protocol till final submission of report.

3.7. Sample size

Sample size was calculated according to the following criteria:

- 12.7% prevalence of non-specific LBP in Bangladesh (Ahmed et al., 2017).
- 95% of confidence interval, with z-value as 1.96
- Precision as 5%

Using the formula,

$n = z^2 p (1-p) / d^2$

$n = (1.96)^2 \, 0.127 \, (1-0.127) / (0.05)^2$

n = 170.

The estimated sample size was 170 to conduct the study. But the researcher collected data from 190 samples during the study period.

3.8. Sample selection criteria

3.8.1 Inclusion criteria

- The participants who were willing to take part in the study.
- Age group 18-65 years (Meucci et al., 2015; Hoy et.al, 2010).
- Chronic non-specific low back pain for >3months duration (Sugai et al., 2017).
- Both male and female participants will be included.

3.8.2 Exclusion criteria

- The participant who have severe neurological problem and spinal pathology such as tumor or infections.
- Pregnant women.
- Participants with history of mental illness.

3.9. Sampling techniques

The required number of participants was selected from the department using convenience sampling of non-probability sampling method. The sample is taken based on convenience of the researcher who met the inclusion and exclusion criteria of the study.

3.10. Method of Data collection

A semi structured questionnaire was used to collect the data. The questionnaire was developed incorporating literature review and standard questionnaire tool. The developed questionnaire had five parts. Other tools used were weight measurement machine, data collection sheets, pen, logbook etc.

Part 1: Personal details

Included name, identification number, address and contact number of participants.

Part 2: Sociodemographic information

This questionnaire constituted age, gender, height, weight, BMI, marital status, education, religion, place of residence, family structure, living situation, occupation, total monthly income of family, number of income generating members in a family and source of income.

Part 3: Pain-related characteristics

Included location, onset, duration and pattern of pain, pain intensity during past week/month and on the time of interview, presence of pain interference on daily activities.

Pain intensity at present was assessed using **Visual Analog Scale (VAS)**. It is a continuous 11-point scale ranging from 0 to 10 where 0 means ‘‘no pain’’ and 10 indicates ‘‘worst imaginable pain’’ (Hawker, Mian, Kendzerska, & French, 2011).

Part 4: A Low back Pain Version of SF-36 Physical Functioning Scale

This questionnaire was used to assess impact of LBP on the activities of daily living. The scale comprises three section where **section 1** included 10 items from SF-36 Physical Functioning scale that ranges from 2-0, 0 indicates “yes, limited a lot”, 1 as “yes, limited a little” and 2 as “no, not limited at all”.

> ***Modification is done in item 2 i.e. moderate activities (such as moving a table, pushing a vacuum cleaner, bowling or playing golf) changed into moderate activities (moving tables, cleaning/mopping floors).**

Section 2 included 4 items from Oswestry Disability Questionnaire with reverse scoring for pain intensity, standing, sleeping and travelling that ranges from 5-0. While **section 3** included 4 items from Quebec Back Pain Disability Questionnaire with each item scored as reserve scoring from 5-0 for turnover in bed, ride in a car, sit in a chair for several hours, and lift and carry a heavy suitcase/bags (Davidson, Keating, & Eyres, 2004).

> ***Ride in a car is modified into getting in and out of the bus or rickshaw.**

The total score ranges between 0-60, a higher scores indicates better levels of function in ADL. This outcome measure had excellent internal consistency in the current sample (Cronbach’s alpha = 0.837).

To find the most affected activities among list of ADL as mentioned in objectives, we collapsed the Likert scale responses of section 2 and section 3 into three variables similar to Likert scale responses of section 1 that ranges from 2-0.

In section 2 and 3, responses are recoded as

a. **“5 = 2 means “N0, not limited at all”,**

b. **“4-3 = 1 means “Yes, limited a little” and**
c. **“2-0 = 0 means “Yes, limited a lot’’.**

Part 5: Fear Avoidance Belief Questionnaire on physical Activity (FABQ-PA)

FAB questionnaire is used to assess fear-avoidance beliefs specific to LBP. It is a 16-item questionnaire with each item scored 0 to 6 points where 0 (strongly disagree) to 6 (strongly agree) and it contains two subscale, a 4-item FABQ-physical activity (score range from 0-24) and a 7-item FABQ-work scale (score range from 0-42). Higher values indicates increased levels of fear avoidance beliefs (Waddell, Newton, Henderson, Somerville, & Main, 1993).

Only physical activity items were used because the present study was employed to see the effect on ADL. FAB-PA classified as low fear (0-14 points) and high fear (15 points or more). The scale demonstrate acceptable reliability (Cronbach’s alpha = 0.772) for this sample.

3.11. Data management and analysis

The subjects those who met inclusion criteria, was interviewed after finishing their treatment session in the musculoskeletal department of CRP, Savar. The physiotherapists working in the department were informed about the objectives of the study beforehand and are requested to refer me the patient for data collected. After completion of data collection, data were stored and quality control check was performed. Any errors and inconsistencies in the data that might affect the result was omitted. SPSS version 25 and MS excel programs was used for the data entry and statistical analysis.

Investigator used Chi square ($\chi 2$) test to see the association between pain intensity and demographic data, Spearman correlation co-efficient was done to find the association between pain intensity, FAB-PA and ADL. Independent t-test was done to see the difference in ADL score between male and female group. And lastly multiple regression analysis was used to find out the best predictors of ADL. P-value ≤ 0.05 was used to see level of statistical significance. Then, the collected data results were illustrated in tables, bar charts and pie charts.

3.12. Quality control and assurance

To ensure and improve the quality of the study, the questionnaire was translated according to WHO guidelines i.e. first in the national language that is Bengali language following the standard procedure of linguistic validation. For translation, two individuals who were fluent in both languages were assigned for forward translation. They both prepared two versions of questionnaires then both sat together and discussed to come up with one version of translated questionnaire. Then this translated version was provided to another person who is fluent in both languages and who have not seen the original copy of questionnaire for backward translation.

Then all three translators sat together and consensus was drawn with final version of translated questionnaires in Bengali language. Before starting data collection procedures, pilot study was conducted for the questionnaire to ensure the face validity of the questionnaire with 5 LBP patients receiving treatment from the musculoskeletal unit, CRP. After reviewing the results of pilot study, changes were made in prepared questionnaire. Filled questionnaire were kept safely. The data collected was reviewed, recorded and entered into SPSS program in order to reduce the human errors that are likely to occur while entering and analyzing the data.

3.13. Data collection technique

Direct interview was the data collection technique. Before data collection the respondents was briefed about the purpose of the study. After taking verbal consent of the respondents, data was collected ensuring the privacy and confidentiality. The interviews lasted for 10-15 minutes for each patient.

3.14. Ethical consideration

Study was conducted following the standard guidelines of ethical consideration. The study followed the WHO and Bangladesh medical research council (BMRC) guidelines. Firstly, prepared research proposal were submitted to the concerning authority after getting approval from course coordinator of Department of Masters in Rehabilitation Science and supervisor. Ethical approval was taken from Institutional Review Board review (IRB) of Bangladesh Health Professions Institute (BHPI) for conduction of research. Then a written application was submitted to the head of

physiotherapy department of musculoskeletal unit, CRP, Savar. After obtaining permission from the concerned authorities, data collection was started.

Prior to data collection, a written informed consent were taken from the respondents. The respondents were informed about complete freedom to leave or not give the answer if they are not willing to answer any question within the questionnaire. Even the participants were not being forced or coerce to answer the questions if they are not willing to provide it. Researcher accepted the answers of participant whether they are right or wrong without any others influences. Meanwhile, the personal identity and information provided by the subjects were maintained confidential. It is protected by the law “right to privacy” which prevents the researcher from disclosing any direct information about the participants of the research. Similarly, there was not any manipulation, modification and alteration in the collected data from researcher for the purpose to manage the result.

CHAPTER IV RESULTS

4.1 Socio-demographic findings

4.1.1 Baseline information of the participants

Table 4.1.1: Baseline information of the participants (n=190)

Variables	Categories	Frequency	Percentage	Mean ± SD
Age (years)	≤ 25	20	10.55	39.04 ± 11.49
	26-35	68	35.8%	
	36-45	52	27.4%	
	46-55	31	16.3%	
	56 and above	19	10.0%	
Gender	Male	74	38.9%	-
	Female	116	61.1%	
Marital status	Unmarried	19	10%	-
	Married	169	88.9%	
	Widow	2	1.1%	
	Divorce	0	0%	
Religion	Islam	181	95.3%	
	Hindu	9	4.7%	
	Christian	0	0%	
	Buddhist	0	0%	
Family structure	Nuclear family	161	84.7%	-
	Joint family	29	15.3%	
Living situation	With family	177	93.2%	-
	Alone	13	6.8%	

The mean age and standard deviation (SD) of the respondent was 39.04±11.49 years. Majority of the respondents were aged between 26-35 years (35.8%, n=68) and 36-45 years (27.4%, n=52) while age groups above 56 years and less than 25 years had a least respondent of 10% (n=19) and 10.5% (n=20) respectively.

Out of 190 respondents, 61.1% (n=116) of the respondents were female while male respondents constitute about 38.9% (n=74). About 88.9% (n=169) respondents were

married, 10% (n=19) were unmarried while 1.1% (n=2) were widow in the study. None of the participants were divorcee.

Most of the respondents belonged to Islamic community constituting about 95.3% (n=181) followed by Hindus (4.7% (n=9). None of the participants were Christian and Buddhist. 84.7% (n=161) respondents were living as a nuclear family and 15.3% (n=29) living in a joint family. Most of the respondents 93.2% (n=177) lived with their family while 6.8% (n=13) lived alone.

4.1.2. Educational status of respondent

The study showed that out of 190 respondents, 25.8% (n=49) had completed secondary level, 22.1% (n=42) had acquired primary education, 12.6% (n=24) were graduated from the university and 12.1% (n=23) had persuaded higher secondary education whereas only 7.9% (n=15) respondents had done post-graduation and above studies. About 19.5% (n=37) were illiterate.

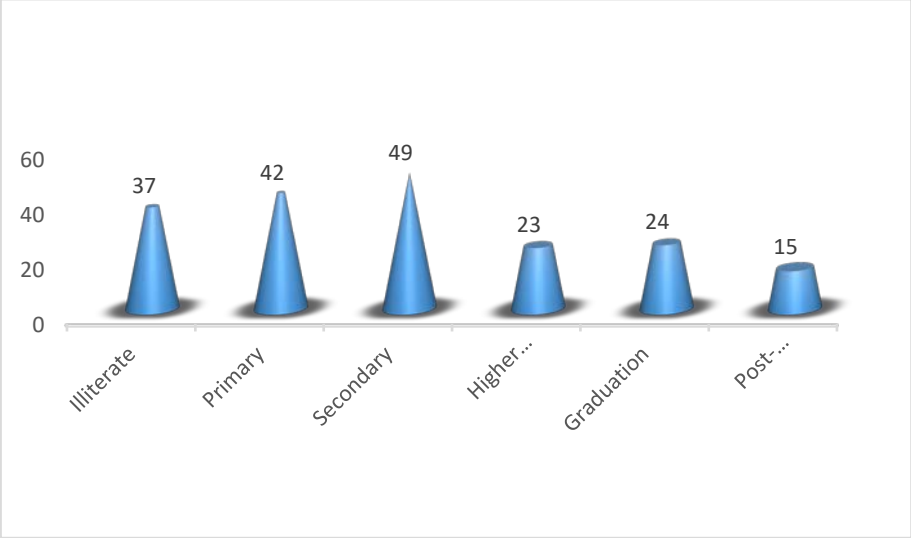


Figure 4.1.2: Educational status of participants

4.1.3 Participants' Occupational status

Most of the respondent were housewife 42.6% (n=81), followed by other occupations which was 12.1% (n=23) and business was 8.9% (n=17). Similar figures were observed for the office worker and farmer i.e. 6.8% (n=13) each. About 6.3% (n=12) were working in garment factory, 5.3% (n=10) were teachers, 4.2% (n=8) were students and few of them were daily laborer with 2.1% (n=4).

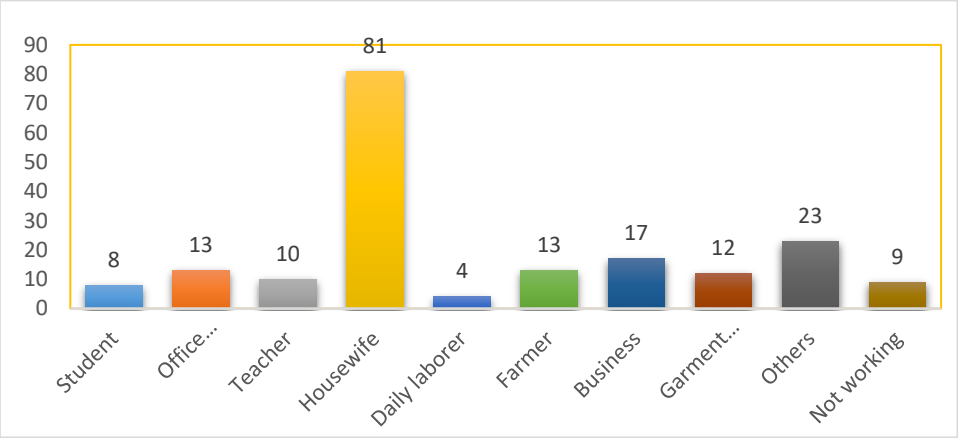


Figure 4.1.3: Occupation of participants

4.1.4 Place of residence of the respondents

Most of the respondents were residing in semi-urban region with 42.6% (n=81), followed by 35.3% (n=67) from rural areas while 22.1% (n=42) were residents of urban region.

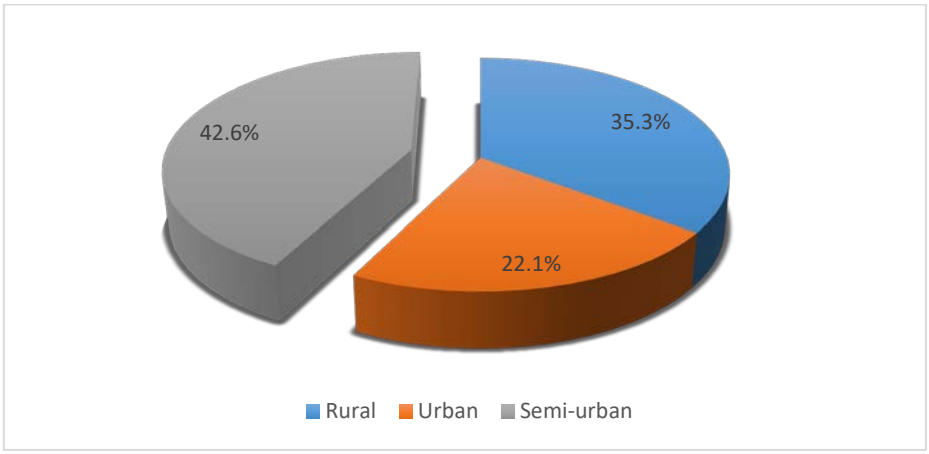


Figure 4.1.4: Place of residence of participants

4.1.5 Body Mass Index (BMI) of respondents

The average BMI of the participants was 25.84 (± 5.17 SD). Among 190 respondents, 47.9% (n=91) were obese, followed by 28.4% (n=54) were normal weight, 21.6% (n=41) were overweight and 2.1% (n=4) were underweight.

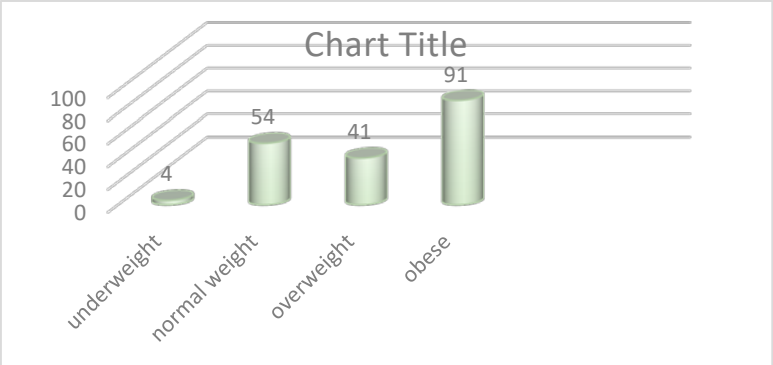


Figure 4.1.5: Body Mass Index of participants

4.1.6 Monthly family income of the respondents

The average family income was 28673.68±31975.004 SD. Maximum number of participants (36.8%, n=70) had income range between 11,000 to 20,000 taka. About 24.7% (n=47) had monthly income below 10,000 taka and 13.7% (n=26) had between 21000-30000 taka. 8.9% (n=17) had within range of 41000-50000 taka, 7.4% (n=14) had income of 21,000 to 30,000 taka. While 8.5% (n=16) of the participants had family income above 51 thousand taka.

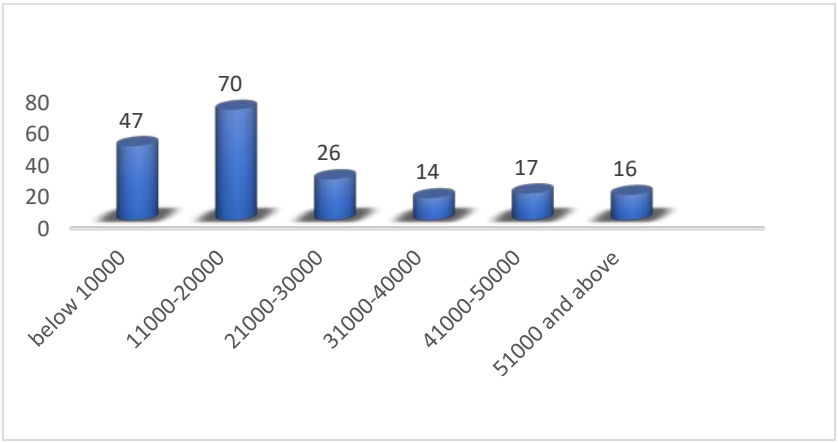
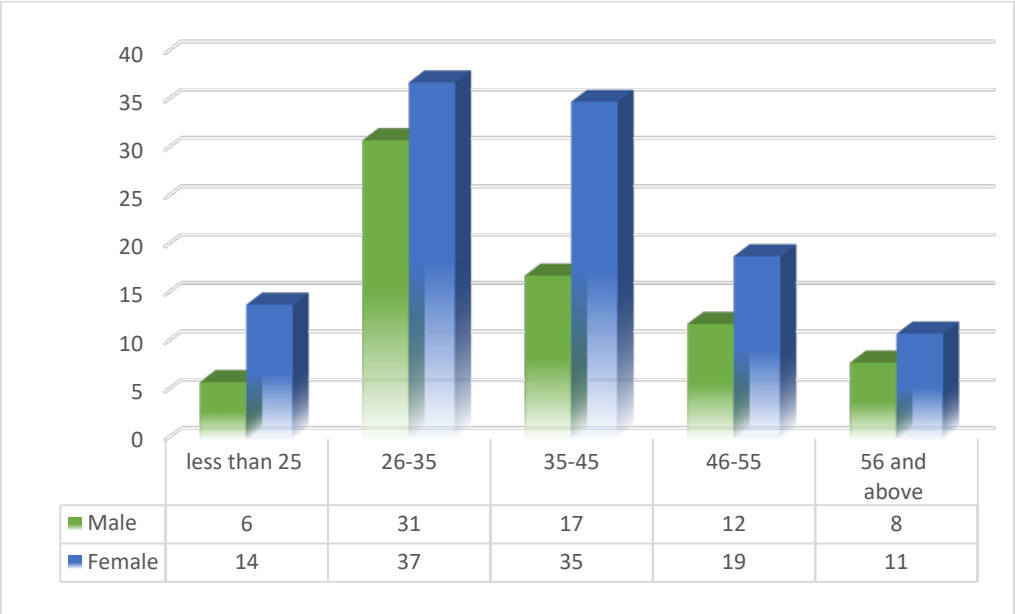


Figure 4.1.6: Total monthly family income of participants

4.1.7 Gender wise distribution of the respondent based on their age categories

Maximum number of respondents falls in age category 26-35 years with 37 number of females and 31 males. Followed by 35 females and 17 males in age group 35-45 years. Least number of participants are in age group less than 25 years (n=14 females, n=6 males), and in 56 years and above category with 11 females and 8 males respectively.



	less than 25	26-35	35-45	46-55	56 and above
Male	6	31	17	12	8
Female	14	37	35	19	11

Figure 4.1.7: Gender wise distribution of the participants with respect to their age category

4.2 Pain related characteristics of the respondent

Table 4.2: Frequency distribution of pain-related characteristics of the participants

Variables	Categories	Frequency	Percentage	Mean±SD
Pain location	Localized on back	72	37.9%	-
	Radiating to right L/L	48	25.3%	
	Radiating to left L/L	32	16.8%	
	Radiating to B/L L/L	38	20%	
Pain onset	Sudden	2	1.1%	-
	Gradual	188	98.9%	
Pattern of pain	Continuous	3	1.6%	-
	Intermittent	187	98.4%	
Duration of pain (years)	≤ 1	83	43.7%	3.08 ± 3.87
	1.01-5.80	81	42.6%	
	5.81-10.60	18	9.5%	
	≥ 10.61	8	4.2%	
Pain intensity on last week/month?	Mild	9	4.7%	-
	Moderate	81	42.6%	
	Severe	100	52.6%	
Pain intensity at the moment?	Mild (0-3)	24	12.6%	5.45 ± 1.63
	Moderate (4-6)	115	60.5%	
	Severe (7-10)	51	26.8%	
Pain interference on daily activities	Yes	189	99.5%	-
	No	1	0.5%	
Duration of pain interference on daily activities (months)	≤ 5 months	164	86.3%	4.82 ± 10.38
	6-10 months	18	9.5%	
	11 months and above	8	4.2%	

From the above table, majority of the respondent had radiating pain, about 25.3% (n=48) reported on right lower limb, 16.8% (n=32) on left side and 20% (n=38) on bilateral lower limb respectively. The onset of pain was gradual (98.9%, n=188). The

pattern of pain was mainly intermittent (98.4%, n=187). The mean duration of back pain was 3.08 ± 3.87 SD, with most of them had pain commenced since less than 1 years to almost 6 years.

About half of the respondents (52.6%, n=100) had severe pain on last week/month back while majority complained moderate pain intensity on the day of interview (60.5%, n=115). Almost all (99.5%, n=189) told that pain had interfered on their day to day activities. The mean duration of pain interference on daily activities was 4.82 ± 10.38 SD where majority (86.3%, n=164) had difficulty in carrying out activities of daily life since 0-5 months.

4.3 Frequency distribution of participants with regard to their physical functioning on daily activities (Low Back Pain-specific SF-36 scale)

Table 4.3.1: Functional profile of participants

Variables	Yes, limited a lot	Yes, limited a little	No, not limited at all
Vigorous activities (running, lifting heavy objects, participating in sports)	(78.4%)	(18.9%)	(2.6%)
Moderate activities (moving tables, cleaning/mopping floors)	(32.6%)	(54.7%)	(12.6%)
Lifting or carrying groceries	(22.6%)	(53.2%)	(24.2%)
Climbing several flights of stairs	(49.5%)	(34.7%)	(15.8%)
Climbing single flight of stairs	(2.1%)	(21.6%)	(75.8%)
Bending, kneeling or stooping	(71.1%)	(25.3%)	(3.7%)
Walking (1km)	(57.4%)	(19.5%)	(23.2%)
Walking (half km)	(17.9%)	(43.2%)	(38.9%)
Walking (100 meter)	(2.1%)	(21.1%)	(76.8%)
Bathing or Dressing	(10.5%)	(36.3%)	(53.2%)

The above table showed an activity specific limitation among respondents because of back pain. Based on each activity specific limitation, about 78.4% respondents said yes they faced a lot of limitation to perform vigorous activities and 2.6% had no limitation at all to this activity. About 54.7% faced little limitation in moderate activities (e.g.

moving tables and cleaning/mopping floors), while 12.6% carried this activity without any difficulty. About 53.2% participants had less difficulty in lifting and carrying groceries while 22.6% said they had much difficulty.

Similarly, the respondents reported about difficulty in climbing several flights of stairs as 49.5% (limited a lot) and 15.8% (not limited at all). But these respondents expressed that they find no or little difficulty in climbing single flight of stairs with percent distributed as 76.3% (not at all limited) and 2.1% (limited a lot).

About 71.1% of the respondents reported much difficulty in performing bending, kneeling or stooping activities which they usually perform during praying and 3.7% were did not find it difficulty.

In terms of walking, walking for 1kilometer was a most difficult task for the participants as about 57.4% reported it as a lot more limited activity, 19.5% said less difficulty while 23.2% had no difficulty at all. Similarly, most participants found moderate difficulty for walking half kilometer distance (43.2%), and 17.9% respondents found it as severe one. In contrast to difficulty level in walking, walking for 100 meter distance was found to be easy task for maximum respondents (76.8%) while 2.1% had more difficulty level.

For personal care task (like bathing, dressing), about 53.2% did not found it difficulty at all, and 10.5% reported more difficulty.

Table 4.3.2: Functional profile (continued)

Variables	Categories	Frequency	Percentage
Standing	I can stand as long as without I want without extra pain	18	9.5%
	I can stand as long as I want but gives extra pain	27	14.2%
	Pain prevents me from standing for >1 hour	36	18.9%
	Pain prevents me from standing for >30 minutes	57	30%
	Pain prevents me from standing for >10 minutes	48	25.3%
	Pain prevents me from stand at all	4	2.1%
Sleeping	My sleep is never disturbed by pain	109	57.4%
	My sleep is occasionally disturbed by pain	47	24.7%
	Because of pain I have < 6hrs of sleep	19	10%
	Because of pain I have < 4hrs of sleep	9	4.7%
	Because of pain I have < 2hrs of sleep	3	1.6%
	Pain prevents me from sleeping at all	3	1.6%
Travelling	I can travel anywhere without pain	64	33.7%
	I can travel anywhere but gives extra pain	49	25.8%
	Pain is bad but I manage journeys over 2hrs	34	17.9%
	Pain restricts me to journeys of < 1hr	24	12.6%
	Pain restricts me to short necessary journeys under 30 minutes	15	7.9%
	Pain prevents from travelling except to receive treatment	4	2.1%

The table 4.3.2 shows the frequency distribution of participants with regard to their functioning level in relation to the pain. About 30% were not able to stand longer than 30 minutes while 2.1% (n=4) were not able to stand at all due to the pain. Except (9.5%, n=18) of respondents were not bothered by pain while standing.

In terms of sleeping almost all were able to sleep for some hours despite the pain. 57.4% were not disturbed by pain at all. 9 respondents could sleep less than 4 hours and 3 respondents were not able to sleep due to the back pain.

All the respondents could manage a travel but the pain limited them. 33.7% (n=64) could travel freely without any pain, 12.6% were restricted to journeys under 1 hour, and 2.1% were not able to travel at all making them bound to receive a treatment for back pain.

Table 4.3.2: Functional profile (continued)

Variables	Not difficult at all	Minimally difficult	Somewhat difficult	Fairly difficult	Very difficult	Unable to do
Turnover in bed	53 (27.9%)	36 (18.9%)	29 (15.3%)	36 (18.9%)	36 (18.9%)	0 (0%)
Getting in and out of the bus or rickshaw	49 (25.8%)	28 (14.7%)	38 (20%)	40 (21.1%)	35 (18.4%)	0 (0%)
Sit in a chair for several hours	14 (7.4%)	9 (4.7%)	30 (15.8%)	34 (17.9%)	103 (54.2%)	0 (0%)
Lift and carry a heavy bag or suitcase	10 (5.3%)	5 (2.6%)	17 (8.9%)	24 (12.6%)	88 (46.3%)	46 (24.2%)

The table 4.3.3 shows the physical functioning data for various activities. The activity of turning over in bed was deemed not at all difficult by 27.9% and 15.3% had somewhat difficulty and none were unable to turn in bed.

Getting in and out of bus or rickshaw was not at all difficult to 25.8%, 18.4% had hard time getting in and out, and 14.7% were able to do it with minimum difficulty, and none of the respondents were unable to do get in and out of vehicles.

All of them could sit in the chair for long hours but majority (54.2%, n=103) had very hard time sitting while 4.7% had a little trouble in sitting in chair for several hours. Only 7.4% had no trouble sitting,

Lifting and carrying a heavy bag or suitcase was the most difficult task among the activities for majority of the respondents. Majority (46.3%, n=88) had a hard time and 24.2% were completely unable to do so due to back pain. Minority (5.3%) deemed it not difficult.

In summary, though the studied participants were able to carry out the above mentioned activities but their performance has been limited either severely or moderately by pain. From the above tables 4.3.1, 4.3.2, and 4.3.3, it is clear that majority of respondents were found to have greater difficulty to carry out activities.

The trend observed in severe activity limitation are lifting and carrying heavy bags/suitcase (83.2%), followed by vigorous activities (78.4%), prolong sitting (72.1%), bending/kneeling/stooping (71.1%), standing (57.4%), walking 1km distance (57.4%), climbing several flights of stairs (49.5%), getting in and out of bus/rickshaw (39.5%) and turning over in bed (38.4%) respectively.

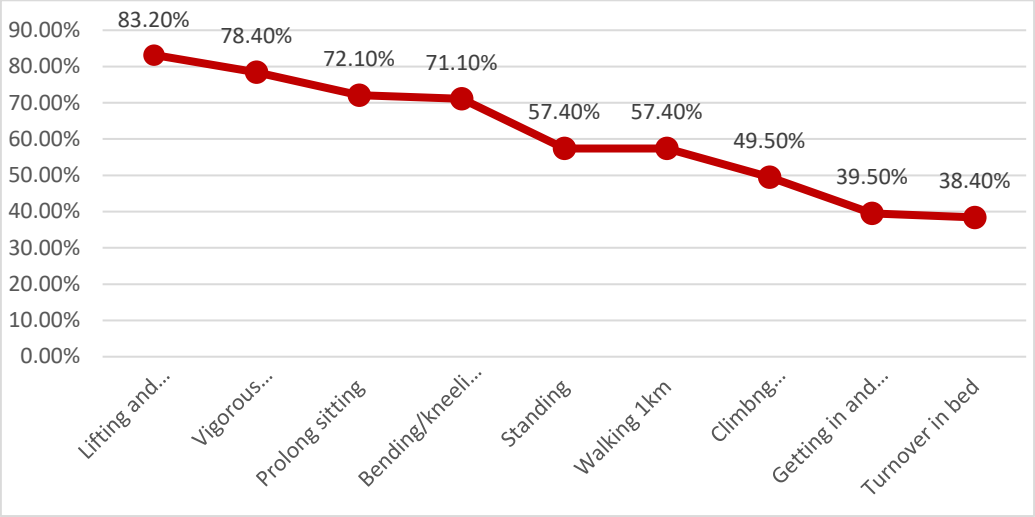


Figure 4.3: Percentage distribution showing trend of most difficult ADL

While the respondents also expressed that they do not have limitation at all in activities such as walking in 100 meter distance (76.8%), climbing single flight of stairs (76.3%), sleeping (57.4%) and personal care (53.2%), respectively.

4.4 Fear Avoidance Belief on Physical Activity

Table 4.4: Frequency distribution of Fear-avoidance belief on physical activity among participants

Variables	Completely agree	Agree	Slightly agree	Unsure	Slightly disagree	Disagree	Completely disagree
My back pain was caused by physical activity	88 (46.3%)	57 (30%)	10 (5.3%)	18 (9.5%)	1 (0.5%)	15 (7.9%)	1 (0.5%)
Physical activity makes my pain worse	70 (36.8%)	106 (55.8%)	10 (5.3%)	3 (1.6%)	0 (0%)	1 (0.5%)	0 (0%)
Physical activity might harm my back	76 (40%)	95 (50%)	14 (7.4%)	3 (1.6%)	0 (0%)	2 (1.1%)	0 (0%)
I should not do physical activities which (might) make my pain worse	52 (27.4%)	115 (60.5%)	18 (9.5%)	3 (1.6%)	0 (0%)	2 (1.1%)	0 (0%)
I cannot do physical activities which (might) make my pain worse	52 (27.4%)	108 (56.8%)	13 (6.8%)	8 (4.2%)	8 (4.2%)	0 (0%)	1 (0.5%)

The table above shows the distributions of fear-avoidance belief on physical activities among 190 participants. Almost half of the participants (46.3%, n=88) strongly thought that their back pain was caused by the physical activities while 7.9% denied.

About 55.8% respondents agreed and 36.8% strongly believed with the statement that the physical activities might worsen their back while 1 respondents disagreed with it. Similarly, they too agreed with the statement ‘physical activity might harm their back’ with 50%, 40% of them were strong believer and 2 respondents disagreed with it.

In terms of not performing the activities which can worsen the back, 60.5% of them agreed, 27.4% were strongly agreed and two respondent disagreed. And lastly, 56.8% agreed that they cannot carry out the activities that worsen their pain while 27.4% strongly agreed with this statement and 1 participants was strongly disagreed with this statement. Therefore, the fear avoidance belief on physical activities was found to be at greatest level among the respondents.

The average score of FAB-PA was 20.55 (with 2.79 SD), and among 190 participants, 183 respondents had high fear (96.3%) while few number had low fear (3.7%, n=7).

Figure 4.4: Distribution of FAB-PA score

4.5 Association between pain intensity and demographic data

Table 4.5: Association between pain intensity and demographic data

Variables	Category	Pain intensity		
		df	Chi-square χ^2	*p* value
Age (years)	≤35 36-45 45 and above	4	3.114	0.539
Gender	Male Female	2	3.019	0.221
BMI (kg/m^2)	Normal weight Over weight obese	4	1.841	0.765
Educational status	Illiterate Ungraduated Graduated	4	9.651	**0.047***
Place of residence	Rural Urban Semi-urban	4	10.702	**0.03***

Note: df = degree of freedom; *p-value = 0.05

Age and pain intensity

The observed $\chi 2$ value at 4df was 3.114 which is less than the table value at same df at 5% level of significance ($\chi 2$ 5% (4) = 9.49), which means there was no statistically significant association between age of respondents and pain intensity, $\chi 2$ (4, N=190) = 3.114, p=0.539.

Gender and pain intensity

The result of chi-square test for the association between gender and severity of pain at 2df was 3.019 which is less than the standard value at same df at 5% level of significance ((χ^2 5% (2) = 5.99), that means there was no statistically significant association between gender and severity of pain, χ^2 (2, N=190) =3.019, p=0.221.

BMI and pain intensity

The observed χ^2 value at 4df was 1.841 which is less than the standard value at same df at 5% level of significance ($\chi^2_{5\%}$ (4) = 9.49), that means there was no statistically significant association between BMI and severity of pain, χ^2 (4, N=190) = 1.841, p = 0.765.

Educational status and pain intensity

The observed χ^2 value at 4df was 9.651 which is slight more than the standard value at same df at 10% level of significance, that means there was statistically significant association between education of participants and severity of pain, χ^2 (4, N=190) = 9.651, p=0.047.

Place of residence and pain intensity

The observed χ^2 value at 4df was 10.702 which is greater than the standard value at same df at 5% level of significance ($\chi^2_{5\%}$ (4) = 9.49), that means there was statistically significant association between place of residence and severity of pain, χ^2 (4, N=190) =10.702, p=0.03.

4.6 Correlation between pain intensity, FAB-PA, and ADL

Table 4.6: Correlation between pain intensity, FAB-PA and ADL

Exposure	ADL	Pain intensity	FAB-PA
ADL	1		
Pain intensity	**-0.329*** **	1	
FAB-PA	**-0.305*** **	**0.137***	1

Note: FAB-PA: Fear Avoidance Belief on Physical Activity, ADL: Activities of Daily Living, *p-value= 0.05, **p-value= 0.01, ***p-value= 0.000

The above table demonstrate a negative correlation coefficient for the two variables (pain intensity and FAB) with ADL and a positive correlation coefficient between pain intensity with FAB-PA.

There was an intermediate, negative correlation between pain intensity and level of activity, r_s = - 0.329, n=190, $p < 0.05$. With increase in level of pain severity associated with decrease in the functional capacity to perform ADL. As it is obvious for all that, if a person have increased level of pain, he/she tends not to carry out or do the activities which in turn lowers the functional capacity to perform activities of daily living. And the coefficient of determination (0.329x0.329 = 0.108x100 = 10.82), which means severity of pain helps to explain nearly 11% of the variance in respondents' scores on the ADL.

Similarly the value obtained between FAB and ADL was -0.305, representing it to have intermediate, negative correlation, and there was statistically significant, i.e. r_s = -0.305, n=190, $p < 0.05$. When the fear avoidance belief on pain increases, there is simultaneous decrease on activity performance. As because the person with greater level of kinesiophobia tries to neglect the activities assuming that the activities which he/she performs might even worsen their back pain. And the coefficient of determination (0.305x0.305 = 0.093x100 = 9.30%), which means FAB-PA helps to explain 9% of the variance in respondents' scores on the ADL.

The observed value between pain intensity and FAB-PA was 0.137 representing weak, positive correlation between severity of pain and fear avoidance belief. When severity of pain increases, there will be increase in fear avoidance belief. And the association

between these two variables was statistically significant, as the observed p value was equal than 0.05, i.e. r =0.137, N=190, p=0.05. A person having increased severity of pain will have fear in movement, as he/she believes that if they move their pain level will increase. And the coefficient of determination (0.137x0.137 = 0.0187x100 = 1.87), which means pain intensity helps to explain nearly 2% of the variance in respondents' FAB-PA.

4.7 Hypothetical Independent t-test between male and female groups with ADL score

Table 4.7: Difference in ADL score between male and female

		t-test for Equality of Means							
	Mean ± SD	t value	df	p-value	Mean difference	Std. Error Difference	95% of CI		Eta squared
							U/L	L/L	
ADL score	Male 31.78 ± 9.22 Female 28.33 ± 8.28	2.683	188	**0.008**	3.456	1.288	0.92	5.99	0.005

The average ADL score was 29.67 (± 8.79 SD). There was significant difference in score for males (M = 31.78, SD = 9.22) and females (M = 28.33, SD = 8.28; t (188) = 2.683, p = 0.008, two tailed). The magnitude of the differences in the means mean difference = 3.456, 95% CI: -0.915 to 5.997) was very small (because the calculated effect size of these differences was eta squared = 0.005). This indicates that the result is statistically significant and accept alternate hypothesis, which means males and females differs significantly in terms of their activity limitation.

4.8 Multiple regression analysis between selected characteristics with ADL

Table 4.8: Multiple regression analysis between Pain intensity, FAB-PA and Age with ADL

Dependent variable	Predictors	Correlation	Modal summary		Coefficient		
		r	R	R^2	B	Std. Error	p-value
ADL	Constant		0.49	0.24	60.19	4.609	0.000
	Pain intensity	**-0.37*** **			-1.72	0.351	0.000
	FAB-PA	**-0.30*** **			-0.73	0.205	0.000
	Age	**-0.25*** **			-0.16	0.049	0.000

Note: ***p-value = 0.000

The step-wise multiple regression analysis was performed to predict ADL score from age, BMI, duration of pain, pain intensity and fear avoidance belief. Based on the result and statistical criteria obtained from the Pearson's correlation test, the variables pain intensity, FAB-PA score and age is used further in this analysis to make models, as the other two variables (i.e. BMI and duration of pain) were statistically insignificant.

Here, the model consisting of variables pain intensity, FAB, and age represents a strong predictors factors of ADL ($R^2 = 0.237$, $p<0.000$) that means the independent variables in this model explains 26.7% of the variability in ADL score.

To estimate model coefficient we used formula as:

Regression equation: Y = a + bX (Y is dependent variable, **'a'** is constant (intercept), **'b'** is beta coefficient and **'X'** is predicting or independent variable).

Pain intensity and ADL

We have, the unstandardized coefficient for pain intensity is $B_1 = -1.72$ which means, one unit increase in the intensity of pain can decrease the performance in the ADL by 1.72 unit and vice-versa. Reflecting that if the LBP patients have higher intensity of pain then their functional level in ADL is subsequently decrease.

FAB-PA and ADL

Similarly for FAB-PA, the value observed was $B_2 = -0.73$, that means one unit increase in fear avoidance belief on physical activity causing decrease in functional capacity in

ADL by 0.73 unit and vice-versa. Therefore, we can assume that FAB-PA have a potential to decrease activity level.

Age and ADL

For age there was $B_3 = -0.16$, which means one year increase in the age of the LBP patients consequently decrease their activity level by 0.16 unit or vice-versa. Therefore, age of the patient also determines their activity level.

CHAPTER V DISCUSSION

This study was undertaken to identify the impact of chronic low back pain on Activities of Daily Living. In total 190 participants were recruited for the study who were having chronic low back (>3months duration) from musculoskeletal unit of CRP, Savar.

In this study, the mean age of the participants with LBP was 39.04 (± 11.4 SD) years, with majority fallen at age range between 26-45 years and 61% of them were females. The mean age of LBP patients in a study done in rural area of Bangladesh was 45.8 (± 10.8 SD) which was greater than the present study, and about 70% of them were females (Khan et al., 2014). A review study have shown the evidence that LBP are seen most in the productive age groups with rate increasing till 60-65 years of age and lowest rate seen among young adult (20 to 35 years), but the prevalence rate is higher in third decade of life (Dionne et al., 2006). In this study the recruited age groups were 18 to 65 years, and found highest prevalence among mid-second to mid-fourth decade.

Married respondents were more in this study which is the same with another study where the married individuals had higher prevalence of LBP than unmarried ones (Biglarian et al., 2012). Many literatures have supported that individuals who are overweight and/or obese have greater risk of developing chronic LBP compared to normal weight people (Peng et al., 2018) and similar finding was found in this study where almost half (47.9%) of the study population were obese.

Majority of the participants were literate, about 48% of them have acquired education till secondary level while 19.5% were illiterate and have monthly income below 20,000 taka. The study have revealed that low educational status along with lower income are associated with increased prevalence of LBP (Carr & Klaber Moffett, 2005).

Prevalence of LBP was seen more among the participants coming from semi-urban and rural areas in this study but a study done in Bangladesh have showed higher prevalence in urban community (both in affluent and slums) (Haq et al., 2005) while other study have found equals estimates in both rural and urban community (Maher et al., 2017).

It was found in this study that 42.6% of chronic LBP patient were housewives compared to other professions as because most of the sample were female groups and housewives.

Female are often affected by severe and chronic LBP and their outcomes too are found to be worst (Chenot et al., 2008). Also housewives are bound to do most work at home that required frequent bending, prolonged sitting and standing, carry and lifting objects that explains greater prevalence among housewives (Bener, Alwash, Gaber, & Lovasz, 2003).

Many researchers have found that physically demanding jobs involving activities like heavy manual labor, lifting and carrying heavy objects, handling multiple tasks at once, repetitive twisting and bending, exposure to vibration at work, prolonged sitting and standing performed either as an occupation or for recreational activities are consider as a risk factors for developing LBP (Hartvigsen et al., 2018; Rubin, 2007). In line with other observation, the present study also showed prevalence of LBP among businessman, farmers, office workers, garment workers, teachers, daily laborers and other professions like carpenters, mechanics, drivers etc.

In general, the most commonly reported site of pain was pain in the leg and foot where more than half of the participant complaint of radiating pain on leg with moderate intensity. The study have confronted that radiating pain are likely to produce chronic LBP by 5 times compared to localized LBP (Fujii & Matsudaira, 2012). Almost all respondents experienced pain with gradual onset, intermittent pattern, and faced problem to carry out activities of daily life. The mean duration of pain was 3.08±3.87 years, while the study stated the mean duration as 8±7 years (Berg-Emons et al., 2007) which is higher in comparison to present study.

The study have suggested that pain and its related characteristics must be considered when dealing with chronicity and future decline in ADL because pain decreases the mobility and functional capacity of an individual (Sugai et al., 2017). But among all the pain related factors, intensity or severity of pain is accounted as primary source for causing impact on daily functioning (Kose & Hatipoglu, 2011). The mean pain intensity observed was 5.45 (± 1.63 SD) on VAS while the researcher Hashemi et al. (2016) have showed the average pain intensity of 6.26 (± 2.31SD) for CLBP patient groups which is greater than our study.

Out of 190 respondents, about 115 reported that they had moderate pain and 51 responded for severe pain and 99.5% reported that their pain interfered on daily activities which is alike with the clinical findings of the study on non-specific LBP

where 80% of the patients had moderate to severe intensity of pain that have affected their ADL (Maher et al., 2017).

Pain intensity is individual specific and subjective measure which it is dependent on one's level of pain threshold, tolerance, adaptation and perception (Von Korff & Miglioretti, 2005). The individuals will have varying level of severity of pain, for instance, a same intensity of pain might be perceived as severe pain by some individuals while some may feel it mild. According to the present study, there was no statistically significant association between age and gender with pain intensity. These finding are in line with the studies that have found insignificant association between age and pain intensity (Wettstein, Eich, Bieber, & Tesarz, 2018; Gautschi et al., 2016). But the study have showed a significant association between gender and pain intensity (Tripp, VanDenKerkhof, & McAlister, 2006).

The study have highlighted that severity of pain varies across ages and genders so the treatment should be designed considering the different age groups and genders of any kind of pain. Similarly, the study found insignificant association between BMI and pain intensity. In the study done by Bener et al., (2003) have shown that although there is or no causal relationship between elevated BMI and LBP, the weight of an individual should be considered. The authors Su, Kusin, Li, Ahn, and Ahn (2018) have proven in their research that increase in BMI is strongly related to greater prevalence of LBP but BMI is not associated with severity of back pain.

Interestingly, this study had shown statistically significant association between educational status and place of residence with pain intensity. These findings are consistent with the studies that have found that educational level of an individual has a negative, statistical association on pain intensity, patient with lower education seems to have higher pain intensity and vice versa (Köppen, Dorner, Stein, Simon, & Crevenna, 2018; Kim et al., 2014). Another study have found, place of residence is associated with pain grade/severity (Tripp et al., 2006).

This study also showed a weak, positive statistically significant correlation between pain intensity and FAB-PA which is consistent with the literature that have shown a

positive, moderate, statistical association between pain intensity and FAB (Chung, Hur, & Lee, 2013).

Among various daily activities, this study found greater difficulty in activities like lifting and carrying heavy bags/suitcase, vigorous activities (like running, lifting heavy objects), prolong sitting in a chair, bending, kneeling or stooping, standing, walking 1km distance, climbing several flights of stairs, getting in and out of the bus/rickshaw, turning over in bed respectively. Similarly, most participants responded least to minimal difficulty at moderate activities (moving chairs/tables, cleaning floors), carrying/lifting groceries, travelling and walking half kilometer distance. While the maximum participants had no difficulty in climbing single flight of stairs, walking for 100 meter, personal care, sleeping. Almost similar findings was found in other studies too.

A study in Thai cohort have found most functional limitation in bending, kneeling or stooping compared to other activities like walking 100 meters, climbing stairs, and dressing (Yiengprugsawan et al., 2017). Another study done by Sá et al. (2015) among Brazilian population found that lifting heavy objects and static sitting is most difficult task and is an associated factor for causing disability. Likewise, a study have found the gradual trend in activity limitation as lifting being a major one, followed by standing, walking, travelling, sitting, dressing and sleeping (Galukande, Muwazi, & Mugisa, 2006).

The present study showed intermediate, statistically significant relationship between severity of pain and FAB with performance of daily activity which is consistent with the study done in Saudi Arabia that have found moderately, statistical association with ADL limitation (Alamam, Moloney, Leaver, Alsobayel, & Mackey, 2019).

A study have found that pain act as the barriers to perform any physical activities including ADLs wherein the study participants have said that it is very difficult and torture state for them to do household chores, cleaning dishes and shopping groceries (Boutevillain, Dupeyron, Rouch, Richard, & Coudeyre, 2017).

There was a statistical significant difference found in ADL score between both male and female groups. Comparatively females (M = 28.33, SD = 8.28) were having decrease in functional capacity than male (M = 31.78, SD = 9.22), and the effect size of these difference were very low (mean difference = 3.456, 95% CI: - 0.915 to 5.997, eta-

square = 0.005). Rovner et al., (2017) have also found that the physical functional level among female groups were less compare to males (t (1114) = 12.04, p = <0.001, d= 0.04; mean difference = 0.20, 99% CI: 0.084 to 1.30). This was also supported by another study, where women were found to have a greater degree of impairment and decline in functional capacity them men (Liang et al., 2008).

In the multiple regression analysis, among all other independent variables (age, BMI, duration of pain), pain intensity and FAB-PA were found to be strong predictors as well as contributor of Activity limitation. This can coincide with the literature that suggests severity of pain and elevated FAB were the prime factors that have negatively impact on an individual functional level (Alamam et al., 2019; Nava-Bringas et al., 2017, George & Stryker, 2011).

In the present study, the model consisting of pain intensity (β = - 0.318, p = 0.000), FAB (β = -0.232; p = 0.000) and age (β = -0.203; p = 0.000) was the best fit model with 26.7% (R^2) of the variance in ADL score which is almost similar to the study done in Saudi Arabia, which consist of model pain intensity (β = 0.355; p<0.001), FAB-PA (β = 0.251; p<0.001), and Age (β = 0.155; p<0.05) but the variability was found more (52.9% adjusted R) (Alamam et al., 2019).

In this study majority of the participants agreed to the fact that back pain was caused by the physical activities and continuing the same activities might worsen the pain and harm their back. As FAB is considered as a key factor responsible for transition of acute LBP to chronic LBP (Manchikanti et al., 2014, Buer & Linton, 2002). Many studies have also proven the strong relationship between fear-avoidance beliefs and lower activity level in ADL (Crombez, Eccleston, Van Damme, Vlaeyen, & Karoly, 2012; leeuw et al., 2007; Buer & Linton, 2002).

Limitation of the study

Performance bias: Performance bias from respondents side may have been arose during data collection as respondents were aware of what is to be asked to them as the researcher have informed about the objectives of the present study before data collection. Therefore, there might be chance where the participants have sub-consciously changed or altered their opinions and views regarding their activity level during interview.

Selection bias:

a) The most important limitation of this study was its design, as it is cross-sectional study, researcher has only found the association between outcome measures with different study variables, and this precludes to find direction of cause between these variables.
b) The study has been done in one clinical setting, CRP among chronic LBP patients who had come for treatment. If this study had been conducted in different other hospitals, centers or in community then we could have found more representative information.

Language barrier: As the researcher was not known to Bangla language, so researcher had to face some difficulties in data collection.

Lack of prior research with similar type: Many studies was found to be done in Bangladesh regarding prevalence of LBP, its factors but there were no any valid information regarding the impact or effects of chronic LBP on ADL.

Measurement tool used to collect data: The result obtained in the study was based on the total score of the ADL questionnaire used, there was no proper interpretation to identify the level of impact on ADL such as activity limitation ratio or ranges categorized it as either mild, moderate, severe impact because this study only found the association between pain intensity and activity limitation and had identified predicative factors through regression model but if there was a proper interpretation criteria further analysis could have been done to get more precise result.

Inclusion of other related factors: This study did not consider other factors that may influence the outcome of the result like medical factors (comorbidities), personal factor

(smoking habit, physical activity session) and physical factor including recurrent of the episode of LBP.

Limited time and lack of funding: These can be considered as limitation of the study because the researcher was bound to use convenience sampling method. If the samples would have been selected using random sampling technique, this might have improved the quality of the research.

Inclusion criteria:

a) The participants included in the study were both males and females, but the female participants were higher, and on the basis of occupation housewives were more. So, if the study was undertaken with equal division of participants from different occupational background and the comparison study was done to identify the impact level on ADL between subgroups then the quality of this study might have further enhanced.
b) This study included only chronic cases but if this study would have included acute and subacute cases and would have done comparison study to determine the subgroup functional level it would have added more quality in research.

CHAPTER VI CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Low back pain is considered as an emerging public health issues as it imposes an enormous economic burden on the individuals, families, society and government throughout the world. It is extremely a major cause of severe, long-term impairment on functional activities leading to morbidity state. Individuals with chronic LBP will have a greater impact on performing various activities that are required to maintain daily lifestyle.

The aim of the study was to assess the level of activity limitation in ADL that is developed secondary to low back pain. This study has shown the prevalence of LBP in the studied participants developed LBP in mid second to mid-4th decade of life and majority of them were females and obese. Most of them complained about mild to moderate pain during interview and reported that their pain interfered on daily activities.

This study in a light of objective have found the most affected ADL among the list of various activities, that are lifting and carrying heavy bags/suitcase, vigorous activities (like running, lifting heavy objects), prolong sitting in a chair, bending, kneeling or stooping, standing, walking 1km distance, climbing several flights of stairs, getting in and out of the bus/rickshaw, turning over in bed respectively.

Severity of pain was associated with activity limitation and fear-avoidance belief on physical activity indicating that the increase in severity of pain lowers the functional capacity of an individual's thereby declining participation in ADL, together with increase in fear avoidance belief among individuals tries to neglect the activities that tends to worsen and harms their back which is indirectly creating effect on ADL.

In addition, the study found pain intensity to be the best predictor and strong contributor to ADL limitation compared to other independent variables (FAB-PA and Age). Making this finding a view point, it is mandatory for a physical therapist to consider the ADL of a patient which is causing functional impairment rather than just trying to decrease pain level.

In summary, the study in chronic LBP and its effects on ADL was not conducted before in Bangladesh. The findings of this study can be used to make a functional profile that can be a tool for outcome evaluation, developing clinical guidelines and future guidance to develop a precise health policies that the government can invest in cost-effective education and rehabilitation to reduce the growing social and economic burden in long run.

6.2 Recommendation of the study

Our findings that chronic LBP is associated with ADL function is consistent with many studies, but further research is needed to more clearly identify the mechanism by which the factors contribute to the ADL limitation.

Furthermore research can be done to determine the activity limitation ratio among patients and to find the quality of life in broad spectrum.

Future Study can be done with the inclusion of equal distribution of participants based on their occupation to make a comparison study which may help to find out the more risk groups.

As well as the acute and subacute cases can be recruited along with chronic cases of LBP to identify and compare the functional level between subgroups.

Many literatures used in this study have done longitudinal studies, so the longitudinal study can be done to see the causes for decrement in functional capacity among LBP patients in order to develop a functional profile and design appropriate treatment program to modify the causes.

Also if this study use either qualitative or mixed method then the in-depth interview can be done to identify actual causal factor.

Further research can be targeted to see the social and economic impact of LBP on individuals and the health care setting.

For the rehabilitation professionals, especially physiotherapist who are directly engaged in providing therapeutic intervention to LBP patients must consider bio-psychosocial factors along with physical complaint of the patient that are taking part in transition of acute LBP to chronic stage, and need to consider functional level as well as psychological state hindering the capacity to carry out activities.

The professionals also need to provide an educational session along with awareness programme regarding the proper posture to be maintained during any activities and must provide counselling to every patients encountered to them to reduce fear and to remain active rather than dependent and passive due to pain.

CHAPTER VII REFERENCES

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CHAPTER VIII APPENDIXES

Appendix I

Information Sheet

I am **Bijay Laxmi Gopali,** student of M Sc. in Rehabilitation Science under Dhaka University, BHPI, CRP, Savar, Bangladesh. Towards fulfilment of the course module it is obligatory to conduct a research study. In this regard, I would like to invite you to take part in the research study, titled **"IMPACT OF CHRONIC LOW BACK PAIN ON ACTIVITIES OF DAILY LIVING AMONG PATIENTS WITH LOW BACK PAIN ATTENDED AT THE MUSCULOSKELETAL DEPARTMENT, CRP, SAVAR, DHAKA, BANGLADESH".** The aim of the study is to identify the impact of the chronic low back pain on activities of daily living and to describe the associations between outcome measures with different variables.

Your participation in this study is voluntary. If you do not agree to participate at all, you can withdraw your support to the study anytime whenever you want, despite consenting to take part earlier. There will be no change in this regard to participate or not to participate in this study. Your answer will be recorded in this questionnaire which will take approximately 10-15minutes and will be kept highly confidential and private.

You will not be paid for your participation. Participation in this study might not benefit you directly. This study will not the cause any risk or harm to you. Confidentiality of all documents will be highly maintained. Collected data will never be used in such a way that you could be identified in any presentation or publication without your permission. If you have any question now or later regarding the study, please feel free to ask the person stated below.

Bijay Laxmi Gopali

M Sc. in Rehabilitation Science

BHPI, CRP-Chapain, Savar, Dhaka-1343

Cell Phone: 088-01306545215

Appendix II: Consent Form

I have read or have been explained to me the information sheet and I am informed about the topic of the research. I have got opportunity to ask any query and discuss about the study with the data collector, I rendered satisfactory answer. I have been informed about the risk and benefit of the research. I have understood that I am free to withdraw from the study at any time, without having any reason and without affecting present and future medical care. I am informed that all my answer will remain highly confidential.

I agree to take part in this study.

Participant's signature……. Date: ……..

Finger Prints_____

Data collector's signature……. Date: ……..

Appendix III

Questionnaire (প্রশ্নপত্র)

Title (গবেষণার শিরোনাম): Impact of chronic low back pain on Activities of Daily Living among low back pain patients attended at the musculoskeletal department, CRP-Savar, Dhaka (সিআরপি সাভারের মাসকুলেসস্কেটল বিভাগে আগত কোমর ব্যথার রোগীদের দৈনন্দিন জীবনে ব্যথার প্রভাব).

Investigator (তদন্তকারী): ……..

Code No. (কোড নাম্বার): …….

আসসালামুআলাইকুম! আমার নাম **বিজয় লাম্রমি গোপালি**। আমি ঢাকা বিশ্ববিদ্যালয়ের অন্তর্ভূক্ত বিএইচপিআই এর একজন ছাত্রী। আমার কোর্সের এ গবেষণার অংশ হিসেবে পত্রটি "সিআরপি মাসকুলেসস্কেটল বিভাগে আগত কোমড় ব্যথার রোগীদের দৈনন্দিন জীবনে ব্যথার প্রভাবএর উপর একটি জরিপ কার্য পরিচালনা করছি। এই গবেষনাটি মূলত কোমড় ব্যথা রোগীদের দৈনন্দিন কর্ম জীবনে কিরুপ প্রভাব ফেলে তা খুজে বের করা। কাজেই আমি এ ব্যাপারে কিছু প্রশ্ন করব। আপনার সাহায্য প্রশংসনীয় এবং আমি আপনাকে অনুরোধ করছি আমাকে সঠিক তথ্য দেয়ার জন্য। এই সাক্ষাৎকার নিতে ২০-৩০ মিনিট সময় লাগবে। আপনি এখান থেকে নিজেকে সরিয়ে নিতে পারেন অথবা উত্তর নাও দিতে পারেন। আপনার দেয়া সমস্ত তথ্য অত্যন্ত গোপনীয় থাকবে এবং এই গবেষণার কাজে ব্যবহৃত হবে। আপনি কি সাক্ষাতকার দিতে চান?

Participant Signature (অংশগ্রহনকারীর স্বাক্ষর): ……

Date of interview (সাক্ষাৎকারের তারিখ): ……

Part 1: <u>Personal Details (ব্যক্তিগত বিবরন)</u>

Name of participant (অংশগ্রহনকারীর নাম): ……..

Identification Number (সনাক্তকারীর নাম্বার): ……....

Present Address (বর্তমান ঠিকানা): …….....

Permanent Address (স্থায়ী ঠিকানা): …….

Contact Number (মোবাইল নাম্বার): ……..

Please write or put tick marks at left of the appropriate answer

(দয়াকরে আপনি সঠিক উত্তরে টিক চিহ্ন দিন)

Code No. (কোড নাম্বার): ……

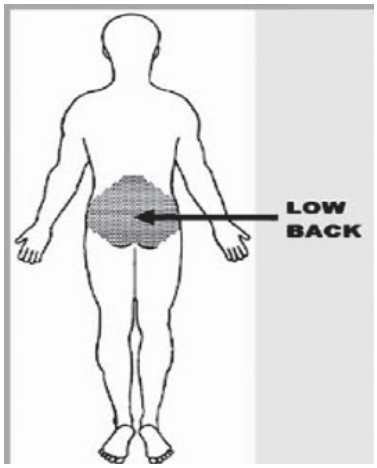
Part 2: Socio-demographic Information (আর্থ-জনতাত্ত্বিক তথ্য)

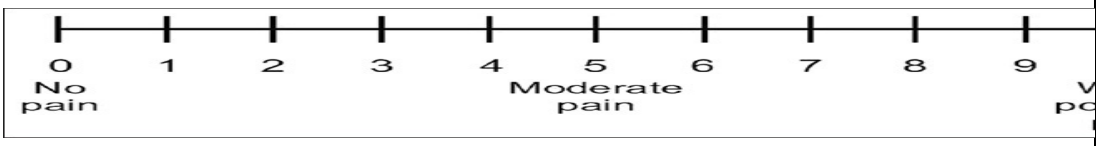
2.1 Age (বয়স)	…….years (বছর)
2.2 Sex (লিঙ্গ)	1. Male (পুরুষ) 2. Female (মহিলা)
2.3 Height (উচ্চতা) (cm)	…….
2.4 Weight (ওজন) (kg)	…….
2.5 BMI (kg/m^2)	…….
2.6 Marital status (বৈবাহিক অবস্থা)	1. Unmarried (অবিবাহিত) 2. Married (বিবাহিত) 3. Widow (বিধবা) 4. Divorcee (তালাকপ্রাপ্ত)
2.7 Educational status (শিক্ষাগত যোগ্যতা)	1. Illiterate (নিরক্ষর) 2. Primary (প্রাথমিক) 3. Secondary (মাধ্যমিক) 4. Higher Secondary (উচ্চ মাধ্যমিক) 5. Graduation (স্নাতক) 6. Post-graduation and above (স্নাতকোত্তর এবং এর উপরে)
2.8 Religion (ধর্ম)	1. Islam (ইসলাম) 2. Hindu (হিন্দু) 3. Christian (খ্রীষ্টান) 4. Buddhist)

	5. Others (অন্যান্য)
2.9 Place of residence (বসবাসের স্থান)	1. Rural (গ্রাম) 2. Urban (শহর) 3. Semi-urban (মফস্বল শহর)
2.10 Family size and number (পরিবারের ধরন)	1. Nuclear family (একক পরিবার) (…..) 2. Joint family (যৌথ পরিবার) (…..)
2.11 Living situation (বসবাসের অবস্থা)	1. With family (পরিবারের সাথে) 2. Alone (একা)
2.12 Occupation (পেশা)	1. Student (ছাত্র) 2. Office worker (চাকুরী জীবি) 3. Teacher (শিক্ষক) 4. Housewife (গৃহিনী) 5. Daily laborer (দিন মজুর) 6. Farmer (কৃষক) 7. Bussiness (ব্যবসায়ী) 8. Other (Specify) (অন্যান্য উল্লেখ করুন) ……..... 9. Not working (বেকার)
2.13 Total monthly income (মোট মাসিক আয়)	……Taka (টাকা)
2.14 Number of income generating member (উপার্জনক্ষম ব্যক্তির সংখ্যা)	……..
2.15 Source of income (আয়ের উৎস)	1. Ownself (নিজে)

	2. Dependent on family memnbers (পরিবারের সদস্যদের উপর নির্ভরশীল)

Part 3: <u>Pain Factors (ব্যথা সম্পর্কিত বিষয়লী)</u>

3.1 Where is the pain located? (আপনি ব্যাথ্যা কোথায় অনুভব করেন?) 	1. Localized to back (কোমরের আশে পাশে) 2. Radiating to buttock or leg (কোমর থেকে পায়ের দিকে ছড়িয়ে যায়)
3.2 How did the pain started? (কিভাবে ব্যাথা শূরু হয়েছিল?)	1. Sudden (হঠাৎ) 2. Gradual (ধীরে ধীরে)
3.3 How long has low back pain been an ongoing problem for you? (কতদিন যাবৎ আপনি এ ব্যাথায় ভূগছেন?)	.....months / years (মাস / বছর)
3.4 What is the pattern of pain? (ব্যথার ধরন কি রকম?)	1. Continuous (সবসময়) 2. Intermittent (মাঝে মাঝে) 3. Occasional (কখনও কখনও)

3.5 How much pain have you had during the past months/year? (গত মাস/ বছরে আপনার ব্যাথা কেমন ছিল?)	1. None (ছিল না) 2. Very mild (খুবই কম) 3. Mild (কম) 4. Moderate (মোটামুটি) 5. Severe (বেসি) 6. Very severe (অনেক বেশী)
3.6 How would you rate your back pain on average at present? (আজ আপনার ব্যাথাটি কত মাত্রায় আছে?) **ব্যাথা নেই** **মোটামুটি ব্যাথা** **অনেক ব্যথা** 	
3.7 Did the pain interfere with your day to day activities? (আপনার দৈনন্দিন কাজে ব্যাথা কিরুপ প্রভাব ফেলেছে?) If yes, since how long? (যদি হ্যাঁ হয়,ব্যাথার কারনে কতদিন ধরে আপনার দৈনন্দিন কাজের বেগাত হসসে?)	Yes (হ্যাঁ) / No (না) …… weeks / months/ years (সপ্তাহে / মাস / বছর)

Part 4: <u>Low Back Specific Version of SF-36 Physical Functioning</u>

The following questions are about activities you might do during a typical day. Does <u>your back problem now limit you</u> in these activities? If so, how much? (নিম্নে বর্ণিত প্রশ্নসমূহ আপনার দৈনন্দিন কার্যকলাপ সম্পর্কিত। আপনার কোমর ব্যথা এ সকল কাজকর্মের উপর কোন প্রভাব ফেলেছে কি? যদি থাকে তাহলে কতট)

Section 4.1: **Circle one number on each answer (প্রতিটি উত্তরের একটি সংখ্যা গোল করুন)**

2 = No, not limited at all (না একেবারেই অন্তরায় নয়), 1 = Yes, limited a little (হ্যা অল্প অন্তরায় হয়ে দাড়িয়েছে), 0 = Yes, limited a lot (হ্যা অনেকখানি অন্তরায় হয়ে দাড়িয়েছে)			
4.1.1 Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports (অতিমা্ত্রার পরিশ্রম সাধ্য কাজ যেমন দৌড়, ভারি ওজন উঠানো, শ্রমসাধ্য খেলাধুলা)	2	1	0
4.1.2 Moderate activities, such as moving a table, pushing a vacuum cleaner (অপেক্ষাকৃত কম পরিশ্রম যেমন একটা টেবিল সরানো, ঘর ঝাড়ু দেওয়া)	2	1	0
4.1.3 Lifting or carrying groceries (চাল ডাল ইত্যাদি শুকনো বাজার বহন করা বা উপরে তোলা)	2	1	0
4.1.4 Climbing several flights of stairs (কয়েকতলা সিঁড়ি বেয়ে ওঠা)	2	1	0
4.1.5 Climbing one flight of stairs (একতলা সিঁড়ি বেয়ে ওঠা)	2	1	0
4.1.6 Bending, Kneeling, or Stooping (বাকা হওয়া, হাঁটু গেড়ে বসা বা সামনে ঝুঁকে নীচু হওয়া)	2	1	0
4.1.7 Walking more than one kilometer (কয়েক কিলোমিটার হাঁটা)	2	1	0
4.1.8 Walking half a kilometer (কয়েকশ মিটার হাঁটা)	2	1	0
4.1.9 Walking 100 meters (একশ মিটার হাঁটা)	2	1	0
4.1.10 Bathing or dressing yourself (নিজে গোসল করা বা জামা কাপড় পরিধান করা)	2	1	0

Section 4.2: Choose one box in each section for the statement that best applies to you (প্রতিটা প্রশ্নের উত্তরের জন্য প্রতিটা বিভাগ থেকে একটা করে উত্তর নির্বাচন করুন যা আমার জন্য সর্বোচ্চ প্রযোজ্য)

4.2.1 Pain Intensity (ব্যথার তীব্রতা)

5❒ I have no pain at the moment (আমার এই মুহূর্তে কোন ব্যথা নেই)

4❒ The pain is very mild at the moment (আমার এই মুহূর্তে ব্যথা হালকা)

3❒ The pain is moderate at the moment (এই মুহূর্তে ব্যথা সহনীয় আছে)

2❒ The pain is fairly severe at the moment (এই মুহূর্তে ব্যথা মাঝামাঝি)

1❒ The pain is very severe at the moment (এই মুহূর্তে ব্যথা খুবতীব্র)

0❒ The pain is the worst imaginable at the moment (এই মুহূর্তে ব্যথা সবচেয়ে খারাপ আমি)

4.2.2 Standing (দাড়াঁনো)

5❒ I can stand as long as I want without extra pain (আমি ব্যথা ছাড়া যতক্ষন ইচ্ছা দাড়িয়ে থাকতে পারি)

4❒ I can stand as long as I want but it gives me extra pain (আমি যতক্ষন ইচ্ছা দাড়িয়ে থাকতে পারি, কিন্তু এটা আমারে কিছুটা ব্যথার সৃষ্টি করে)

3❒ Pain prevents me from standing for more than 1 hour (ব্যথার কারণে এক ঘন্টার অধিক সময় দাঁড়িয়ে থাকতে পারি না)

2❒ Pain prevents me from standing for more than 30 minutes (ব্যথার কারণে আধ ঘন্টার অধিক সময় দাঁড়িয়ে থাকা যায় না)

1❒ Pain prevents me from standing for more than 10 minutes (আমি ব্যথার কারণে ১০ মিনিটের অধিক সময় দাঁড়িয়ে থাকতে পারি না)

0❒ Pain prevents me from standing at all (ব্যথার কারণে আমি একেবারেই দাঁড়িয়ে থাকতে পারিনা)

4.2.3 Sleeping (ঘুমানো)

5❒ My sleep is never disturbed by pain (ব্যথার কারনে আমার ঘুমের কোন সমস্যা হয় না)

4❒ My sleep is occasionally disturbed by pain (ব্যথার কারনে মাঝে মাঝে আমার ঘুমের সমস্যা হয়)

3❒ Because of pain I have less than 6 hours sleep (ব্যথার কারণে আমার ছয় ঘন্টার কম ঘুম হয়)

2❒ Because of pain I have less than 4 hours sleep (ব্যথার কারণে আমার চার ঘন্টার কম ঘুম হয়)

1❒ Because of pain I have less than 2 hours of sleep (ব্যথার কারণে আমার দুই ঘন্টার কম ঘুম হয়)

0❒ Pain prevents me from sleeping at all (ব্যথার কারণে আমি একদম ঘুমাতে পারি না)

4.2.4 Traveling (ভ্রমণ)

5❒ I can travel anywhere without pain (আমি ব্যথা ছাড়া যে কোন জায়গায় ভ্রমণ করতে পারি)

4❒ I can travel anywhere but it gives me extra pain (আমি কোথাও ভ্রমণ করতে পারি, কিন্তু এটা অতিরিক্ত ব্যথার সৃষ্টি করে)

3❒ Pain is bad but I manage journeys over two hours (আমি অতিরিক্ত ব্যথা নিয়ে দুই ঘন্টার বেশি ভ্রমণ করতে পারি)

2❒ Pain restricts me to journeys of less than one hour (ব্যথার কারণে আমার যাতায়াত সীমিত এবং তা এক ঘণ্টার কম)

1❒ Pain restricts me to short necessary journeys under 30 minutes (ব্যথার কারণে আমার যাতায়াত সীমিত এবং তা ৩০ মিনিটের কম)

0❒ Pain prevents me from travelling except to receive treatment (ব্যথার কারনে চিকিৎসা ব্যতিত কোন ধরনের ভ্রমন করতে পারি না)

Section 4.3: **Choose one response option for each activity (প্রতিটা প্রশ্নের উত্তরের জন্য একটা করে উত্তর নির্বাচন করুন)**

5 = Not difficult at all (একদম কঠিন নয়), 4 = Minimally difficult (খুবই সামান্য কঠিন), 3 = Somewhat difficult (কিছুটা কঠিন), 2 = Fairly difficult (মোটামুটি কঠিন), 1 = Very difficult (খুবই কঠিন), 0 = Unable to do (করতে পারি না)						
4.3.1 Turnover in bed (বিছানায় পাশ ফিরা)	5	4	3	2	1	0
4.3.2 Ride in a car (যানবাহনে চড়া)	5	4	3	2	1	0
4.3.3 Sit in a chair for several hours (দীর্ঘ সময় চেয়ারে বসে থাকা)	5	4	3	2	1	0
4.3.4 Lift and carry a heavy suitcase (ভারি সুটকেস জাগানো ও বহন করা)	5	4	3	2	1	0

Part 5: Fear Avoidance Belief Questionnaire (FABQ) (ভয় পরিহারের বিশ্বাস সম্পর্কিত প্রশ্ন)

FABQ-physical work - physical activities such as bending, lifting, walking or driving etc. can affect or would affect your back pain (শারিরিক কার্যক্রম যেমন হাটা বা ঝুকে পড়া, উচু হওয়া, ভ্রমণ করা, ইত্যদি আপনার কোমরের ব্যথাকে বাড়িয়ে দেয়)

0 = completely disagree (সম্পূর্নরুপে অসম্মত), 1 = disagree (অসম্মত), 2 = slightly disagree (সামান্য অসম্মত) 3 = unsure (অনিশ্চিত), 4 = slightly agree (কিছুটা একমত), 5 = agree (একমত), 6 = completely agree (সম্পূর্ন একমত)							
5.1 My pain was caused by physical activity (শারিরিক কাজ দ্বারা আমার ব্যথা হয়)	0	1	2	3	4	5	6
5.2 Physical activity makes my pain worse (শারিরিক কার্যকলাপ আমার ব্যথাকে আরও তীব্র করে)	0	1	2	3	4	5	6
5.3 Physical activity might harm my back (শারিরিক কার্যকলাপ আমার কোমরের ক্ষতি করতে পারে)	0	1	2	3	4	5	6
5.4 I should not do physical activities which (might) make my pain worse (আমার শারিরিক এমন কোন কাজ করা উচিৎ নয় যা আমার ব্যথাকে আরও তীব্র করে)	0	1	2	3	4	5	6
5.5 I cannot do physical activities which (might) make my pain worse (আমি এমন শারিরিক কার্যকলাপ করতে পারি না যার কারনে আমার ব্যথা আরও বেড়ে যায়)	0	1	2	3	4	5	6

Appendix IV

Approval of Thesis Proposal by Ethics Committee of BHPI

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

Ref. CRP-BHPI/IRB/09/18/1227

Date: 17/09/18

To,
Bijay Laxmi Gopali
M.Sc. in Rehabilitation Science (MRS)
Session: 2017-2018, Student ID 181170087
BHPI, CRP-Savar, Dhaka-1343, Bangladesh

Subject: Approval of thesis proposal "Impact of Chronic low back pain on Activities of Daily Living among low back pain patients attended at the musculoskeletal department, CRP, Savar, Dhaka, Bangladesh" by ethics committee.

Dear Bijay Laxmi Gopali,

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

S.N.	Name of Documents
1.	Thesis Proposal
2.	Questionnaire (English and Bangla version)
3.	Information sheet & consent form.

The purpose of the study is to determine the functional impact of chronic low back on daily activities among low back pain patients. Data collector will receive informed consents from all participants. Any data collected will be kept confidential. Participants will answer a questionnaire that takes 20-30 minutes and the study have 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 10.00 am on 22/04/2018 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and 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,
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

Appendix V

Application of permission from Musculoskeletal department

Date: 11/09/2018

To,

The Head of Physiotherapy Department

Centre for the Rehabilitation on Paralysed (CRP)

Savar, Dhaka-1343, Bangladesh

Subject: Application for permission to collect data in Musculoskeletal Unit

Respected Sir,

After per my thesis study, titled, **"Impact of Chronic low back pain on Activities of Daily Living among low back pain patients attended at the musculoskeletal department, CRP, Savar, Dhaka, Bangladesh"**, under the honorable supervisor, **Mohammad Anwar Hossain**, Associate professor and Head of department of CRP, Dhaka, Bangladesh. The purpose of the study is to determine the functional impact of chronic low back pain on daily activities among low back pain patients who attended at musculoskeletal department, CRP, Bangladesh.

The study involves use of a **VAS, Low Back-Specific Version of the Short Form-36 Physical Functioning Scale and Fear-Avoidance Beliefs Questionnaire (FABQ-PA)** to measure pain intensity, to assess function in patients with low back pain and to assess the presence of fear related to physical activity that may take 20-30 minutes to fill in the questionnaire. There is no likelihood of any harm to the participants. This study may benefit the participants and other stakeholders to establish the profile on the functional level of the study population which can be a tool for future guidance to develop a precise health policies and clinical guidelines together with planning for further research and scientific investigations. Related information will be collected from the patient's guide books. Data collectors will receive informed consent from all participants. Any data collected will be kept confidential.

Sincerely,

Bijay Laxmi Gopali
Part-II MRS 4th Batch
Student of M.Sc. in Rehabilitation Science (MRS)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Approved
17/09/18
Mohammad Anwar Hossain
Associate Professor & Hea
Physiotherapy Dept., CR
CRP-Chapain, Savar, Dhaka-1

Recommendation from the Head of Physiotherapy Department:

17/09/18
Mohammad Anwar Hossain
Associate professor and Head of department of CRP, Dhaka, Bangladesh