PREVALENCE OF LOW BACK PAIN AMONG ADOLESCENT STUDENTS

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

PREVALENCE OF LOW BACK PAIN AMONG ADOLESCENT STUDENTS

Submitted by **Ayesha Akther Pinky**, for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B. Sc. PT)

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DECLERATION

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

Signature: _   **Date:** _ _ _ _ _ _ _ _ _ _ _ _

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Contents

Acknowledgement

Acronyms

BHPI	Bangladesh Heath Professions Institute
BMI	Body mass index
BMRC	Bangladesh Medical Research Council
CI	Confidence Interval
CRP	Center for the Rehabilitation of the Paralysed
IRB	Institutional review board
LBP	Low Back Pain
NMS	Numeric Measurement Scale
OR	Odds Ratio
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

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Abstract

Purpose: The purpose of this study is to identify the prevalence of low back pain (LBP) among the adolescent students.

Objectives: The objective of the study was to find out the percentage of LBP among the students and most affected age group of LBP, socio-demographic information, studying posture, weight of school backpack and how many participants received treatment option.

Methodology: Cross sectional study design was selected for this study. Total 100 samples were selected by convenience sampling from selected school at Savar, Dhaka. Data was collected by mixed type questions. Descriptive statistics were used for data analysis which focused on pie chart and bar chart. *Results*: The Prevalence of LBP was 78% (n=100) among the adolescent students. Most commonly affected age group were 17 years. Among 78 participants who had LBP, 60 (79%) were female where only 18(21%) were male and male were more affected than female. Among the participants 70.51% participants complain pain felt sometimes while carrying school backpack. Half of the students maintained sitting posture for study at home. The maximum weight of school bag was 5.71 kg and the minimum weight of school bag was 2.05 kg was found during interview and the average weight of the school bag was 4.05 kg during interview. Among the participants who had suffered from LBP, 20.51%(n=16) participants received treatment for LBP and only 6.25%(n=1) student had received physiotherapy treatment. And 56.25%(n=9) participants had felt better after receiving treatment.

*Conclusion***:** The findings of this study suggest that LBP is prevalent among the students at Savar schools in Dhaka, Bangladesh. It was associated with the age, gender, body mass index, studying posture and weight of school backpack.

Key words: Low back pain, Prevalence, Adolescence

CHAPTER-I	INTRODUCTION

1.1 Background

Low back pain (LBP) is a social and economic health problem that affects population of all ages globally. Studies have reported that approximately 12-80% of younger population, mainly students experience LBP (Jones et al., 2007; Korovesis et al., 2010; Pellise et al., 2009; Smith & Leggat, 2007).

The most recent global review of the prevalence of low back pain in the adult general population was published in 2000 and showed point prevalence of 12–33% and 1-year prevalence of 22–65% . Since then, 2 additional global reviews have been conducted, one of which focused on the elderly and the other on adolescents. A key finding from these reviews was the extent of methodologic variation between studies, especially regarding the case definition and prevalence period used, and the nature and extent of measures taken to minimize bias (Hoy et al., 2012).

Low back pain is the most common problem among adolescent students. Every developed nation gives first priority to the schools for their total national development. School is a prestigious institution in the society, which can be called a place shaping the future citizens that can contribute productively in the Nation's economy (Mesaria & Jaiswal, 2015). Studies have shown that adolescents with low back pain are also similarly affected when they reach adulthood, thus highlighting the importance of investigating causes of low back pain in school-age children. In Brazil, Low back pain was found in 31.6% of the subjects and was more prevalent in girls 41.9% than boys 21.4% (Lemos et al., 2013).

In Europe the validity rate was 79.8% and the valid response rate was 98.8% .The point prevalence was 10.2%, 52.3% male and 47.7% female and the lifetime prevalence was 28.8%, 48.5% male and 51.5% female. In the Netherlands as in other industrialized Western countries, back pain is one of the leading causes of inability to work and sick leave. Back pain already occurs in adolescence (Diepenmaat et al., 2006). An American study conducted on 1242 children aged 12–15 years revealed an LBP prevalence of 22% (Masiero et al., 2008).

In Southern Brazil low back pain was found in 31.6% of the adolescent students and was more prevalent in girls (41.9%) than boys (21.4%) (Lemos et al., 2013). The prevalence of LBP in teenagers is as high as in adults and when LBP starts in adolescence there is a fourfold increase in risk of developing CLBP in adulthood. The prevalence of LBP was 46.8 % (18.2 % chronic low back pain (CLBP) and 28.6 % acute low back pain (ALBP) (Filho et al., 2015).

Additionally, it is the single leading cause of disability worldwide. In Europe, the cumulative annual incidence of LBP symptoms in adolescents is 24%, with prevalence reaching more than half of these individuals (Silva et al., 2014). In the United States, acute low back pain is the fifth most common reason for physician visits and causes 40% of missed days off work (Manchikanti et al., 2008).

Low back pain is well documented to be an extremely common health problem ; however, its burden is often considered trivial. Low back pain is the leading cause of activity limitation and work absence throughout much of the world , and it causes an enormous economic burden on individuals, families, communities, industry and governments. Until 10 years ago, it was largely thought of as a problem confined to Western countries (Hoy et al., 2010).

Until recently, non-specific low back pain (NSLBP) in adolescents was considered a rare phenomenon unlike in adults. The last two decades has shown an increasing amount of research highlighting the prevalence in this age group. Recent studies estimate lifetime prevalence at 7%-80%, point prevalence at 10%-15%, and prevalence of recurrent NSLBP at 13%-36%.This could be attributed to entrenched beliefs that adolescent NSLBP is an inevitable experience of growing. In contrast, recent evidence highlight that 13%-36% of adolescents will suffer recurrent NSLBP with negative impact on health and function (Chiwaridzo & naidoo, 2014). Low back pain (LBP) have recently been identified as problems in many countries. As residents of the largest developing country, people in China also suffer from LBP. The occurrence of LBP places a heavy burden on both the individual and society in general. In addition, many studies have shown that the prevalence of LBP is high among adolescents. A survey in Finland showed that LBP occurred at least once a week in approximately 12% of 14- to 18-year-olds (Shan et al., 2013).

59% prevalence of low back pain, which is a rather large percentage. A prevalence of 68% was found in medical students in UAE University, Al Ain5 (Sirsat et al., 2014).

Carrying a heavy back pack should also be added to this list of risk factors since it has recently been found to contribute to adolescents' back pain (William, 2008).

Among adults, LBP is a common symptom, with 7% to 80% of the population experiencing at least one episode in their lifetime, and 80% to 85% of cases are considered as nonspecific LBP. In adolescents, the prevalence of LBP is quite similar with that observed in adults. Thus, the prevalence of LBP in children and adolescents remains high, varying between 30-70%, depending on the pain definition, population age, and type of research design of the study (Macedo et al., 2015).

1.2 Rationale

Back pain is a common problem and was recently thought to affect 17.3 million people in the UK. LBP in adolescents, as in adults, is a common condition: some have shown lifetime prevalence as high as 70–80% by 20 years of age. In addition, several studies have calculated new onset rates of around 20% over all –2 year period. Pain prevalence increases with age and is higher in girls than boys (Jones et al., 2007).

The literature has shown that, when considering the etiology of the nonspecific LBP, the possible risk factors include: age, female gender , race/ethnicity (Onofrio et al., 2010), accelerated growth in height and body mass index (BMI) (Shiri et al., 2010).

There are authors who also considered low parental educational status, which is an indicator of socio economic status of the family, as a factor that has been associated with LBP in adolescents (Silva et al., 2014). Another multiple causative factors are: Use of heavy backpacks and carrying these asymmetrically (Kellis & Emmanouilidou, 2010), sitting for long periods of time with poor posture (Womersley & May, 2006), watching television for long periods of time, performing different ADL with incorrect posture, use of anatomically incorrect furniture and psychological factors such as depression and anxiety are some of the risk factors for onset of back pain in students (Fonseca et al., 2016).

1.3 Research question

What is the prevalence of low back pain among adolescent students?

1.4 Objectives

1.4.1 General objective

To identify the prevalence of low back pain among adolescent students.

1.4.2 Specific Objectives

i.   To identify the Socio-demographic information among the students.
ii.   To identify studying posture among the students.
iii. To clarify the pattern of onset of pain.
iv.   To measure the severity of pain at Numeric scale.
v.   To find out male female ratio among the students.
vi.   To explore how many students stay away from study due to LBP.
vii. To identify the weight of the back pack in selective classes.
viii. To figure out how many students received any treatment for pain or discomfort.
ix.   To figure out how many students received physiotherapy treatment.

1.5 List of Variables

Conceptual Framework

Independent variables   Dependent variable

| Socio-demographic information | ⇒

| Studying posture | ⇒   ⇒ | Low back pain |

| Carrying school backpack | ⇒
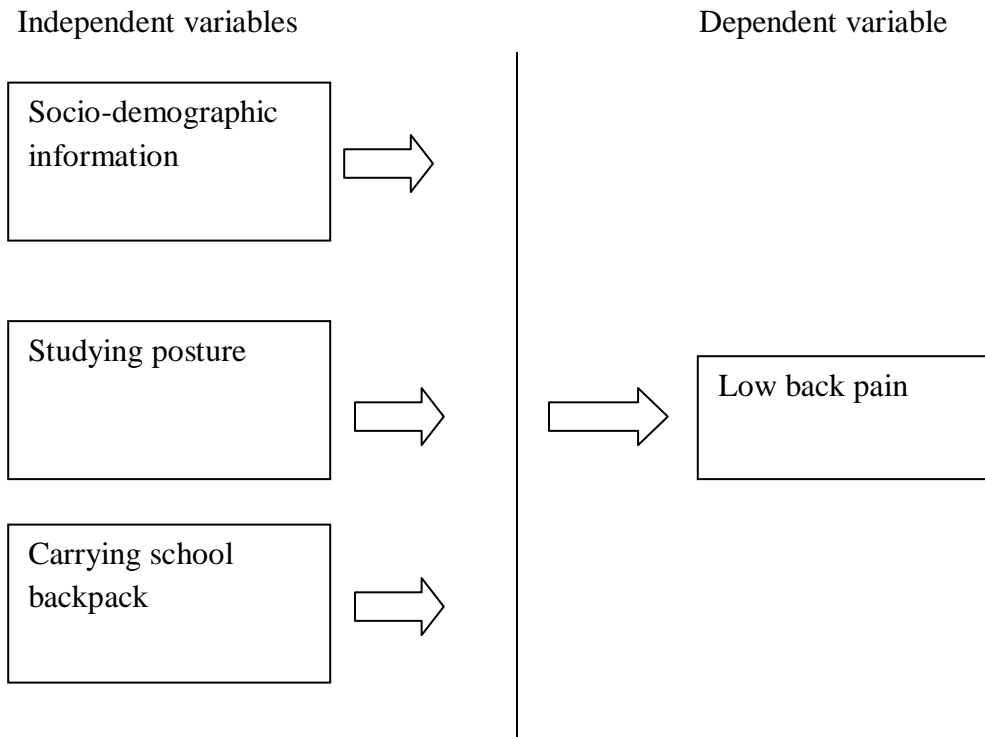
1.6 Operational Definition

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

Low back pain: Low back pain (LBP) or lumbago is characterized by pain or discomfort in the lumbar region, below the costal margin and above the gluteal fold that may or may not irradiate to the thigh.

Adolescent: Adolescence begins with the onset of physiologically normal puberty, and ends when an adult identity and behaviour are accepted. This period of development corresponds roughly to the period between the ages of 10 and 19 years, which is consistent with the World Health Organization's definition of adolescence.

Portable electronic scale: This scale is use measure the weight of school bag. From 10 to 50 kg weight of bag will be measure in this scale.

Numeric Rating Scale: The Numeric Rating Scale (NRS-11) is an 11–point scale for patient self-reporting of pain. It is for adults and children 10 years old or older.

0= No pain

1-3= Mild Pain

4-6= Moderate Pain

7-10= Severe Pain

CHAPTER-II	LITERATURE REVIEW

Low back pain (LBP) is pain or discomfort in the lumbo-sacral region of the back. It is referred to as Adolescent Low Back Pain when it occurs in individuals between the ages of 10 and 19 years. LBP has been described as a common phenomenon that affects public health and it is now being increasingly recognized that LBP in childhood and adolescence is becoming almost as common a complaint as that observed in adults (Adegoke et al., 2015). Pain in the low back, often referring into the hip, buttock or one leg. The cause may be muscle strains or trigger points, instability due to weak postural muscles, hypo mobile spinal facet joints, or degeneration or herniation of spinal disks (Quittan, 2009). Low back pain (LBP) is a common health condition, the prevalence of which increases with age. LBP in adolescence predicts continuing symptoms later in adulthood, and the pain experience most likely causes suffering to affected individuals already in adolescence (Aprile et al., 2016). Almost all symptomatic adolescents report difficulties in daily activities; one-fourth cannot attend school at some time point and describe a lower quality of life. Although work disability is uncommon at a young age, the economic costs of health care due to LBP in later life cause concern for society as a whole (Mikkonen et al., 2016). Adolescent low back pain (ALBP) is a common form of adolescent morbidity which remains poorly understood. Descriptions for ALBP used in the literature were categorized into three categories: general ALBP, chronic/recurrent ALBP, and severe/disabling ALBP. Whilst the comparison of period prevalence rates for each category suggest that the three represent different forms of ALBP, it remains unclear whether they represented different stages on a continuum, or represent separate entities (Milanese and Somers, 2010). Low back pain is defined as 'neither a disease nor a diagnostic entity of any sort'. The classification of back pain is based on either duration of persistence of symptoms; acute lower back pain (lasted less than 6 weeks), sub-acute lower back pain (lasted between 6 and 12 weeks) and chronic lower back pain (lasted more than 12 weeks) or on etiology; mechanical or non-specific lower back pain (no underlying pathology) and secondary lower back pain (associated with underlying pathology) (Sirsat et al., 2014). LBP is also classified according to etiology. Mechanical

or nonspecific LBP has no serious underlying pathology or nerve root compromise. A century of intense study has produced no clear understanding of commonplace back pain. Secondary LBP, occurring in fewer patients, is associated with underlying pathology. Metastatic cancer, spinal osteomyelitis, and epidural abscess account for back pain patients. The most common neurologic impairment associated with back pain is herniated disc, and 95% of disc herniation occurs at the lowest two lumbar intervertebral levels. Various superficial muscles present in the back which contribute to back pain include the trapezius muscle, latissimusdorsi, the rhomboid major and minor muscles and the muscle gluteus maximus. Among adolescents, back pain was a pressing issue since it seemed to be constantly on the rise. School age children are at a high risk for major back problems if they started with back problems early on (Sirsat et al., 2014). Back pain in adults receives considerable attention, but until recently, comparatively little has been done to understand its prevalence an characteristics in children. Back pain among children was historically considered an anomaly, until recent research has indicated otherwise. More recent studies have shown reports of back pain beginning in early childhood, and non-specific low back pain (LBP) reports are high. Among adults, reports of previous history of back pain is a strong predictor of future LBP. A large proportion of LBP sufferers report the first onset of back pain in their early teenage years or adult life. At least one previous study has focused on backpacks, and numerous studies focus on "the mismatch between school furniture and student body size" as potential contributions to muscuolo-skeletal discomfort (Waston et al., 2010). In other research reported that back pain has been studied, differences in experimental methods and definitions lead to different results . Nonspecific (common) low back pain (LBP) is defined as pain and discomfort, localized below the costal margin and above the inferior gluteal folds, with or without leg pain, not attributed to recognisable, known specific pathology. The diagnosis of nonspecific LBP in adolescence must rule out a number of organic causes, such as Scheuermann's disease, infections (discitis and osteomyelitis), tumours (leukaemia, sarcomas), spondylolysis, spondylolisthesis and the rheumatic pathologies. Epidemiological data accumulated during the past two decades suggest that most back pain in children is of nonspecific origin. According to the literature, the lifetime prevalence of nonspecific LBP in children and teenagers varies between 3% and 63% (Masiero et al., 2008). Non-specific low back

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pain (NSLBP) has been widely described as pain or discomfort that is localized below the costal margin and above the inferior gluteal folds, with or without leg pain, but not attributable to a known or specific pathology. Globally, it has been identified as an important public health problem among adults with an estimated lifetime prevalence of over 60% associated with adverse consequences. The first episodes of NSLBP could be experienced as early as nine years of age, and continue into adulthood (Parashar et al., 2008). However, the absolute lifetime prevalence estimates varied between studies. This applied even for studies sharing similar definition of lifetime prevalence and similar methodological design. Cross-sectionally, the lifetime prevalence has been reported to be 61% in Spain, 65% in Norway, 40% in the United Kingdom and 34.5% in the United States of America. In low-income countries, the lifetime prevalence has been similarly reported: 58% in South Africa, 57.8% in Kuwait and 25% in Nigeria. Lifetime prevalence has been described to indicate the proportion of people that experience an episode at one point in life. However, about 10%-15% of adolescents report NSLBP at a specific point in time (Chiwaridzo & Naidoo, 2014). Back pain in children and adolescents was considered unusual and often a harbinger of serious organic disease. Secondary schools of Barcelona, Spain, and Fribourg, Switzerland. the prevalence of back pain in adolescents varies from 30% to 70%. This high prevalence is a cause for concern, in particular because of the reported link between LBP in adolescence and chronic LBP in adulthood. A total of 1470 adolescents (52.6% male) with a mean (SD) age of 15.05 (1.17) years completed the questionnaires (response rate, 85.1%). Low back pain was reported by 587 adolescents (39.8%) (Pellise et al., 2009). In recent years, numerous studies have shown that the prevalence of NSP and LBP in adolescents is increasing; these prevalence rates are especially high in girls (Shan et al., 2013). Furthermore, the occurrence of NSP and LBP is related to many factors, including depression, physical activity, and lifestyle. Although China is an important region in Asia, there is a lack of data concerning the prevalence LBP in Chinese adolescents and their influencing factors (Shan et al., 2013). A previous history and earlier onset of low back pain are associated with chronic low back pain in adults, implying that prevention in adolescence may have a positive impact in adulthood. Health professionals and parents have highlighted the regular wearing of backpacks, for the purpose of carrying school materials and supplies,

as a potential risk factor for LBP in children and adolescents. Despite the absence of reference-values for the weight of school backpacks, the increased load is seen as an important factor favoring back pain, and most researchers and health practitioners agree with a limit for the weight of a backpack which should not exceed 10% of the student's body mass, and the weight should be equally distributed across both shoulders. Over 10% to 40% of adolescents have reported that their daily activities are being somewhat limited by LBP. Further research has revealed that LBP experienced in childhood is associated with chronic LBP in adulthood (Macedo et al., 2015). In the current study of 1126 U.S. adolescents, ages 12 to 18 years, the 1-month point prevalence of back pain was 74.4%. This extremely high rate may result from a bias in participation, whereby those with back pain were more likely to participate than those without back pain, possibly indicated by the low overall participation rate of 23.2%. The 1-month point prevalence of back pain (74.4%) in this study was similar to the lifetime prevalence of 74% reported for Swiss adolescents, but was much higher than the 2-week point prevalence of low back pain (15.2-44.3%) found for Australian adolescents or the 1-month point prevalence of back pain in both the lower and upper back and neck (45-49.7%) reported for Danish adolescents. The findings from this study indicate that adolescents with back pain are more likely to be female, have a higher body mass index, report poorer health, spend more time watching television, have a heavier backpack, and carry a backpack more frequently than adolescents without back pain (Sato et al., 2008). The term low back pain (LBP) was defined by Andersson as "pain limited to the region between the lower margins of the 12th rib and the gluteal folds". LBP is the most common type of back pain, occurring in about 60–80% of people at some point in their lives. LBP often begins in childhood, and in adolescents the prevalence is similar to that of adults. In recent years there has been a considerable increase in research studies that examine the prevalence of LBP in this population, but studies exhibit great variability in prevalence rates, with estimates ranging from 1.1% to 66%. This variability found in the prevalence estimates may be due to differences among the studies in such factors as the age of the sample, the sample size, the definition of LBP, the LBP recall period, the strategy for extracting data and the methodology used (Agarwal et al., 2013). In Brazilian public school, The prevalence of low back pain in the last year was 57% (n=195) among participants, with

no significant difference between the sexes (OR 1.13, 95% CI 0.93 to 1.37). Advancing age and body mass index were associated with the presence of low back pain in the bivariate analysis. The remaining seated at school in usual days was considered one of the main activities that trigger symptoms that lasted up to seven days for the majority (80%) of adolescents (Silva et al., 2014). According to the literature on the epidemiology of LBP in children and adolescents, the prevalence rates increase with the age of the subjects and females have higher prevalence rates than males. Epidemiological studies indicate that the point prevalence is less than the period prevalence and, in turn, this is less than the lifetime prevalence (Munoz et al., 2013). The occurrence of back pain and postural changes considerably limits the active life of workers, and is responsible for the premature disability of many adults from activities of daily living (ADL). Back pain and postural changes can also be considered socioeconomic and public health problems, because the costs of diagnosis and treatment are high and lead to losses due to missed work time and early retirement (Jones et al., 2007). In addition to being widely present in adults, back pain and postural changes manifest themselves in childhood and adolescence. One recent cross-sectional study pointed out that the occurrence of musculoskeletal pain in two or more anatomical areas is high among young students. A high prevalence of back pain was also found in one study with 887 adolescent students, which found that 66% of those evaluated experienced this type of pain. Furthermore, back pain was significantly higher in girls than in boys (De Luigi, 2014). Likewise, one cross-sectional study that applied a questionnaire to 400 athlet students aged 10 to 18 years in Kuwait found that the prevalence of pain in the lumbar spine increased with age (Shepard et al., 2013). At 10 years, 31% of those evaluated reported pain in the lumbar spine, compared to 74% at 18 years of age. The authors of this study believe that this gradual increase in the occurrence of pain may be due to the increase and accumulation of weight overload on the spine. Based on this assumption, it has been speculated that low back pain in childhood is a predictive factor of low back pain in later life (Fonseca et al., 2016). Recently, LBP among youth was considered common among adults. LBP during adolescence has been associated with persistent pain up to adulthood because LBP sufferers at the age of 14 are more likely to have pain later in life compared those without pain earlier. Jeffries et al. (2007) stated that Epidemiologic studies present a wide range

of rates among adolescents (12–74%), mainly due to the different methods of assessment and cut-off points (Onofrio et al., 2012). Back pain in young people may have multiple causative factors. Sitting for long periods of time with poor posture, use of anatomically incorrect furniture, watching television for long periods of time, performing different ADL with incorrect posture, sleeping less than seven hours a day, smoking, obesity, and psychological factors such as depression and anxiety are some of the risk factors for onset of back pain in students (Fonseca et al., 2016; Onofrio et al., 2012). Use of heavy backpacks and carrying these asymmetrically also a risk factors for onset of LBP in students (Kellis & Emmanouilidou, 2010). Low back pain (LBP) is a condition that affects 70–80% of adult population at least once in life, it usually is not presented as an isolated single event. Genetics and environment influence LBP and its consequences throughout adult life (Onofrio et al., 2012). The prevalence of back pain in adolescents increases with age, possibly in parallel with the progression of puberty, and is more common in girls than in boys (Jeffries et al., 2007). O'Sullivan et al. (2012) argued that a point prevalence of CLBP as 20 % in 17-year-old adolescents and the pain was associated with seeking professional help, using medication, school absenteeism, reduced activity levels and reduced health-related quality of life (Munoz et al., 2013). The same author also found a cluster of 17-year-old adolescents with high probability of associated spinal pain (low back pain) (Beales et al., 2012). Onofrio et al. (2011) reported a prevalence of acute low back pain (ALBP) as 13.7 % in 13–19-year-old adolescents in South Brazil. The characteristics of LBP differed significantly among the groups with LBP Secondary schools of Barcelona, Spain, and Fribourg, Switzerland. The percentage of adolescents who received treatment was higher in the LBP. Differences were statistically significant for pain killers (20.0% vs 5.8%; $P = .009$) but not for other treatments (32.7% vs 14.8%; $P > .001$). In adolescents reporting other treatments, the most frequently specified was massage (35.2%), followed by physiotherapy (31.5%) and osteopathy (4.6%) (Pellise et al., 2009).

CHAPTER-III	METHODOLOGY

3.1 Study design

The purpose of the study was to find out the prevalence of low back pain among the adolescent students. Cross sectional study design was selected for this study. This design involves identifying group of people and then collecting the information that researcher requires when they will be use the particular service (Hicks, 2000). Cross-sectional studies can be thought of as providing a "snapshot" of the frequency and characteristics of a disease in a population at a particular point in time. This type of data can be used to assess the prevalence of acute or chronic conditions in a population. Survey research is one of the most common forms of research that involves the researchers asking a large group of people questions about a particular topic or issue and these are related to the interest of the participant. Surveys are a research approach which involves collecting data from a large number of people , either by questionnaires or interview of the group can be obtained (Hicks, 2000).The idea with the survey the researcher usually approaches a sample of target group of interest, interviews them or ask them questionnaire. While this approach allows the researcher to select participants according to the clearly define criteria. The cross sectional study design is usually cheaper and quicker and confounding variables can be controlled for during data analysis.

3.2 Study site

As this was a survey on prevalence of Low Back Pain among the Adolescent students, so the study was conducted in some selected schools of Savar which are Radio colony model school and Chapain new model high school.

3.3 Population

In this study population were adolescent students within the selected schools at Savar.

3.4 Sample size

The expected sample size to conduct the research was 384. But the researcher could manage just 100 subjects because of having resource constrain.

Sampling procedure for cross sectional study done by following equation-

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

Here,

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

P=51% (Masiero et al., 2008)

=0.51

q= 1-p

=1-0.51

=0.49

d= 0.05

So the researcher aimed to focus his study by samples following the calculation above initially. The sample size was 384. But as the study was done as a part of fourth professional academic research project and there were some limitations. 100 samples will be collected according to the inclusion and exclusion criteria.

3.5 Inclusion criteria

- Both male and female was selected. (The body structures of male and femaleare not same, duration and posture of study varies from male to female, but they both arestudies in classroom and home. So both male and female were selected).
- Age group is from 14 years to 19years. (According to WHO age is ranging from 10-19 years. Below the age of 10 years are childhood and over 19 years are adulthood age).
- Students who are study at class 9 and class 10. (Because they can better understand about low back pain)
- Students who are willing to participate.

3.6 Exclusion criteria

- Students who are not willing to participate.
- Students who are studying below class 9 and above class 10.
- Subject who had kidney problem and accident were excluded because these are responsible for LBP.
- Mentally retarded person

3.7 Method of data collection

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

3.8 Questionnaire

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

Both male and female students carried own school bag. Some of the students were suffering from low back pain. They were studied at home and in the classroom with poor postural arrangements. So the questionnaire was developed based on the piloting study.

3.9 Materials and tools

The materials and tools for this study were consent form, questionnaire, portable electronics machine, weight measuring machine, pencil, rubber, pen, pages, calculator, computer and SPSS (Statistical Package for the Social Sciences) software-20 version to analyze data.

3.10 Analysis

After competition of data collection the data was entries into the SPSS software. Then data was analyses by descriptive statistics and the results were shows by bar, pie and table chart.

3.11 Ethical consideration

A research proposal was submitted to the Institutional Review Board (IRB) of Bangladesh Health Profession Institute (BHPI) and approval was taken from the board & after approved this study was conducted. WHO and BMRC guideline were also followed to conduct the study. The participant was ensuring that their comments would not affect their occupational role. When researcher had received an approval letter from the Institutional Review Board (IRB), then data collection was started.

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

3.12 Rigor

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

The aim of the research is to explore the prevalence of low back pain among the adolescent students. Data were numerically coded and captured in Microsoft Excel to show the result, using an SPSS 20.0 version software program for analyze the data as descriptive statistics. The investigator collected the descriptive data and calculated as descriptive statistics as percentages and presented by using both pie and bar charts.100 participants were chosen to estimate the prevalence of low back pain among the adolescent students.

4.1 Prevalence of back pain

Analysis found that the majority of the students 78%(n=100) had been suffered from LBP.
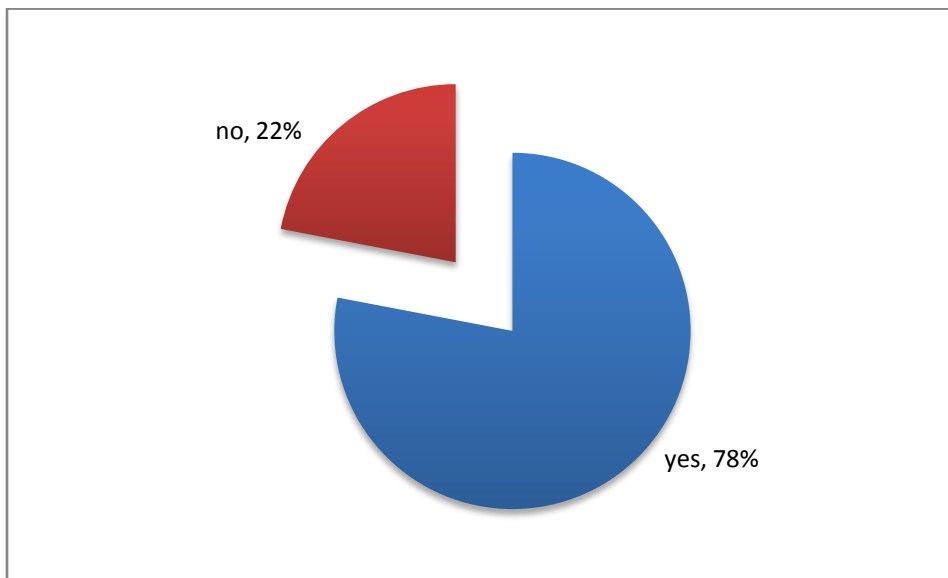
Fig- 1: Prevalence of Low Back Pain of the participants

4.2 Age

Analysis demonstrate that the minimum age were 14 years and the maximum age were 17 years and their mean age were 15.46 years. Among the participants who had suffered from low back pain the majority age was 17 years (85.71%;n=14) followed by 16 years (81.48%;n=27), 15 years (80.00%;n=50) and 14 years (44.44%;n=9).
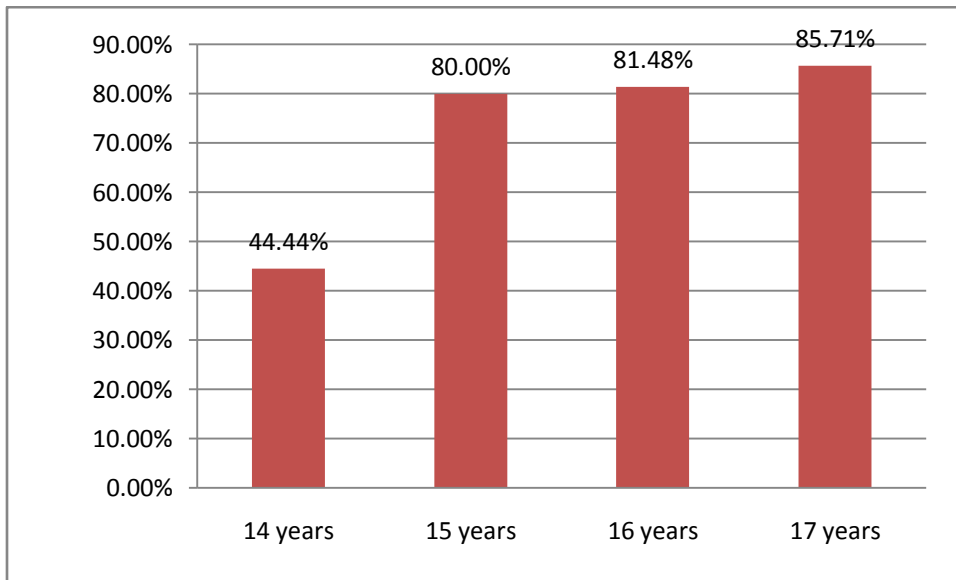
Fig- 2: Age of the participants

4.3 Sex

Most of the students were male 85.71%(n=21) than female 75.95%(n=79) among the participants who had suffered from LBP.
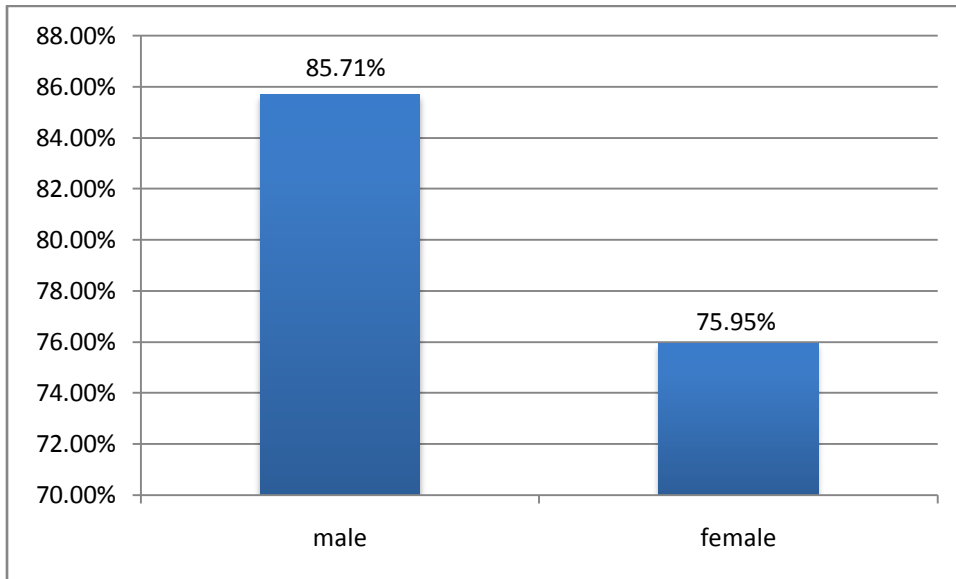
Fig- 3: Sex of the participants

4.4 Family type

By this study found that among the 100 participants 88% participants had nuclear family and 12% participants had extended family.
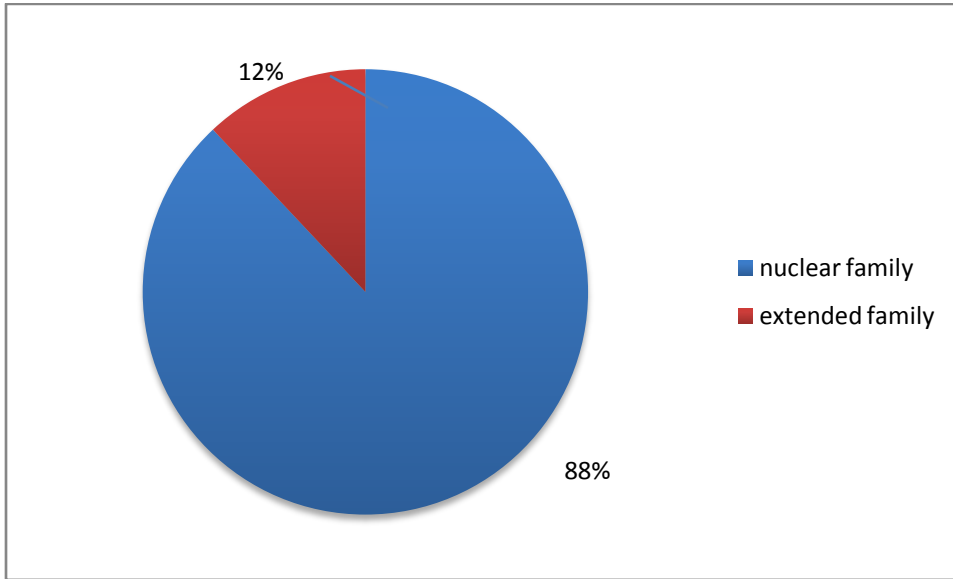
Fig- 4: Family type of the participants

4.5 Religion

The majority of the students 96% were Muslim and least of the students 4% were Hindu among the 100 students.
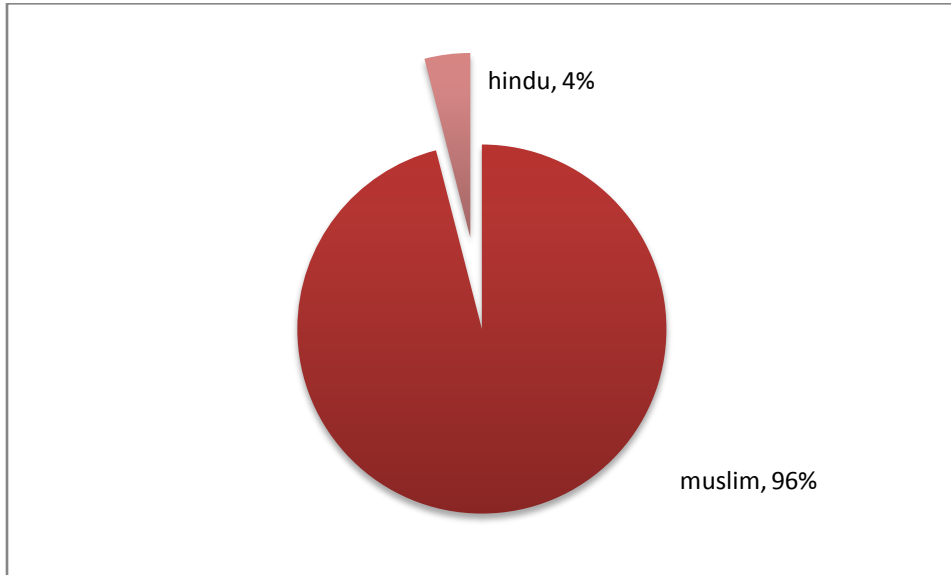
Fig -5: Religion of the participants

4.6 BMI

The figure showed that among the 100 participants who had suffered from LBP, the majority of LBP participants were overweight (88.89%;n=9) followed by participants were normal (83.33%;n=33) and participants were under weight (73.77%;n=61). None was obese participants. The mean of the BMI were 19.67 kg/m^2.The highest BMI were 27.98 kg/m^2 and the lowest BMI were 14.16 kg/m^2 seen in the adolescent students.
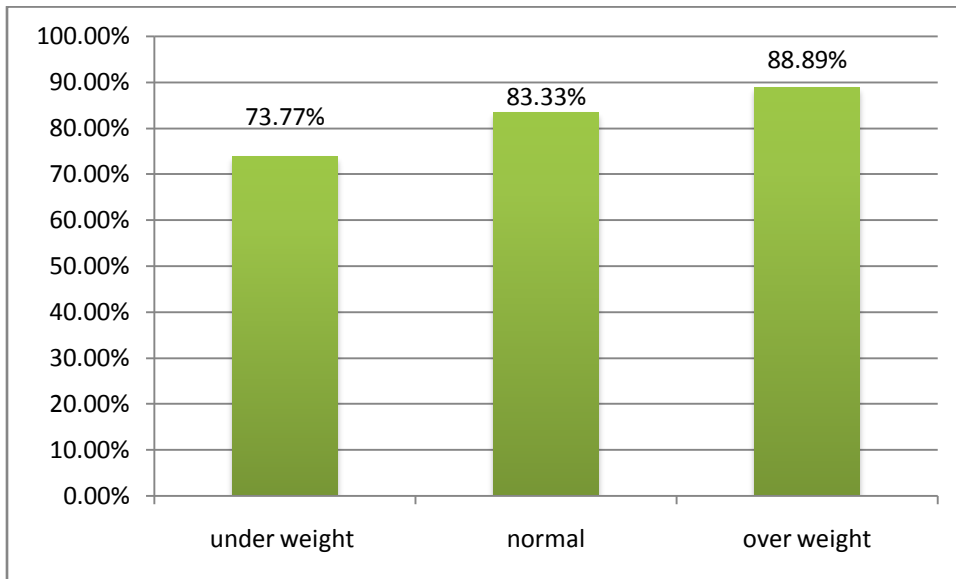
Fig- 6: BMI of the participants

4.7 Weight of school bag during interview

Among the 100 participants 78.38% (n=37) participants carried 2.001kg-3.00kg, 77.42% (n=31) participants carried 3.001kg-4.00kg, 80.77% (n=26) participants carried 4.001kg-5.00kg and 66.67% (n=6) participants carried 5.001kg-6.00kg weight of school backpack. And the mean of weight of school bag was 3.44 kg. The maximum weight of school bag was 5.71 kg and the minimum weight of school bag was 2.05 kg and mode of school bag was 4.05 kg.
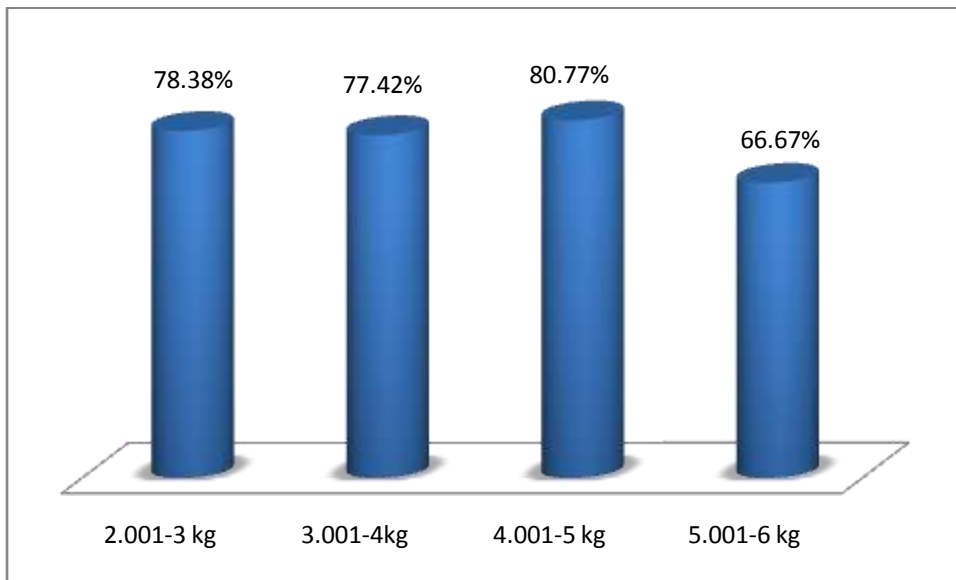
Fig-7: Weight of school backpack during interview of the participants

4.8 Pain feel while carrying school backpack

The result reveals that among the 100 students who had suffered from LBP most of the students (70.51%;n=78) pain felt sometime while carrying school backpack and never felt pain (16.67%;n=78) while carrying school backpack.
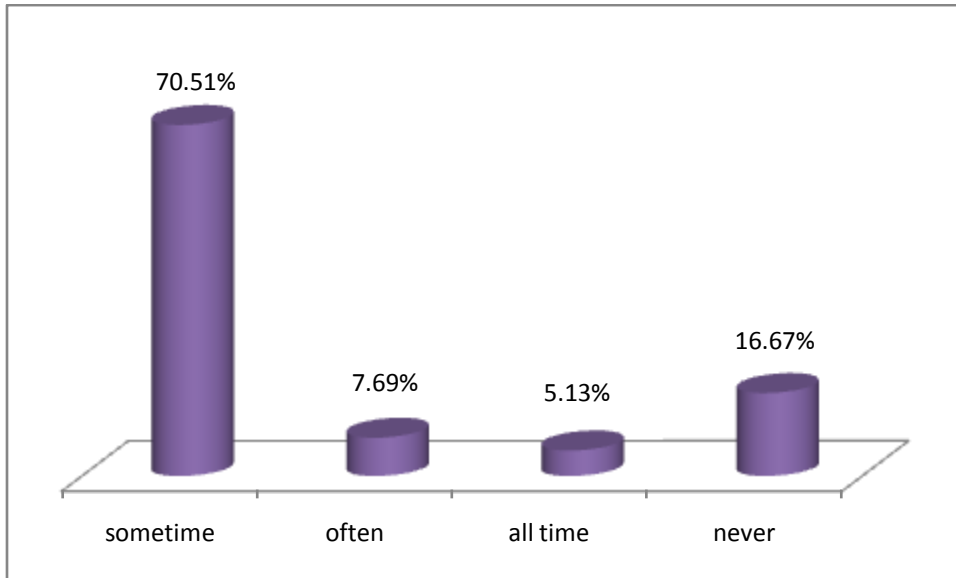
Fig -8: Pain feel while carrying school backpack of the participants

4.9 Studying posture at home

Outcome showed that among the 100 participants 50% participants maintained sitting posture, 11% maintained half lying sitting posture, 29% maintained slouch posture, 10% maintained other posture during study at home. Among the participants who had suffered from low back pain maintained slouch posture 82.76%(n=24) participants, half lying sitting posture maintained 81.82%(n=9) participants, maintained sitting posture 80.00%(n=40) participants and other posture maintained 50.00%(n=5) participants.
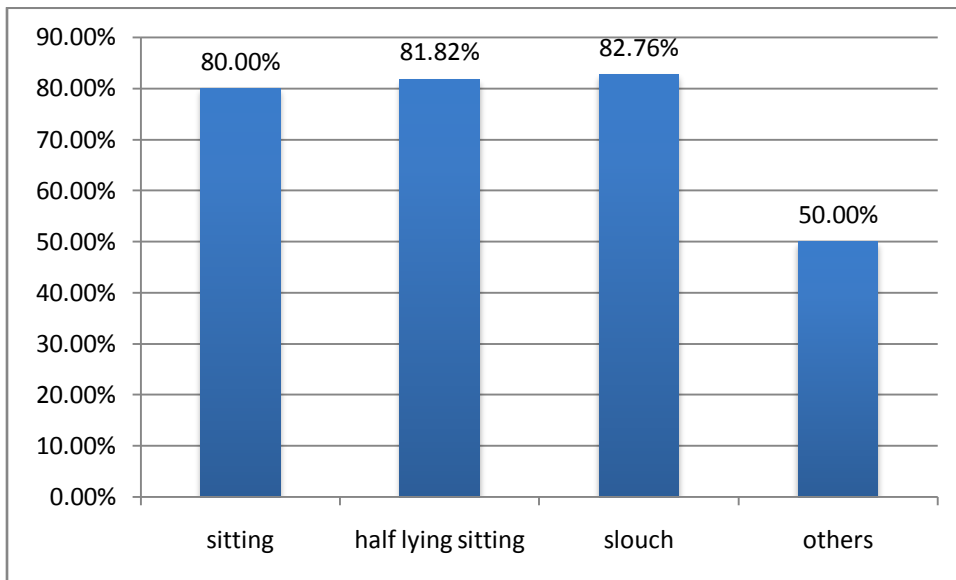
Fig- 9: Studying posture at home of the participants

4.10 Which posture makes pain worse

The figure showed that among 100 participants who had suffered from LBP maximum of the students had pain worse in sitting position 62.82%(n=49) participants followed by standing 8.97%(n=7) participants, bending 14.10%(n=11) participants, walking 10.26%(n=8) participants and lying posture 3.85%(n=3) participants had makes pain worse.
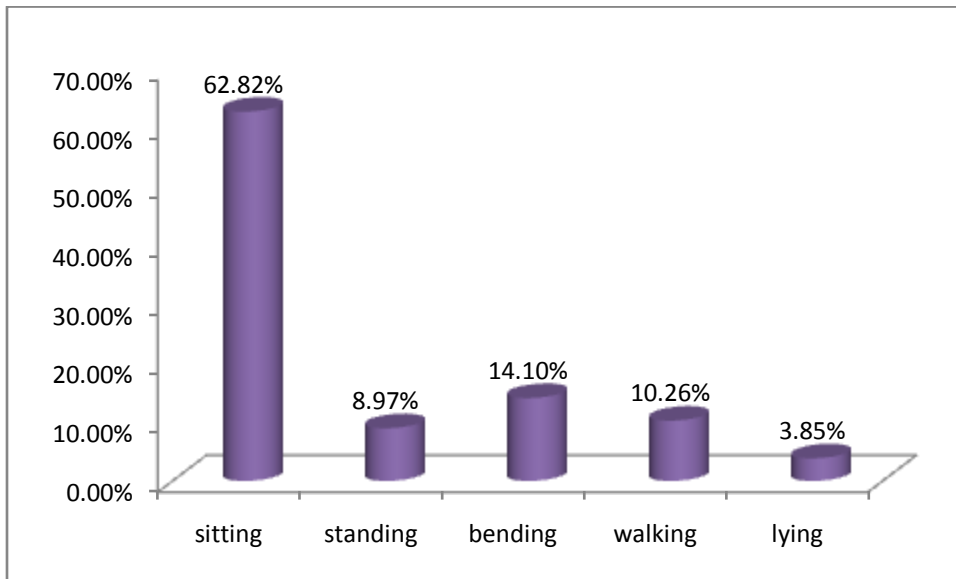
Fig -10: Which posture makes pain worse of the participants

4.11 Stay away from study

Analysis demonstrated that among 100 participants who had suffered from low back pain, 33.33%(n=78) participants were stay away from study.
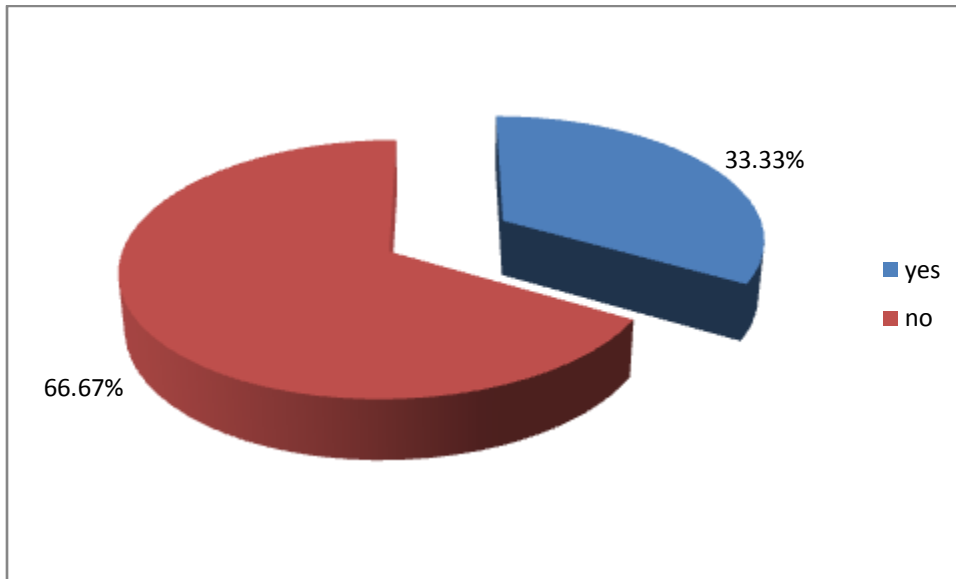
Fig-11: Stay away from study

4.12 Traumatic history in the back

Among the 100 participants who had suffered from LBP, most of the students 74.36%(n=58) had no traumatic history in the back. 19.23%(n=15) were fall on ground, 2.56%(n=2) were direct trauma, 1.28%(n=1) were stretch injury, 2.56%(n=2) were pulling heavy object were history in the back.
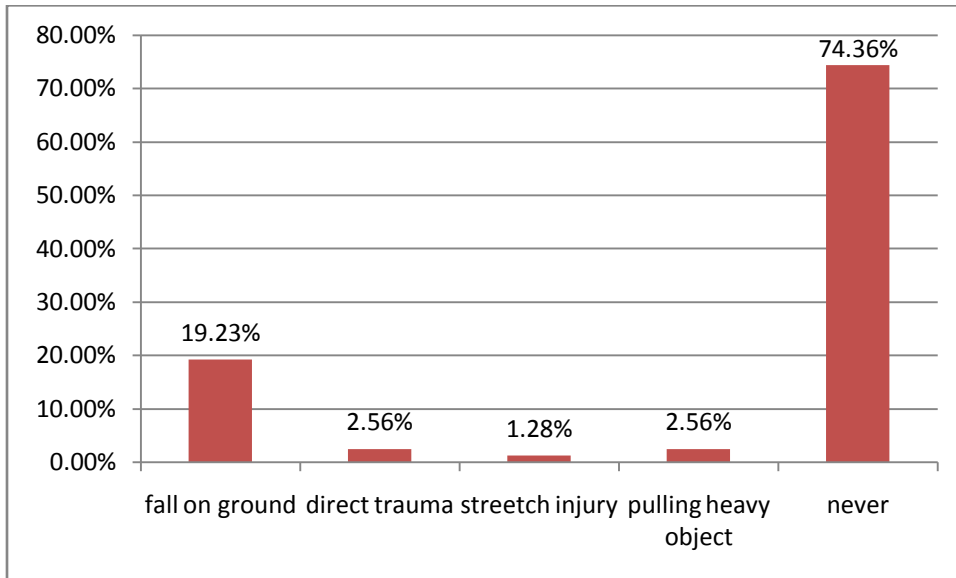
Fig -12: Traumatic history in the back of the participants

4.13 Which area pain felt most

The figure found that among the 100 participants, 51.28%(n=40) most of the students pain felt most the area of central back region followed by 33.33%(n=26) students pain felt both buttock, 7.69%(n=6) of students pain were radiate above knee and 7.69%(n=6) of the students pain were radiate below knee.
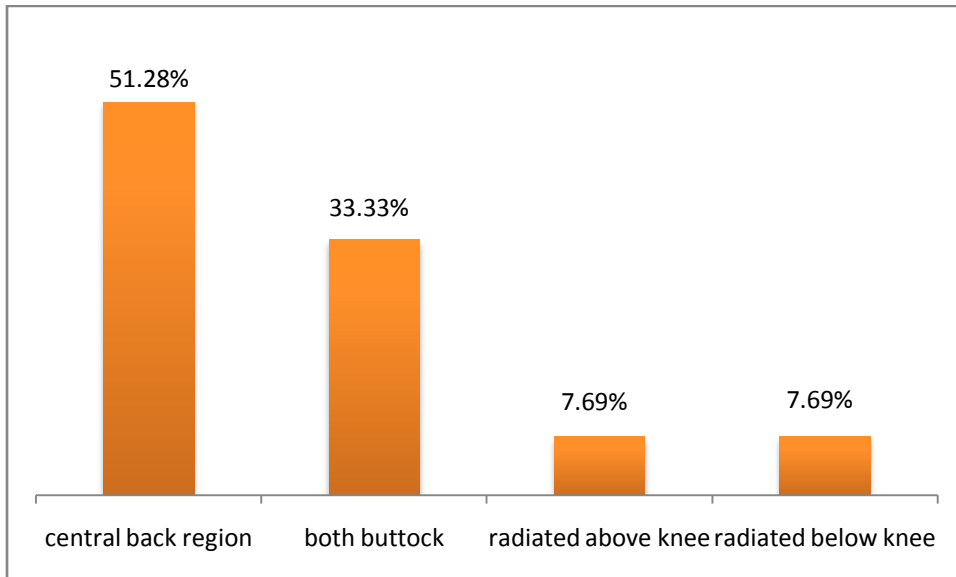
Fig -13: Which area pain felt most of the participants

4.14 Onset of pain

Analysis demonstrated that among 100 participants who had suffered from LBP 88.46%(n=69) participants had sudden onset of pain and 11.54%(n=9) participants had gradual onset of pain.
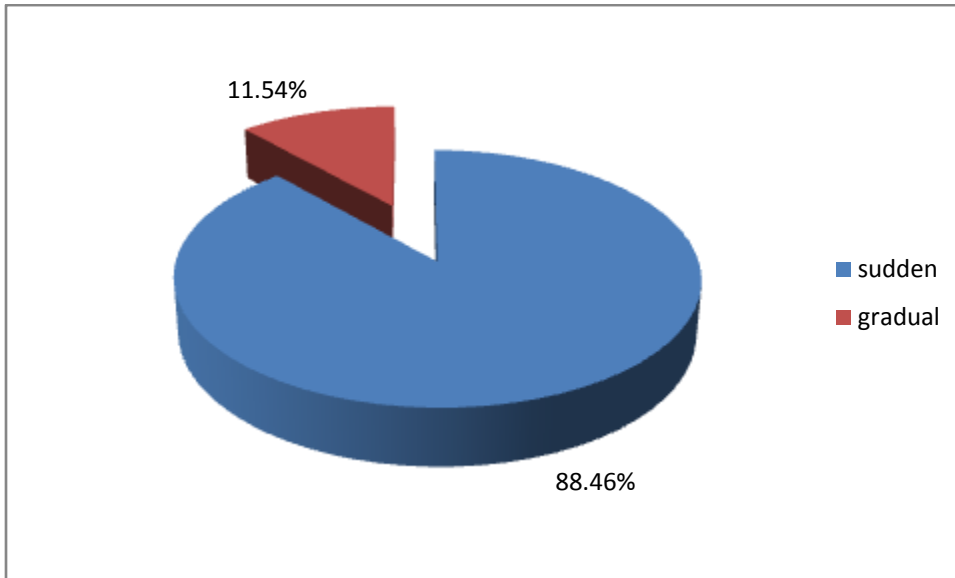
Fig- 14: Onset of pain of the participants

4.15 Severity of pain

Outcome revales that among the participants who had suffered from LBP maximum students (51.28%;n=40) suffered from mild pain and less students suffered from severe pain (6.41%;n=5) and 42.31%(n=33) students suffered from moderate pain.
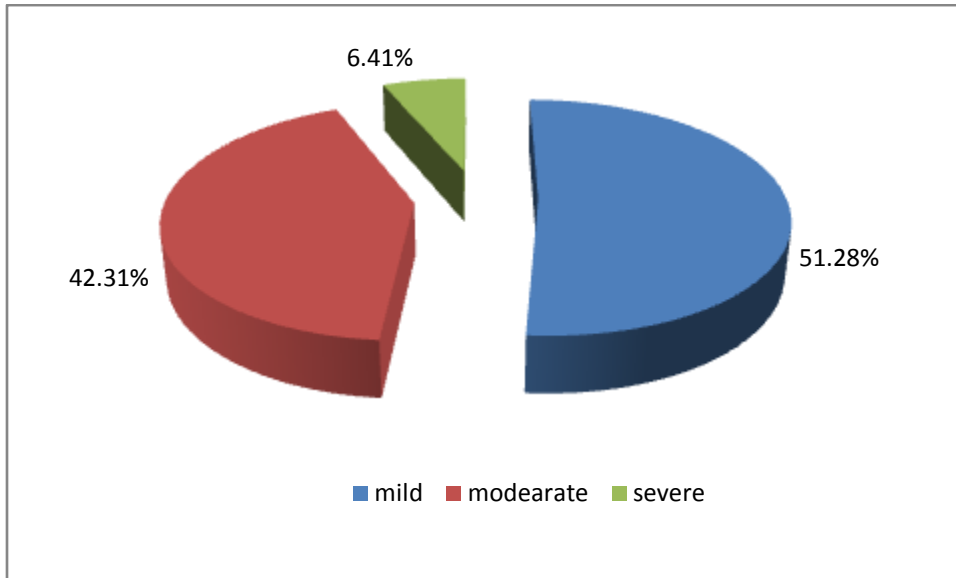
Fig- 15: Severity of pain of the participants

4.16 Receiving treatment

Study showed that among the participants who had suffered from LBP most of the students (79.49%;n=62) did not received any treatment for their condition. Only 20.51%(n=16) students were receive treatment for LBP.
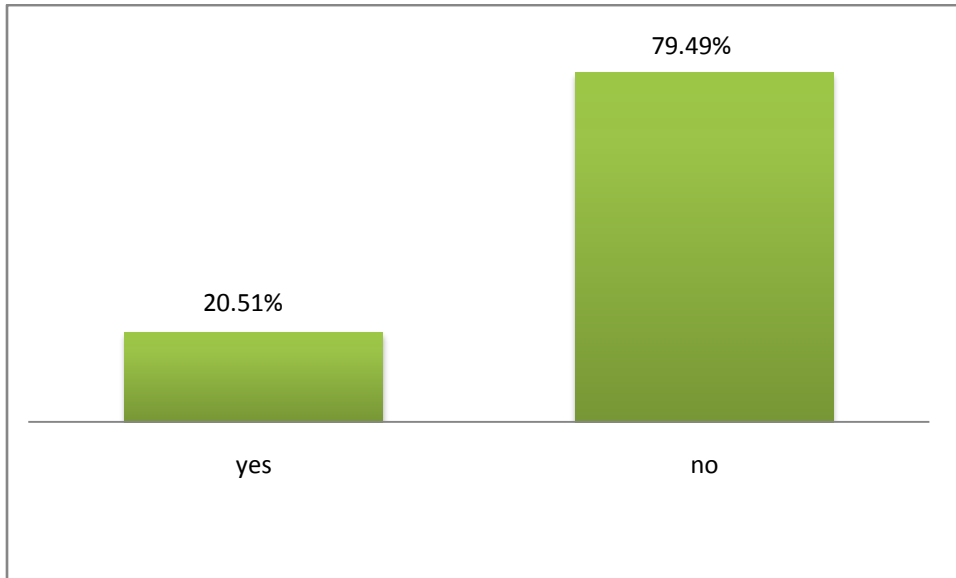
Fig- 16: Receiving treatment by the participants

4.17 Type of treatment

Among the 100 participants who had suffered from LBP only 20.51%(n=16) participants received treatment. This participants had taken medication 31.25%(n=16), 25%(n=16) participants had taken both massage and others treatment, 12.5%(n=16) participants had taken rest, moral less participants (6.25%;n=16) had taken physiotherapy treatment for Low back pain.
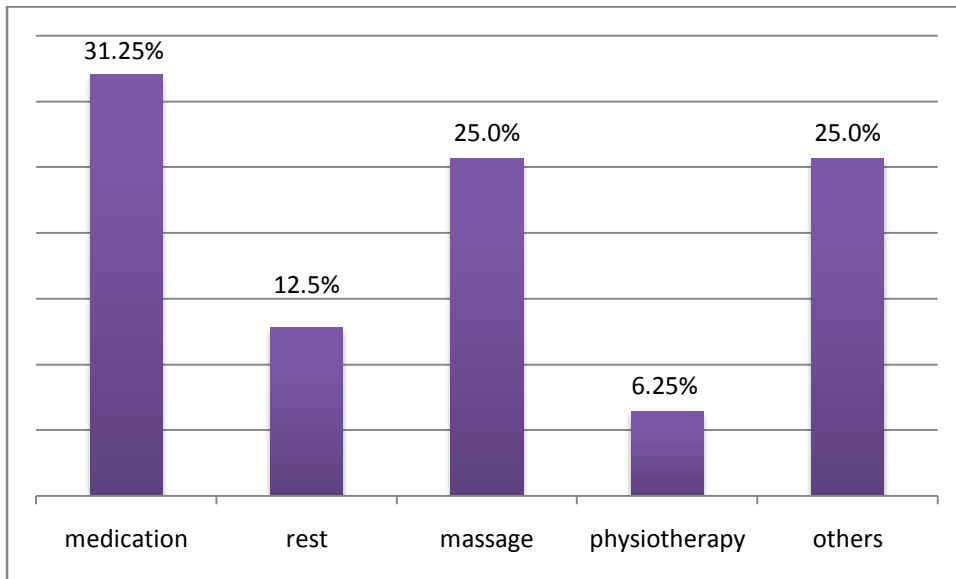
Fig- 17: Type of treatment received by the participants

4.18 Outcome of treatment

Study demonstrate that among the 100 participants who had received from LBP treatment, 56.25%(n=9) participants had improved back pain and 43.75%(n=7) participants had remain unchanged.
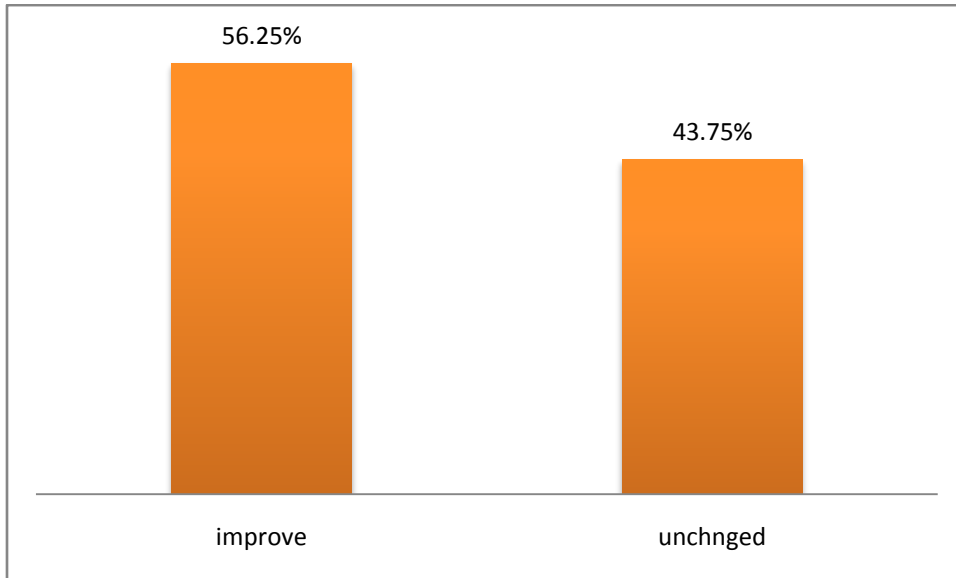
Fig -18: Outcome of treatment of the participants

Chi- Square test:

Association between Low back pain of the participants and age of the participants:

Variable	Prevalence of Low back pain of the participants	Age of the participants
Asymptotic significant	.000	.000
Remarks	Significant	Significant

Table 1: Association between Low back pain and age of the participants

In this analysis age is highly significant (p<0.05) with back pain among the students.

Association between Low back pain of the participants and body mass index of the participants:

Variable	Prevalence of Low back pain of the participants	Body mass index of the participants
Asymptotic significant	.000	.000
Remarks	Significant	Significant

Table 2: Association between Low back pain and body mass index of the participants

Study reveals that body mass index had significant (p<0.05) with back pain among the students.

Association between Low back pain of the participants and weight of school bag during interview:

Variable	Prevalence of Low back pain of the participants	Weight of school bag during interview
Asymptotic significant	.000	.000
Remarks	Significant	Significant

Table 3: Association between Low back pain and weight of school bag during interview

Analysis demonstrate that weight of school backpack had significant (p<0.05) with back pain among the students.

Association between Low back pain of the participants and studying posture at home of the participants:

Variable	Prevalence of Low back pain of the participants	Studying posture at home of the participants
Asymptotic significant	.000	.000
Remarks	Significant	Significant

Table 4: Association between Low back pain and studying posture at home of the participants

Analysis showed that studying posture at home was highly significant (p<0.05) with back pain among the students.

Association between Low back pain of the participants and which posture makes pain worse of the participants:

Variable	Prevalence of Low back pain of the participants	Which posture makes pain worse of the participants
Asymptotic significant	.000	.000
Remarks	Significant	Significant

Table 5: Association between Low back pain and which posture makes pain worse of the participants

Study reveals that which posture makes pain worse significant (p<0.05) with back pain among the students.

Low back pain has been found to be a major health problem for adolescent students. In this study selected 100 sample from selected school in selected classes and data was collected within 1 month. This study it has been found that 78% (n=100) participants had suffered from low back pain, this result is comparable to journal of Brazil (Fonseca et al., 2016). The prevalence of back pain during the academic year among the students evaluated was 75.2% (n =372). There was a high lifetime prevalence of low-back pain among Kuwaiti children and adolescents in Hawalli Governorate, as 231 students (57.8%) reported having suffered from low-back pain at some time in their lives (50.8% in male and 64.7% in female students) (Fonseca et al., 2016). Another study showed that the lifetime prevalence of low-back pain has been reported to vary between 30 and 50% . The lifetime prevalence of low-back pain in our study was on the upper bound (57.8%). The point prevalence was also high (35%) (Jarallah et al., 2008). Other literature showed that the prevalence of LBP in the last year was 57%(n=195) among participants, 60% in girls (n=125) and 53% in boys (n=70), with no significant difference between the sexes (Silva et al., 2014). The 12- month prevalence of LBP reported in this study was higher than those reported for Flemish adolescents (24.7%), Tunisian adolescents (28.4%), and adolescents in Germany (30.2%). The 12-month prevalence was however the same with that found in American adolescents (40.2%) (Jones et al., 2007). The 12-month prevalence in this study was found to be lower than that reported in Kuwaiti adolescents (57.8%) (Akinpelu et al., 2013).

The findings from this study showed that 75.95%(n=79) female are affected in back pain where as the male participants are 85.71%(n=21). This study showed that male are more vulnerable to back pain than female. In a research project showed that Low back pain was found in 31.6% of the subjects and was more prevalent in girls (41.9%) than boys (21.4%) (Lemos et al., 2013). Another literature showed that female students were affected more often than male students (46.2 and 33.6%, respectively, (p > 0.05) and 35% of children reported point 'current' low-back pain (20.6% in males and 39.3% in females) (Jarallah et al., 2008). Other literature showed that among 833 schoolchildren participated in the study. Of these participants, 89.2% (n = 743) gave clear answers regarding whether

pain had occurred in the previous three months. The prevalence of back pain in the previous three months was 54.1% (n = 402). The results differed between male and female students, and the percentages of pain occurrence were 48.7% (n = 191) for males and 60.1% (n = 211) for females (Noll et al., 2013).

In this study showed that among the participants lowest age were 14 years and highest age were 17 years. Among the participants who had suffered from LBP the average age were 17 years 85.71%(n=14) and minimum age were 14 years 44.44%(n=9) followed by the 16 years 81.48%(n=27) and 15 years 80.00%(n=50). In this study showed that LBP increases with age. And the association between LBP and age were highly significant (p<.05). The results showed that most of the students of the population experienced LBP approximately 17 years of age. In this literature showed that the mean age was 15.46 years and standered deviation was 0.846. The other literature showed that the 12-month prevalence of LBP increased with age, from 31.9% at age 12 to 46.2% at age 17; and it was higher among male than female participants out of the 366 (40.7 %) participants who reported having experienced LBP. The point prevalence of LBP increased from 7.2% in 12 years old to 15.9% in 17 years old, and it was higher in female than male adolescents. The recorded 12-month prevalence and point prevalence of 40.7% and 12.9%. Respectively of LBP found among the adolescents involved in this study suggest that LBP is fairly common among Nigerian adolescents residing in Ibadan. The findings from this study also showed that 12-month and point prevalences increases with age, agreeing with previous research (Akinpelu et al., 2013).

In this study most of the participants maintained sitting posture during their studying period. Among the participants half of the students maintained sitting posture at home. And among the participants who had suffered from LBP 80.00%(n=40) participants maintained sitting posture at home and most of the students studied at slouch posture 82.76%(n=24) and that's why maximum students (62.82%;n=49) makes pain worse in sitting position . The association between sitting posture and back pain were significant (p<0.05). The literature reported that consequences of prolonged sitting are increased spinal compression load and increased activity of para spinal muscles Harrison et al. The reported prevalence of LBP among health science students in other countries were

between 13.5 and 64.6%. The results of the present study showed that approximately 40.1% of the students were currently experiencing or have had LBP.

This study showed that maximum participants makes pain worse in sitting posture 62.82%(n=49) and less participants makes pain worse in lying posture 3.85%(n=3). And 8.97%(n=7) participants were makes pain worse in standing posture and 14.10%(n=11) participants were makes pain worse in bending posture and 10.26%(n=8) participants were makes pain worse in walking posture. Association between which posture makes pain worse and back pain were significant (p<0.05).

In this study during interview 78.38%(n=37) participants carried 2.001-3.00 kg and 77.42% (n=31) participants carried 3.001-4.00 kg and 80.77%(n=26)participants carried 4.001-5.00 kg and 66.67%(n=6) participants carried 5.001-6.00 kg carried school backpack among the participants. Whereas the minimum weight of school bag were 2.05 kg and maximum weight of school bag were 5.71 kg and the mean weight of school bag was 3.44 kg. School bag weight measured by portable electronic scale and weight measured this scale in 3 times at same duration and every times found same weight of school backpack. Association of LBP and weight of school bag had been significant.(p<0.05). Literature showed that although this study does not provide support for backpack weight as risk factor for short-term LBP, it could not exclude its long-term effects. In fact, the long-term consequences of carrying heavy backpacks include discomfort and back pain). Therefore, Bauer & Freivalds state that the weight of the backpack should not exceed 10% of the body weight and, therefore, could positively contribute to avoid future health problems. In the present study, the mean values for backpacks weight was 4.04 ± 1.24 kg, and for body weight was 52.8 ± 12.6 kg, which falls within the limits, and probably also contributes to the absence of significant differences between participants with and without LBP (Macedo et al., 2015).

And another literature showed that from the author-assisted questionnaire it was found that 70% of students reported discomfort due to carrying their schoolbag. The mean weight of schoolbags in the study was 6.2kg. The mean weight in our study is lighter than that found by Whitt field et al who measured both third (7kg) and sixth formers (6.3kg), and who measured students aged 12-18 years (8.3kg).In this study the weight of schoolbags varied from one student to another and for the same student over the week.

The wide range of bag weights (1.6kg – 11.3kg) may be explained by the fact that some school children bring more books to school each day than others. The boys' schoolbag weights ranged from 3.1-11.3kg and the girls' ranged from 1.6 -10.7kg.

This study showed that among the 100 participants who had suffered from LBP most of the students were overweight 88.89%(n=9) followed by the normal weight 83.33%(n=30) and underweight were 73.33%(n=61). In this study showed that none obese participants. Maximum overweight participants were suffer from Low back pain. But there was no significant between back pain and body mass index. Literature showed that no significant association was shown between BMI and LBP. Similar results were also reported previously with a systematic review concluding a weak association. It is believed that the rapid changes of weight in a short period of time may not have an effect on the low back of younger adults. A significant positive association (p<0.03) was found between body mass index, pain and disability in an adult population with LBP findings in a recent study that included participants who were categorized as obese (Nordin et al., 2014). Another study showed that The BMI, obtained by dividing the body mass in kilograms by the square of the height in meters, was classified as follows: excessively lean if less than 17 Kg/m2, normal if between 17 and 24.9 Kg/m2, overweight if between 25 and 29.9 Kg/m2 and obese if ≥30 Kg/m2. The BMI was associated with LBP and the prevalence was significantly lower among excessively lean students compared to normal individuals. There was no difference in LBP between obese compared with students having a normal weight. Even with the high occurrence of overweight and obese adolescents (16%), the findings of the relationship of LBP and BMI were inconsistent with the findings of a previous study (silva et al., 2014). Other study showed that overweight and/or obese students had a higher prevalence of pain than students with normal BMI. Students who considered their school backpacks or bags to be heavy had a higher prevalence of back pain compared with students who did not consider their school backpacks or bags to be heavy. In the multivariate analysis, back pain continued to be associated with BMI (p = 0.006), self reported weight of school backpack, bag, or purse (p = 0.019), and posture picking up objects from the ground (p = 0.013) (Jarallah et al., 2008). In this study most of the participants were pain feel in the central back region 51.28%(n=78). And 33.33%(n=78) participants were most pain feel both buttock and 7.96%(n=78)

participants were most pain feel both radiated to above knee and radiated to below knee. Literature showed that the majority of students (92.1% in males and 84.6% in females) reported pain localized in the low-back region, compared to referred pain below buttock area and radiating pain to lower limbs. In this study, 3.5% reported 'monthly' back pain, 10.8% once a week, 34.6% more than once a week and 26.8% daily low-back pain with a significant difference between male and female students (Jarallah et al., 2008). Secondary schools of Barcelona, Spain, and Fribourg, Switzerland. In participants reporting LBP, further information was required about the duration and intensity of pain and consultation with health professionals. Pain intensity (defined as the worst pain during the past month) was measured using a numerical rating scale from 0 (none) to 10 (maximum). The questionnaire also evaluated the prevalence of pain in other body areas during the preceding month and included an item to identify adolescents who considered themselves to have whole-body pain. The participants were divided into 5 groups according to the reported pain status during the past month: (1) a pain-free (PFree) group, which included all adolescents reporting no LBP and no other pain during the last month; (2) an other pain (OPain) group, which included all adolescents with no LBP during the last month but reporting other pain during that period; (3) an isolated LBP (Iso LBP) group. Low back pain was reported by 587 adolescents (39.8%): isolated LBP in 250 (42.6%), LBP plus other pain in 271(46.2%), LBP plus whole-body pain in 50 (8.5%, and unclassifiable LBP in 16 (2.7%) (Pellise et al., 2009).

This study showed that among the 78 participants out of 100 who were suffering from LBP 88.46% participants were sudden onset of pain and 11.54% participants were gradual onset of pain. Pain intensity scale was measured by the Numeric Rating Scale which range from 0-10, where 0 was equal to no pain and 10 was the most excruciating pain ever experienced. The pain intensity was then divided into the above 3 categories mild (1-3) ,moderate (4-6) and severe (7-10). The majority of the sample population experienced mild pain 51.28% among the participants who had suffered from LBP. The second highest category were moderate pain 42.31% out of 78 participants and the third least category were severe pain 6.41% out of 78 participants. Sample population Marius (2012) showed his research that the majority of the sample population experienced pain intensity from 5-7 out of 10 -54% (114/210). The second highest category was the

intensity from 1-4 out of 10 -35% (74/210). The intensity, 8-10 out of 10, category was only experienced by 11% (22/210) of the sample population.

This study revealed that 20.51%(n=78) participants received treatment for their condition and 79.49%(n=78) participants did not received treatment for LBP. From 20.51% participants, who had been taken medication 31.25%(n=16) and 25%(n=16) participants had been taken both massage and other treatment, 12.5%(n=16) had been taken rest and only 6.25%(n=16) had been taken physiotherapy for their condition. Another studies shows that drugs like NSAID's and analgesics were used in 21.99% (31/141) of cases. Medical doctors were consulted in 14.89% (21/141) and physiotherapists in 17.02% (24/141) of the cases. These were the second most popular choices for the treatment of LBP in the last 6 months. Chiropractic treatment was used by 8.51% (12/141) of the sample population. Acupuncture and private hospital treatment was used only by 0.71% (1/141) of the population studied. Biokinetics, homeopathy and osteopathy were three other disciplines on the questionnaire, but none of these disciplines were made use of as treatment options (Marius, 2012).

This study demonstrate that after receiving treatment 56.25%(n=16) participants were improved from LBP. Literature showed that three- fourth (75.0%) participants who have suffered from back pain have taken treatment for their condition. According to (Marius, 2012) said that Almost half, 46.94% of the sample population sought treatment for their LBP in the UK. 85.5% of the sample population that the care they chose to use for their treatment of LBP was effective. The role of psychosocial risk factors in the development of spinal disorders is still under debate and no conclusion could be reached about the causal role of psychosocial risk factors in the development of LBP (Valerie, 2007).

Though the expected sample size was 384, for this study but due to resource constrain & time limitation researcher could manage just 100 samples which is very small to generalize the result for the wider population of the students. There are no literatures about LBP among the adolescent students in the perspective of Bangladesh. So it is difficult to compare the study with the other research. The researcher was able to collect data only from selected schools at Savar for a short period of time which will affect the result of the study to generalize for wider population.

CHAPTER-VI	CONCLUSION & RECOMMENDATION

Conclusion

The result of this study showed that the prevalence of LBP was 78% among the adolescent students at Savar in Dhaka, Bangladesh. This may be associated with age, sex, studying posture. But school bag weight is not clearly established as a cause of back pain in adolescent students. For the fulfillment of this study the investigator used a quantitative research model in the form of a prospective type survey. Conveniently 100 participants among the adolescent students were collected from selected schools at savar area. The investigator used a questionnaire. Each Participant was given a questionnaire to identify the prevalence of LBP among them. And from the documents of the participants the researcher forms a data base for the total sample included in the study. From the data base, ratio of back pain was significantly higher in male students (85.71%) than female students (75.95%). In the studying period most of the students maintain sitting posture and slouch posture which provides more stress on the back. Most common affected age group was 17 years. Factors like age, gender and race did not seem to have statistically significant effects on the prevalence of LBP. Most of the students (51.28%) pain felt on central back region and 26% participants could not continue study for LBP. Among the participants who had suffered from LBP , 20.51%(n=16) participants received treatment option and this treatment option only 6.25%(n=1) participants received physiotherapy treatment. And the treatment outcome was effective for LBP.

Recommendation

It is important to develop research based evidence of physiotherapy practice in this area. Physiotherapist's practice which is evidence based in all aspect of health care. There are few studies on adolescent students. These cannot cover all aspect of the vast area. So the next generation of physiotherapy members should continue study regarding this area, this may involve-use of large sample size and participants form different district. Conduct research on other musculoskeletal problems among the students where physiotherapist can work. So it is very important to conduct such type research in this area.

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February 17, 2016
The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professions Institute (BHPI)
CRP-Savar, Dhaka-1343, Bangladesh
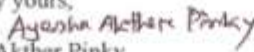
Subject: **Application for review and ethical approval.**

Sir,

With due respect I would like to draw your kind attention that I am a student of Bachelor of Science in Physiotherapy at Bangladesh Health Professions Institute (BHPI)- an academic institute of CRP under Faculty of Medicine of University of Dhaka (DU). I have to conduct a thesis entitled, "Prevalence of Low back pain among adolescent students" under honorable supervisor, Muhammad Millat Hossain Assistant Professor, Department of MSc in Rehabilitation Science BHPI, CRP, Savar, Dhaka. The purpose of the study is to find out the prevalence of Low back pain among adolescent students. Questionnaire will be used that will take about 15 to 20 minutes. Data collectors will receive informed consents from all participants. Any data collected will be kept confidential.

Therefore I look forward to having your kind approval for the thesis proposal and to start data collection. I can also assure you that I will maintain all the requirements for study.

Sincerely yours,

Ayesha Akther Pinky

Ayesha Akther Pinky
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2011-2012, DU Reg. No.: 1733
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

Recommendation from the thesis supervisor:

Millathossain

Muhammad Millat Hossain
Assistant Professor
Department of MSc in Rehabilitation science
BHPI, CRP, Savar, Dhaka.

Attachment: Thesis Proposal including measurement tools and process and procedure for maintaining confidentiality, Questionnaire (English and Bengali version), Information sheet & consent form.

Ref.

CRP-BHPI/IRB/04/17/74

Date: 05/04/17

To

Ayesha Akther Pinky
Bachelor of Science in Physiotherapy
Session: 2011-2012, DU Reg. No.: 1733
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal – Prevalence of Low back pain among adolescent students.

Dear Ayesha Akther Pinky,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application on February 17, 2016 to conduct the above mentioned thesis, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

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

Since the study involves answering a questionnaire that takes 15 to 20 minutes, have no likelihood of any harm to the participants, the members of the Ethics committee has approved the study to be conducted in the presented form at the meeting held at 08:30 AM on February 25, 2016 at BHPI.

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

Millathassain

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

Permission Letter

27August, 2016

The Head of the Physiotherapy Department.
Bangladesh Health Profession Institute(BHPI)
CRP, Saver, Dhaka.

Subject: Prayer for permission of data collection to conduct my research.

Sir,

With due respect, I would like to draw your kind attention that I am a student of 4th Professional, B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). According to course curriculum, we have to conduct a research for the Partial fulfillment of our degree. My research project entitled on "Prevalence of low back pain among adolescent students" under the supervision of Muhammad Millat Hossain, Senior Lecturer, Physiotherapy department, BHPI, CRP. So I need to take permission to collect data for my research project from some selected school at Savar area. I would like to assure that anything of my study will not be harmful for the participants.

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

Sincerely yours

Ayesha Akther Pinky
4th Professional B.Sc. in Physiotherapy student
Roll-29, session: 2011-2012
BHPI, CRP, Saver, Dhaka.

বাংলাদেশ হেলথ প্রফেশন্স ইন্সটিটিউট (বিএইচপিআই)

BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)

(The Academic Institute of CRP)

CRP-Chapain, Savar, Dhaka, Tel: 7745464-5, 7741404 , Fax: 7745069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178,8053662-3, Fax: 8053661

তারিখ ঃ ২৯.০৮.২০১৬

প্রতি

প্রধান শিক্ষক

চাঁপাইন নিউ মডেল হাই স্কুল

সাভার, ঢাকা।

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

জনাব,

আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্র-সিআরপি'র শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেলথ প্রফেশনস্ ইন্সটিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন ফিজিওথেরাপি কোর্স পরিচালনা করে আসছে।

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

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

"Prevalence of low back pain among adolescent students."

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

ধন্যবাদান্তে

মোঃ ওবায়দুল হক
অধ্যক্ষ-ভারপ্রাপ্ত
বিএইচপিআই।

অনুমোদিত জ্ঞান ব্যাহলো

০১/০৯/১৬

মাওঃ মোঃ ছাইফুল্লাহ
ভারপ্রাপ্ত প্রধান শিক্ষক
চাঁপাইন নিউ মডেল হাই স্কুল
সাভার, ঢাকা।

তারিখ ঃ ২৯.০৮.২০১৬

প্রতি

প্রধান শিক্ষক

রেডিও কলোনী মডেল স্কুল

স্যাভার, ঢাকা।

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

জনাব,

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

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

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

"Prevalence of low back pain among adolescent students."

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

ধন্যবাদান্তে

মোঃ ওবায়দুল হক

অধ্যক্ষ-ভারপ্রাপ্ত

বিএইচপিআই।

Received
22/09/16

58

মৌখিক অনুমতি পত্র/ সম্মতি পত্র

আসসালামুয়ালাইকুম

আমার নাম আয়েশা আক্তার পিংকি, আমি এই গবেষণা প্রকল্পটি বাংলাদেশ হেলথ্ প্রফেশনস ইনস্টিটিউট (বিএইচপিআই)-এ পরিচালনা করছি যা আমার ৪র্থ বর্ষ বিএসসি ইন ফিজিওথেরাপী কোর্সের অধিভুক্ত । আমার গবেষণার শিরোনাম হল-" কিশোর ছাত্র-ছাত্রীদের কোমর ব্যাথার হার"।   আমি এক্ষেত্রে আপনাকে কিছু ব্যক্তিগত এবং   কোমর ব্যাথা সম্পর্কে আনুষঙ্গিক কিছু প্রশ্ন করতে চাচ্ছি   ।এতে আনুমানিক ১৫-২০ মিনিট সময় নিবো ।

আমি আপনাকে অনুগত করছি যে ,এটা আমার অধ্যয়নের অংশ এবং যা অন্যকোন উদ্দেশ্যে ব্যবহৃত হবে না। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহে এটা নিশ্চিত করা হবে যে এই তথ্যর উৎস অপ্রকাশিত থাকবে ।

এই অধ্যয়নে আপনার অংশগ্রহণ স্বেচ্ছাপ্রণোদীত এবং আপনি যে কোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রত্যাহার করতে পারবেন এছাড়াও কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তর না দেয়ার এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকারও আপনার আছে ।

এই অধ্যয়নে অংশগ্রহণকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে   অথবা/এবং আমার সুপারভাইসর   মোহাম্মদ মিল্লাত হোসেন, এসিসটেন্ট প্রফেসর, ডিপার্টমেন্ট অব রিহেবিলিটেশন সায়েন্স, বিএইচপিআই, সিআরপি, সাভার, ঢাকা-তে যোগাযোগ করতে পারেন ।

সক্ষাৎকার শুরু করার আগে কি আপনার কোন প্রশ্ন আছে?

আমি আপনার আনুমতি নিয়ে এই সাক্ষাৎকার শুরু করতে যাচ্ছি ।

হ্যা

না

১। অংশগ্রহণকারীর স্বাক্ষর…………………………

২।সাক্ষাৎগ্রহনকারীর স্বাক্ষর…………………………

CONSENT FORM (English)

Assalamualaikum, my name is Ayesha Akther Pinky. I am conducting this study for a B.sc in Physiotherapy project study dissertation titled "Prevalence of Low back pain among adolescent students" under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information regarding to back pain. You will perform some tasks which are mention in this form. This will take approximately 15-20 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

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

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

Do you have any questions before I start?

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

YES: ☐   NO: ☐

Signature of the Participant _____

Signature of the Interviewer _____

তথ্য সংক্রান্ত প্রশ্ন

ব্যক্তিগত প্রশ্নঃ

১.নামঃ

২.ঠিকানাঃ

৩.যোগাযোগ নম্বরঃ

৪.তারিখঃ

সামাজিক–জনতাত্ত্বিক তথ্যঃ

৫.বয়সঃ

৬.লিঙ্গঃপুরুষ /   মহিলা

৭.বৈবাহিক অবস্থাঃ   বিবাহিত / অবিবাহিত /তালাকপ্রাপ্ত

৮.পারিবারিক প্রকারভেদঃ   একক পরিবার /   যৌথ পরিবার

৯. ধর্মঃ   মুসলমান / হিন্দু / বৌদ্ধ / খ্রিষ্টান

১০. বাসস্থান এলাকাঃ   গ্রাম / শহরে

১১. শিক্ষাগত যোগ্যতাঃ   ৯ম /১০ম

১২. উচ্চতা (মিটার)ঃ   ------------------------- (১ফুট=০.৩০৪৮মি. , ১ইঞ্চি=২.৫৪(সে.মি.)

১৩. ওজনঃ -----------------------------কেজি

১৪. শারীরিক গঠনঃ পাতলা / মোটা / স্বাভাবিক

১৫.সাক্ষাৎকারের সময় বিদ্যালয়ের থলের ওজনঃ   --------------কেজি----------------গ্রাম

১৬.আপনি কি সর্বদা আপনার বিদ্যালয়ের ব্যাগ নিজে বহন করেন?

      I.   হ্যাঁ

      II.   না

১৭.আপনি কিভাবে বিদ্যালয়ে যান?

      I.   হেঁটে

      II.   রিক্সায়

III.   বাইকে

IV.   বাসে

V.   গাড়ীতে

VI.   প্রযোজ্য নয়

<u>কোমর ব্যাথা সম্পর্কিত তথ্যঃ</u>

১৮. আপনার কি কখনো কোমর ব্যাথা হয়েছে?

I.   হ্যাঁ

II.   না

১৯.আপনার ব্যাথার ধরন কি রকম?

I.   হঠাৎ ব্যাথা

II.   ক্রমাগত ব্যাথা

III.   মাঝেমধ্যে ব্যাথা

IV.   অস্বস্তিকর ব্যাথা

V.   অপরিবর্তনীয় ব্যাথা

২০.কোন অংশতে আপনি বেশি ব্যাথা অনুভব করেন?

I.   কোমরের মাঝামাঝি

II.   কোমরের দু'পাশে

III.   হাঁটুর উপর পর্যন্ত

IV.   হাঁটুর নিচ পর্যন্ত

V.   প্রযোজ্য নয়

২১.ব্যাথার তীব্রতা কেমন তা NMS Scale-এ উল্লেখ করেন এবং চিহ্নিত করেনঃ

০	১	২	৩	৪	৫	৬	৭	৮	৯	১০

কোনও ব্যাথা   অনেক বেশি

নেই   ব্যাথা

I.   ০(কোনো ব্যাথা নয়)

II.   ১-৩(অল্প ব্যাথা)

III.   ৪-৬(মাঝামাঝি)

IV.   ৭-১০(অনেক বেশি)

২২.বাসায় পড়ার ক্ষেত্রে আপনি কোন অবস্থা বেশিরভাগ সময় বজায় রাখেন?

I.   বসে

II.   হেলান দিয়ে

III.   শুয়ে

IV.   দাঁড়িয়ে

V.   সামনের দিকে ঝুঁকে

২৩.শ্রেণীকক্ষে পড়ার ক্ষেত্রে আপনি কোন অবস্থা বেশিরভাগ সময় বজায় রাখেন?

I.   বসে

II.   হেলান দিয়ে

III.   সামনের দিকে ঝুঁকে

IV.   দাঁড়িয়ে

২৪.   বেশিরভাগ সময়ই কোন অবস্থায় আপনার কোমর ব্যাথা বাড়ে?

I.   শুয়ে থাকলে

II.   বসে থাকলে

III.   ভাঁজ হয়ে বসলে

IV.   দাঁড়ালে

V.   হাঁটলে

VI.   প্রযোজ্য নয়

২৫.আপনি কি কোন ব্যাথা অনুভব করেন,যখন আপনার বিদ্যালয়ের থলে বহন করেন?

I.   মাঝেমাঝে

II.   প্রায়ই

III.   সবসময়

IV.   কখনই না

২৬.বেশিরভাগ সময়ই, অবসর সময়ে আপনি কি করেন?

I.   পড়েন

II.   টিভি দেখেন

III. গেম খেলেন

IV. কম্পিউটার চালান

V. ঘুমান

VI. গল্প করেন

VII. প্রযোজ্য নয়

২৭.এমন হয় যে, ব্যাথার কারণে আপনি পড়ালেখা করতে পারেন না?

I. হ্যাঁ

II. না

২৮.আপনি কি কখনো আপনার কোমরে আঘাত পেয়েছিলেন?

I. হ্যাঁ

II. না

যদি হ্যাঁ হয়,তবে কোন ধরনের আঘাত পেয়েছিলেন?

I. পরে গিয়ে

II. সরাসরি

III. রাস্তায় গাড়ির দুর্ঘটনায়

IV. কোনো আঘাতের কারণে টান লাগা

V. ভারি কিছু তুলতে গিয়ে

VI. প্রযোজ্য নয়

২৯. আপনি কি কখনো কোমর ব্যাথার কারণে কোনো চিকিৎসা নিয়েছিলেন?

I. হ্যাঁ

II. না

যদি হ্যাঁ হয়, তবে কোন ধরনের চিকিৎসা নিয়েছিলেন?

I. ঔষধ

II. আরাম করা

III. মেসেজ

IV. অন্যান্য।

৩০. আপনি কি কখনো ফিজিওথেরাপী চিকিৎসা নিয়েছিলেন?

    I.   হ্যাঁ

    II.   না

৩১. চিকিৎসা নেওয়ার পর ফলাফল কেমন ছিল?

    I.   ভালো

    II.   খারাপ

    III.   ব্যাথার কোনো পরিবর্তন নেই

"তথ্য দেওয়ার জন্য ধন্যবাদ"

Questionnaire sheet (English)

Personal details:

1. Name:
2. Address:
3. Contact number:
4. Date of interview:

Socio-demographic information:

5. Age:
6. Sex: male / female
7. Marital status: Married / Unmarried / Divorce / Other
8. Family type: Nuclear / Extended
9. Religious status: Muslim / Hindu / Buddha / Christian
10. Living area: Rural / Urban
11. Educational level:
    i. Class- 9
    ii. Class-10
12. Height(meter): ------- (1feet=0.3048, 1inch=2.54)
13. Weight(kg): --------
14. Body type(according to BMI Scale) :body weight(kg)÷height(m^2)
    i. Under weight(<20)
    ii. Normal(≥20 to <25)
    iii. Over weight(≥25 to ≤30)
    iv. Obese(>30)
15. Weight of school bag during interview:

    ……………kg……….gm

16. Are you carrying your own school bag always?
    i. Yes
    ii. No
17. How are you going to school?
    i. Walking
    ii. Rickshaw
    iii. Bike
    iv. Car
    v. Not applicable

Back pain related information:

18. Do you ever feel Low back pain?
    i.   Yes
    ii. No

19. What is the pattern of your pain?
    i.   Sudden
    ii. Gradual

20. What are the behavior of your pain or discomfort?
    i.   Occasional
    ii.   Discomfort
    iii. Constant

21. Which area do you feel the most pain?
    i.   Central back region
    ii.   Both buttock
    iii. Radiated to above knee
    iv.   Radiated to below knee
    v.   Not applicable

22. Mark severity of pain in NMS Scale:
    i.   no pain (0)
    ii.   mild (1-3)
    iii. moderate (4-6)
    iv.   severe (7-10)

```
├───┼───┼───┼───┼───┼───┼───┼───┼───┼───┤
0   1   2   3   4   5   6   7   8   9   10
```
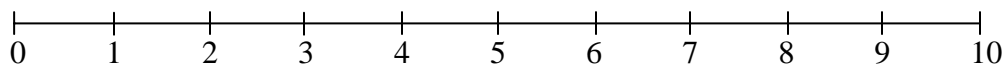
No   Severe
Pain   pain

23. Which posture do you maintain most of the time during study at your home?
    i.   Sitting
    ii.   Half lying sitting
    iii. Slouch
    iv.   Standing
    v.   Lying
    vi.   Other

24. Which posture do you maintain most of the time during study in your class room?

    i.   Sitting

      ii.   Half lying sitting

      iii.   Slouch

      iv.   Standing

      v.   Other

25. Most of the time, which posture makes your pain worse?

      i.   Sitting

      ii.   Standing

      iii.   Bending

      iv.   Walking

      v.   Resting

      vi.   Not applicable

26. Have you felt any pain while carrying your school bag?

      i.   Sometime

      ii.   Often

      iii.   All time

      iv.   Never

27. Most of the time, what are you doing in leisure period?

      i.   Reading

      ii.   Watching TV

      iii.   Playing game

      iv.   Using computer

      v.   Sleeping

      vi.   Gossiping

      vii.   Not applicable

28. Do you stay away from study due to pain or discomfort?

      i.   Yes

      ii.   No

29. Have you get any injury to your back?

      i.   Yes

      ii.   No

   If yes, what type of injury do you get?

      i.   Fall on ground

      ii.   Direct trauma

      iii.   Road traffic accident

      iv.   Stretch injury

      v.   Pulling heavy object

      vi.   Not applicable

30. Have you ever taken any treatment for Low back pain?

      i.   Yes

      ii.   No

If yes, what kind of treatment did you receive?
    i.   Medication
    ii.   Rest
    iii.   Message
    iv.   Other

31. Have you ever taken physiotherapy treatment?
    i.   Yes
    ii.   No

32. What was the result after receiving treatment?
    i.   Improve
    ii.   Worse
    iii.   Unchanged

"Thank you for giving information"