

**PREVALENCE OF LOW BACK PAIN AND IT'S ASSOCIATED
FACTORS AMONG THE YOUNG MALE CRICKETERS AT
BANGLADESH KRIRA SIKKHA PROTISTHAN**

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

Prevalence of Low Back Pain and it's Associated Factors Among The Young Male Cricketers at Bangladesh Krira Sikkha Protisthan

Submitted by **Pangkaz Kanti Dash**, for the partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

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Declaration

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

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Acronyms

BHPI: Bangladesh Health Professions Institute

BKSP: Bangladesh Krira Sikkha Protisthan

CRP: Center for the Rehabilitation of the Paralysed

LBP: Low Back Pain

WHO: World Health Organisation

SPSS: Statistical Package of the Social Sciences

IRB: Institutional Review Board

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Abstract

Purpose: To identify the prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan.

Objective: To identify the prevalence of low back pain, associated factors among the young male cricket players, to expose the injured participants age, cricket playing position, frequency of low back pain, recurrence of LBP, ascertain the treatment after injury, health condition of the cricketers.

Methodology: A quantitative cross-sectional study design was chosen to achieve the objectives of the study. 50 subjects were selected through convenience sampling technique from the injured young cricket players who trained at BKSP by using a questionnaire to collect data.

Results: The prevalence of low back pain among the young cricket players is 70%. The peak age group was 18 years (28.6%). The most affected player group was fast bowler (31.4%). The severity of LBP on VAS scale mild 76%) was most frequent. Among the affected players 56% players took treatment including medication (17.9%), physiotherapy (46.4%), and both of the treatment (35.7%). The affected young cricket players told about their health condition is good (12%) or very good (30%) and excellent was (28%). On the other hand, the young cricketers who are not affected by LBP their health condition is most commonly excellent (20%). Among the affected young cricket players, 32% young cricket players think that LBP is weakly associated with cricket. But 20% players think that LBP is strongly associated with the cricket and 18% young players think that LBP is not associated with cricket at all.

Conclusion: The vulnerable age was 18 years and the young cricketers have lack knowledge and consciousness about LBP. So Health education and performing regular physical activity along with physiotherapeutic exercises are needed and it can help to prevent injury.

Keywords: Prevalence, Low Back Pain, Associated factors, Young male Cricketers, BKSP.

1.1 Background

Pain is a defense mechanism of the body to create an consciousness of the subject to protect the injured part from further damage and low back pain more correctly called lumbago or lumbosacral pain occurs below the 12th rib and above the gluteal fold (Sikiru & Hanifa, 2010). Low back pain (also known as dorsopathy) is pain felt in the human back that may come from the muscles, nerves, bones, joints or other structures in the spine and pain may be constant or intermittent, stay in one place or refer or radiate to other areas which may be dull ache, or a sharp or piercing or burning sensation (Robinson., 2011). Low back pain is categorized conventionally according to its duration as acute (<6 weeks), sub-acute (6 weeks-12 weeks) and chronic (>12 weeks) (Savigny et al., 2009). Mary & Ann (2006) stated that vertebrae that make up the spinal column through which the spinal cord passes and when these muscles or ligaments become weak, the spine loses its stability, resulting in pain and back problems can lead to pain or weakness in almost any part of the body.

McBeth & Jones (2007) stated that LBP is considered as the first cause of disability and inability to work, and expected to affect up to 90% of the world's population at some point in their lives and it has been documented as an almost global problem in the adult population, with an estimated yearly prevalence of 15% to 20% and a lifetime prevalence of up to 80% (Amrinder et al., 2013). International surveys of low back pain (LBP) was reported a point prevalence of 15% to 30%, a 1-month prevalence of 19% to 43% and worldwide estimates of lifetime prevalence of LBP vary from 50% to 84% (Ghaffari et al, 2006).

Low back pain (LBP) is a significant problem in the population and research shows that 80% of the population will suffer from lower back pain (LBP) at some time in their lives (Zhang et al., 2009). In everyday life LBP is the most common complaint in adult population and an adult person experienced a higher prevalence of severe back pain and when the age increases the persistence of low back pain become more frequent (Plouvier et al., 2011). Generally LBP commonly occurs in between ages 25 to 50 years and one of the most common symptoms experienced by people throughout the world (Charoenchai et

al., 2006). According to WHO (2003) LBP is responsible for a major portion of people staying away from work or visiting a medical practitioner. Most low back pain in both the athletic and nonathletic population is mechanical in nature and there is no difference between athletes and non-athletes and cricketers are often at special risk of more serious causes of back pain which are often sport specific in their etiology (Amrinder et al., 2013).

Cricket is defined as a leisurely, gentlemen's game in which bowlers deliver a hard ball at a high speed directly to the batsman (Ranson et al., 2013). Now cricket is played in more than sixty countries and regarded as major international team sport and Cricket also played in many commonwealth countries as popular sport and it also enjoyed by players of all levels of ability (Lee, 2012). Now a days Cricket is the most popular team sport and there are large participation of cricket players also causes more number of cricket related injuries (Kumar et al., 2015). As sporting activities are becoming competitive day by day and imposing many stress on backbone which leads to increase in low back injuries. Low back pain is one of the most common health problem faced by athletes specially cricket players. Low back pain is a severely common problem in the cricket and the natural history of low back pain is most probably same in athletes and non-athletic population and the commonly athletic preparation requires mechanical overload which produces significant compressive forces directed at the lumbar spine (Amrinder et al., 2013). Low back pain is a common problem among the athletes and they suffer from significant structural and non-structural problems (Standaert, 2008).

Low back pain (LBP) is highly prevalent in cricketers, particularly in adolescent fast bowlers and numerous modifiable risk factors for and interventions to address LBP in cricketers have been proposed in the literature (Morton et al., 2013). British sports Council reported about the LBP and that is 2.6 injuries among the 10,000 players in per hours and on the other hand Australian Cricket Board reported 24.2 injuries among the 10,000 players in per hours which is higher than the previous report (Dhillon et al., 2012). In West India, injuries occurred in player between the age of 18 to 37 years and about 50% of them under 23 years. 80% get injury in first time and 10% recurrent, 76% acute, on the other hand 16% chronic or over use injury and muscle strain comprise of 26%, ligament injury cover about 12%, stress fracture and other fracture are 12% and 10% of total injuries (Mansingh et al.,

2006). In a recent study showed that among the 95 players of the study, 24 players were bowler, 19 players were batsman and 8 players were wicket keepers and age range was 14-34 years where mean age was 18.9 years and the 18 and 19 age group was so vulnerable to upper limb and lower limb injury (Dhillon et al., 2012).

Despite of high fitness levels and often intensive strength training programs, athletes still suffer LBP and in a recent injury report conducted among Australian cricketers, it was shown that the prevalence of LBP was 14% among fast bowlers. The injury prevalence was similar for fast bowlers and full contact football players which causes absence participation in games (Caplan et al., 2014).

Repetitive mechanical loading and often specific and unique motion imposed on the spines of athletes through various sporting desires in training and competition and lower back pain is a heterogeneous condition, which may contribute to variation in reported prevalence. In the absence of a gold standard questionnaire to evaluate low back pain, self-administrated questionnaires are considered reliable measurement tools for the assessment of this condition (Amrinder et al., 2013). As cricket is a popular sport and largely played but have very limited research into cricket injuries. There are some cricket playing countries have studies about cricket injuries (Saw et al., 2009). Low Back Pain (LBP) represents one of the most leading musculoskeletal causes of disability and is the most frequently reported disorder for which people receive outpatient physiotherapy which is a 20th century enigma which remains to cause disability and distress in a large proportion of the adult population (Odole et al., 2010).

Control of the spinal segment's neutral zone and its workload and biomechanical analysis of bowling action have been identified as 2 key issues in the prevention of LBP in fast bowlers and the role of physical preparation in terms of specific muscle re-education has not been investigated (Wong et al., 2014). Cricket players take either medication from physician or physiotherapy for the betterment from the injury (Kumar et al., 2015). The treatment of LBP is very costly. In the USA total incremental direct health care costs attributable to low back pain were estimated at \$26.3 billion in 1998 (Chou et al., 2007). Low back pain is also considered the second leading cause of disability by primary care physicians in USA (Licciardone, 2008). Extensive costs are associated with LBP which

causes lost productivity and income from work, the cost of medical, rehabilitation and surgical interventions and the costs of disabling pain and it limits daily function (Heneweer et al., 2011).

1.2 Rationale

The aim of the study is to find out the prevalence of low back pain and its associated factors among the young male cricketers at BKSP. Now cricket is played in more than sixty countries and regarded as major international team sport. Cricket also played in many commonwealth countries as popular sport. Now a days Cricket is also the most popular game in Bangladesh. It is probably the most commonly played sport in Bangladesh. It is commonly played by males. As a result, this leads to more number of people from Bangladesh participating in cricket. This large number of participation from Bangladesh also causes more number of cricket related injuries. There are various clubs and centers with skillful coaches to train them. Injuries are inevitable when one player is training and compete. Now a days cricket is becoming competitive day by day and It imposes a lot of stress on backbone which leads to increase in low back injuries. Low back pain is one of the most common health problem faced by cricketers. Low back pain is regarded as an episode of pain or discomfort that interrupted normal daily activities and/or required treatment or consultation in the lower back. It is the major cause of disability and inability to work and that's why cricket players can not perform according to their expectations. On the other hand Amrinder et al. (2013) stated that low back pain is expected to affect up to 90% of the world's population at some point in their lives. Low back pain has long been recognized as an almost global problem in the world population, with an estimated yearly prevalence of 15% to 20% and a lifetime prevalence of up to 80%. So low back pain is a common problem for cricket players and especially for young cricket players. There are numerous studies available at international level, but in Bangladesh there is a lack of research in cricket. This is especially true in Bangladesh where enthusiasm for sports participation is high but scientific monitoring of injuries either by coach or trainer or by physiotherapist or physician is low. So it is urgent to monitor the problems especially low back pain in young cricket players. For monitoring low back pain, the prevalence of low back pain among young male cricket players is needed to know which may help for conducting further research and as well as professional development. While collecting data, cricket players are acknowledged about physiotherapist and their role and that may be very helpful in professional development of physiotherapy which is essential for the current situation. Physiotherapy has a big role in injury prevention and treatment of low back pain.

So, it is very helpful for the player and also for physiotherapy profession to study more about low back pain and its prevalence in case of prevention and treatment of it. Bangladesh has minimum number of graduate physiotherapists. But without evidence, practice is not valid for the profession in specific geographical area. So, to develop an evidence to help strengthen the physiotherapy profession in Bangladesh and for the great interest, researcher would like to do this study. Moreover, after completing this study we can know the prevalence of low back pain and it's associated factors among the young male cricket players and these will be helpful for possible preventive measure and also treatment both young male cricket player and also for the physiotherapy profession.

1.3 Research question

What is the prevalence of low back pain and it's associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan?

1.4 Objectives of study

1.4.1 General objective

- To identify the prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan

1.4.2 Specific objectives

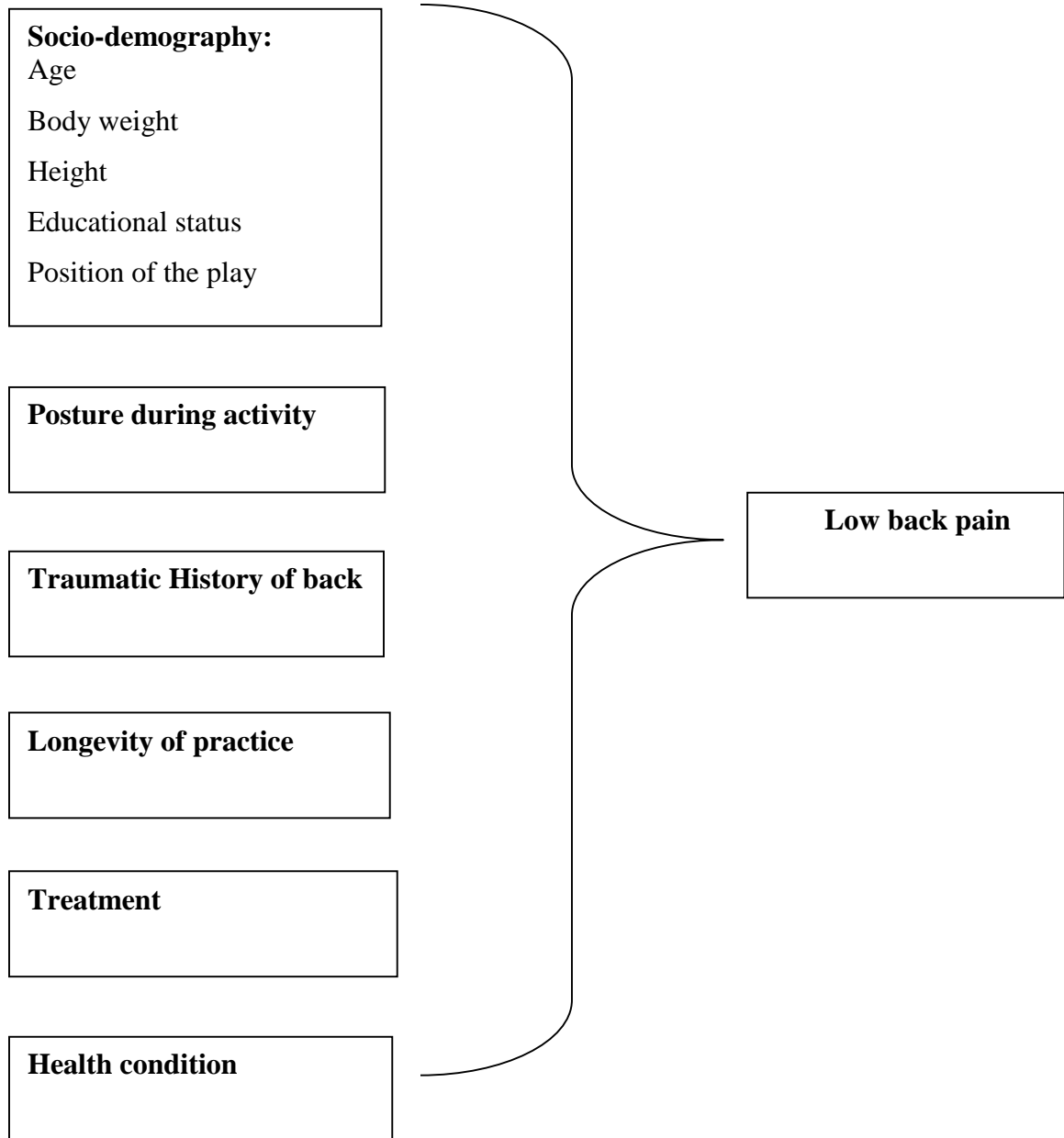
- To find out the number of male cricket players affected by LBP per hundred male cricket players.
- To explore the socio-demography (age, body weight, height, educational status, playing position).
- To measure the severity of pain by using VAS scale.
- To identify the behavior of pain.
- To find out the percentage of low back pain among the batsmen, fast bowlers, spin bowlers, all-rounders and wicket keepers.
- To identify the available treatment received by the LBP affected male cricket players.

1.5 List of variables

Conceptual Framework

Independent variables

Dependent variable



1.6 Operational definition

Prevalence

Prevalence is number of people found to have the condition with the total number of people studied, and is usually expressed as a fraction, as a percentage or as the number of cases per 10,000 or 100,000 people. Point prevalence is the proportion of a population that has the condition at a specific point in time. Period prevalence is the proportion of a population that has the condition at some time during a given period (e.g., 12 month prevalence), and includes people who already have the condition at the start of the study period as well as those who acquire it during that period.

Low back pain

Low back pain (LBP) is a common disorder involving the muscles, nerves, and bones of the back. Pain can vary from a dull constant ache to a sudden sharp feeling. Low back pain may be classified by duration as acute (pain lasting less than 6 weeks), sub-chronic (6 to 12 weeks), or chronic (more than 12 weeks). The condition may be further classified by the underlying cause as either mechanical, non-mechanical, or referred pain. In most episodes of low back pain, a specific underlying cause is not identified or even looked for, with the pain believed to be due to mechanical problems such as muscle or joint strain.

Cricket

Cricket is an open-air game played on a large grass field with ball, bats, and two wickets, between teams of eleven players, the object of the game being to score more runs than the opposition. Cricket is played mainly in Britain and in territories formerly under British rule, such as Australia, South Africa, the West Indies, New Zealand, and the Indian subcontinent. The full game with two innings per side can last several days; shorter single-innings matches are usual at amateur level and have become popular at professional level since the 1960s.

Young male cricket player

Male cricket players are those who are in under training and playing cricket both nationally and internationally.

Low back pain is the pain felt in the lower back that may come from the muscles, nerves, bones, joints or other structures in the spine and the pain may constant or intermittent, stay in one place or refer or radiate to other areas (Sikiru & Hanifa, 2010). Back muscles act to support the spine and maintain the stability of the spine and weakness of back muscles can lead to low back pain and is known as a main cause of recurrence (Lee et al, 2012). The normal morphology and biochemistry of the intervertebral disc and bone undergo changes that are different from degenerative bone and disc disease leading to changes of the water and protein contents. As a result it becomes weak and more fragile and wear and tear occurs in these areas over time which leads to low back pain (Saidu et al., 2011).

Low back pain may be postural, dysfunctional or derangement syndrome And according to the European guidelines for management of acute nonspecific back pain in primary care, LBP (also known as lumbosacral pain) is defined as pain and discomfort, localized below the costal margin and above the inferior gluteal folds with or without leg pain (Kuritzky & Samraj, 2012). Low back pain is pain and stiffness in the lower back. It is one of the most common reasons for which people miss their work. Mechanical low back pain (MLBP) is a major public health problem (Jensen et al., 2009). Job dissatisfaction, monotonous tasks, poor work relations, demands and stress were associated with an increased incidence of low back pain (Hoy et al., 2010).

Most low back pain in both the athletic and nonathletic population is mechanical in nature and almost same between athletes and non-athletes (Amrinder et al., 2013). It is estimated that 70 to 80% of the world's population has at least one episode of low back pain in their lifetime and this condition may cause a decrease in the quality of life of individuals, as well as deterioration in physical activity which has been referred as a 20th century disaster (Sheeran et al., 2015). The lifetime prevalence of LBP in the non-athletic population is estimated to be between 85% and 90% (Daniels et al., 2011). In developed countries such as the United States of America and Australia, LBP prevalence is 26.4% to 79.2% (Walker et al, 2004). The 1 year prevalence of LBP in Britain was 49% and in the Nordic countries the 1 month prevalence of LBP was 35% (Tveito et al., 2004). In Netherland & Belgium

LBP prevalence rates are 30% and 40% was recorded among workers, in Italy 60% of LBP are recognized as occupational diseases, in France LBP accounted for 40% (Fernandes et al, 2011). The prevalence low back pain in Finland 75%, in Denmark 70%, in Iranian 29.3% occurrence was found (Biglarian et al., 2012). In Africa the average prevalence of low back pain in one year among adolescents was 33% and among adults was 50% and the average lifetime prevalence of low back pain among the adolescents was 36% and among adults was 62% (Louw et al., 2007). A study in 2003 in Netherland found that about one-fourth of the employed population took sickness leave in the past year due to low back pain (Schimmel et al., 2009).

Among the cricket players a study showed that 50 cricketers out of 127 cricketers was injured leading to 39% overall prevalence of low back pain and Fast bowler and batsmen sustained maximum injuries among different playing role where Wicket-keeper is the least injured role in cricket (Kumar et al., 2015). Another study showed that the 1-year prevalence of low back pain has been reported in young cricket players is 68% (Jonasson et al., 2011). Another study was conducted on the athletes and the 1-year prevalence among the young athletes was 49% (Foss et al., 2012). Whether another study stated that 1-year prevalence of low back pain in the general population varies from 22% to 65% (Mogensen et al., 2007). A systemic literature review stated that low back pain is highly prevalent among the cricket players particularly in young cricketers (Morton et al., 2013). In a recent injury report conducted among the Australian cricketers, it was shown that the prevalence of LBP was 14% in fast bowlers among different playing role in cricketers (Caplan et al., 2014). A study was conducted about the low back pain in fast bowlers and there was 28 elite fast bowlers with a mean age of 19 years and 53.6% showed signs of acute bone stress and the later development of a stress fracture which causes low back pain (Ranson et al., 2010). Van Hilst et al., (2015) conducted a study among 236 young athletes whether there mean age was 14-25 and the 12 month prevalence was 60%.

A study was conducted among the 127 cricket players where the most commonly injured players were fast bowler (50%), followed by the batsmen (44%), all-rounders (39%) and wicket keepers were the least affected players (17%) among various playing position in cricket. (kumar et al., 2015). Low back, shoulder and ankle are the three most common

areas of injuries in cricket where Fast bowlers and batsmen were the most injured playing position & wicket-keepers were least injured. In cricket, lower limb is most common site of injury with 38% (Das et al., 2014). Another study showed that 32% of total injuries are lower back injuries and the reason for higher lower back injuries are run up while bowling, fielding and making runs between wickets and low back injuries (32%) are more common site of injury in cricket (Storch et al., 2007).

Cricketers are often at special risk of low back pain and most low back pain is non-specific in both the athletic and nonathletic population (Amrinder et al., 2013). The younger the athlete with low back pain, the more likely a serious medical condition exists (Daniels et al., 2011). Petering & Webb, (2011) stated that there is no clear description whether cricketers experience low back pain more often than the general public and low back pain is one of the most common medical presentations in the athlete which is a common source of pain in athletes especially in cricketers which leads to significant disability.

Many athletes do not report LBP and do not alter their activities in professional sports and LBP is the most common cause of lost playing time (Bernstein & Cozen, 2007). Low back pain hampers performance and experiencing an episode of LBP is strongly associated with recurrent episodes (Van Hilst et al., 2015). Cricketers are not different from the general population for suffering low back pain and injuries and the natural history of low back pain in cricketers is most probably same and cricket players preparation requires mechanical overload significantly compressive forces are produced by athletic maneuvers directed at the lumbar spine (Amrinder et al., 2013). Young cricketers among all athletes require their lower backs to have the capacity to tolerate high loads and perform complex repetitive movements (Reed & Wadsworth, 2010).

Most of the low back pain in young cricketers is likely to result from repetitive micro-trauma and fatigue and repetitive training (Baranto et al., 2009). Low back pain is the result of repetitive mechanical loading and often specific and unique motion imposed on the spines of cricketers through various sporting requirements in training and competition (Hoskins, 2012). Another study stated that greater duration of training, training intensity and a lack of relative rest occurring at the expense of tissue overload tend to have more

persistent, chronic and recurrent low back symptoms, frequently associated with early degenerative joint disease (Amrinder et al., 2013).

Although the etiologic mechanisms for low back pain are still poorly understood, many reviews and studies have concluded that the ergonomic work factors are most common LBP risk factors and they are lifting, forceful movement, whole body vibration, and awkward postures (Vandergrift et al., 2012). Daniels et al., (2011) stated that athlete's emotional response, flexibility, and biomechanics may predict the risk of LBP. Low back pain has several different possible causes such as strain on the muscles of the lower back may be caused by bending or other stressful postures (Waddell, 2005).

The most common causes of low back pain in the younger athletes is spondylosis or spondylolisthesis, hyper-lordosis syndrome, and discogenic back pain and Adult athletes with low back pain had a far greater risk of discogenic back pain (48%) than nonspecific mechanical back pain (Daniels et al., 2011). On the other hand cancer, osteoarthritis, osteoporosis, and other nonmedical conditions are greater risk factor for low back pain (Bhangle et al., 2009). There are risk factors that are non-modifiable for LBP include increasing age, a previous episode of low back pain, history of LBP and factors that are modifiable for low back pain such as physical inactivity, poor muscle strength, obesity, smoking, heavy lifting, twisting, bending, pulling, pushing, kneeling, squatting, stooping, prolonged sitting, awkward posture at work, monotonous work (Vindigni et al., 2005). On the other hand the reason of low back pain cannot be clearly identified in 90% of patients but there is strong evidence that personal and occupational psychosocial variables play a more important role than spinal pathology or the physical demands of the job. But various physical demands, including manual lifting, bending, twisting, and whole body vibration, are associated with an increased possibility of low back pain (Dunnl et al., 2007). Physical and psychosocial factors and their interaction, are strong determinants of back pain such as heavy physical work, lifting, bending, twisting, pulling, and pushing have often been associated with low back pain (Manek & MacGregor, 2005). There are several studies have reported that physical loading related to competitive sports activities is associated with lumbar intervertebral disk degeneration and the association between lifetime experience of low back pain and participants with disk degeneration was significant and the percentage

was 45.6% (Hangai et al., 2009). LBP can develop due to many causes, including muscle strain, back injury, overuse, muscle disorders, pressure on a nerve root, poor posture, and many others. Although arthritis in the back or degenerated discs are more common for developing low back pain (Tsao & Hodges, 2008). Among the athletes one of the causes of low back pain is impairment of multifidus muscle which may have a significant role in developing low back pain (Hides et al., 2008). The most frequently risk factors for LBP is heavy physical workload including lifting, awkward posture and whole body vibration and life style factors including smoking behavior, lack of physical exercise and short sleep hours also increases LBP (Tomita et al., 2010). The neurogenic causes of LBP are osteophytic nerve root compression, annular fissure with chemical irritation of nerve root, epidural adhesions, recurrent herniation, may cause mechanical back pain (Williams & Cohen, 2009).

A prospective study among the athletes with prior back injury showed that they were 3 times more likely to experience low back pain and this study showed that the athletes had low back pain may caused by Bending, twisting, manual material handling, and whole body vibrations are considered to be risk factors for LBP (Plouvier et al., 2011). Heavy manual lifting is strongly associated with LBP (Lederman, 2011). Smoking is also a risk factor for LBP and obesity or high body mass index (BMI) (>30 BMI) increases risk for low back pain (Hoy et al., 2010). The occurrence of low back pain has been linked with various abnormalities of the spine such as disc herniation, nerve root deviation or compression, disc degeneration and high intensity zone (HIZ) (Shambrook et al., 2011). Issues with muscular weakness, imbalance, and weak core musculature have been implicated as possible causes of LBP in young cricketers (Hides et al., 2011).

There are many potential pain generators for low back pain which is experienced by cricket players and low back pain diagnosis mostly remain 'nonspecific' and mechanical in diagnosis. There are several examples of where it is apparent that cricket playing have a clear association between the development of low back pain (Ranson et al., 2010). For low back pain diagnosis Consideration of the cricketers age and an understanding of the specific biomechanics of a cricketer, a thorough history excluding red flag conditions, examination and a focused evidence based approach is required. Image and Attention should be given

to the mechanism of injury or the inciting event to assist in predicting the potential injury, implementing preventative measures and in developing a management and rehabilitation program (Hoskins, 2012).

Low back pain is a common complaint in cricketers and they should have a diagnostic workup guided by their age, history, and physical examination. Although this work up is similar in non-cricketers, the demands of the cricketers must be taken into account in a treatment plan (Daniels et al., 2011). A study showed that the prevalence of intervertebral disc degeneration was relatively low leading to LBP. Regular lumbar MRI scans of asymptomatic elite fast bowlers may be value in detecting early changes of bone stress and may help in intervention aimed at preventing a stress fracture which leads to low back pain and avoiding prolonged absence from cricket (Ranson et al. 2010).

To reduce the risk of low back pain ensuring a period of relative rest, activity modification and technique alteration and engaging in physical activity within the limits of pain aids to recovery. There is a change which focuses from the adult to the young population in relation to research, prevention, and treatment of low back pain (Hestbaek et al., 2006). Prolonged bed rest (more than 2 days) is considered counterproductive for the cricketers (Koes & Tulder, 2006). Even with cases of severe pain, some activity is not preferred such as prolonged that would further strain the back. Structured exercise in acute low back pain has demonstrated neither improvement nor harm (Choi et al, 2010). Low back pain may be best treated with conservative self-care including application of heat or cold and continued activity within the limits of the pain. (Atlas, 2010). Strengthening exercises help increase muscle tone and improve the quality of muscles for LBP. Muscle strength and endurance provide energy and feeling of wellness which helps to perform daily routine activities (Wadell & Burton, 2005). Dynamic stabilizing exercises involve the use of a variety of exercises, use of exercise balls, balancing machines or specific stabilizing exercises helps to strengthen the secondary muscles of the spine and helps to support the spine through various ranges of motion which is very helpful for LBP (Leeuw, 2007). Active exercise is more effective than passive treatment in reducing low back pain (Vargas et al., 2012). Management of LBP with physiotherapy, chemotherapy and surgery has been well established and there was no sex difference in consultation and management of LBP, but

there was a significant association between severity of LBP and type of management (Sikiru & Hanifa, 2010). Athletes with a history of LBP are also at increased risk for future LBP. Therefore, it seems possible that core stability exercises would be a potentially suitable intervention to consider for athletes with LBP (Stuber et al., 2014). Pharmacological treatments include acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs). Acetaminophen is first-line drug because of its high safety profile and low cost (Last & Hulbert, 2009). Analgesics are effective for pain relief which is used in LBP (Chou et al., 2007).

LBP is a multifactorial phenomenon where physiotherapy plays an important role in the treatment of it. The aim of treatment includes- decreasing pain, increasing strength, normalizing somatosensory deficits, improve functional activity and quality of life (Geletka et al., 2012). Medium-firm mattress is beneficial for the patients (Chou et al., 2007). Recent study shows that early activity, specific core stabilisation exercises, ergonomic and postural advices are effective for LBP management (Fritz et al., 2007).

Low back pain (LBP) which is the reason for seeking care in physical therapy clinics. There are variety of ways to manage the players with LBP, including manual physical therapy (i.e., spinal manipulation), therapeutic exercise, traction, modalities, and functional training (Fritz et al., 2007). Low grade mobilizations, small or large amplitude passive movement techniques within the available range of motion helps to decrease LBP (Rubinstein et al., 2013). Massage is beneficial for chronic nonspecific LBP to improve symptoms and function. But the benefits of massage increase when combined with exercises and education (Buselli et al., 2011).

A lack of research exists investigating the management of low back pain in cricket and elite level cricketers are likely more willing to train and compete with pain and injury. As a result, making the management of cricketers with low back injury a challenge for the sports clinician and the management should a period of relative rest, avoiding aggravating activities, changes to training and technique along with appropriate rehabilitation therapy (Hoskins, 2012).

3.1 Study design

The purpose of the study was to find out the prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan (BKSP). For this reason a quantitative research model in the form of a cross-sectional design was used for the study. Cross-sectional study design was selected because in this way it was possible to identify a defined population at a particular point in time. Cross-sectional study can be thought of providing a “snapshot” of the frequency and characteristics of a disease in a population at a particular point in time. Through the cross-sectional study results could be easily compared among those of different ages, gender, or ethnicity. The cross sectional study design is usually cheaper and quicker and confounding variables can be controlled for during data analysis. On the other hand quantitative research method helped to use a large number of participants and therefore collecting the data objectively through this way data was reduced to numbers for statistical analysis in order to draw conclusion.

3.2 Study area

As this study was a prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan so the study was conducted at BKSP, Zirani, Savar, Dhaka and samples were collected according to inclusion and exclusion criteria.

3.3 Study population

A population refers to the members of a clearly defined set or class of people, objects or events that are the focus of the investigation. The population shares a specific set of characteristics or criteria that have been established by the investigator. So all of the young male cricketers at BKSP, who fulfilled the inclusion and exclusion criteria of this study, were the population of this study.

3.4 Sample size

Sampling procedure for cross sectional study was 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= 0.64 (Here P=Prevalence and P=64%)

$$q = 1 - p$$

$$d = 0.05$$

According to this formula of sample size calculation, the actual sample size of the study is 354. But due to the time limitations only 50 samples were taken conveniently from the population for this study.

3.5 Sampling procedure

Fifty samples were selected from the population for this study. Sample should represent the population as closely as possible. For survey research, it is better to get as many subjects as possible with the consideration of the size of the ideal population. Sometimes the sample size may be big and sometimes it may be small, depending on the population and the characteristics of the study. There is no easy way of establishing the best size of sample since this decision depends very largely on the research which is being undertaken as well as on the investigator's knowledge of the relevant population's characteristics. Samples were selected by convenience sampling procedure, because the young male cricketers were remain in various tournaments on national and international level throughout the year and in convenience sampling participants were chosen who could be studied most easily, cheaply, quickly and who was willing to participate in this study.

3.6 Inclusion criteria

- Only male cricketers were selected.

Cricket is the most popular team sport and there are large participation of cricket players also causes more number of injuries and cricket is mostly played by male (Kumar et al., 2015).

- Young male cricket players are selected from BKSP.

A systemic literature review stated that low back pain is highly prevalent among the cricket players particularly in young cricketers (Morton et al., 2013). On the other hand BKSP is the proper place for data collection about the young male cricketers.

- Age group was between 14-19 years.

The young athletes suffered from LBP of one episode has the possibility of recurrence of LBP and there age range was 14-25 (Van Hilst et al., 2015).

3.7 Exclusion criteria

- Subjects who are not active players in play ground.

Most of the low back pain in young cricketers results from greater duration of training and playing (Amrinder et al., 2013). That's why the cricketers who are not active in play ground was in Exclusion criteria.

- History of acute trauma to the back.

Low back pain in young cricketers may likely to result from trauma to the back (Baranto et al., 2009). So those cricketers would be in exclusion criteria.

3.8 Method of data collection

Data was collected by using a close ended structured questionnaire. Questionnaire was used because questionnaire is still a very popular and very useful technique of data collection within the health care area. Additionally the aim of the study was to identify the low back pain among young male cricketers at BKSP. So, it was easier to identify these problems by using questionnaires than any other methods. The strength of structured

questionnaire is the ability to collect unambiguous and easy to count answer, leading to quantitative data for analysis. So, structured questionnaire is the most suitable way for data collection.

3.9 Materials and tools

Consent form, questionnaire, pencil and eraser, page, SPSS (Statistical Package for the Social Sciences) software to analyze data, Harvard Referencing 2015, computer.

3.10 Questionnaire

For data collection Bangla questionnaire was used. The samples of the study were the young male cricketers at BKSP. The questions of the questionnaire was closed ended questions, which was set up sequentially. The questionnaire was set in such a pattern that was available in the field data. Thus it was try to collect various information about the injuries of the young male cricketers and to find out and fulfill the objectives of the study.

3.11 Duration of data collection

Data was collected within 4 weeks and the duration was September 20, 2016 to October 15, 2016. Data was collected carefully and maintain the confidentiality of the data. Each participant provided particular time to collect data. In general, each questionnaire took approximately 20-30 minutes to complete.

3.12 Procedure of data collection

At very beginning of data collection a clear clarification was given that the participants had the right to refuse to answer of any question during completing questionnaire. They could withdraw from the study at any time. The aim of study was clarified to all participants. Participants were ensured that any personal information would not be published anywhere. At first, permission was from each participant by using a consent form. After getting consent from the participants, a questionnaire was used to identify the prevalence of low back pain among the young male cricketers and it's associated risk factors. According to the understanding level of the participant, sometimes the questions were described in the

native language, so that the participants could understand the questions perfectly and answered accurately.

3.13 Data analysis

Data was analyzed with the software named Statistical Package for Social Sciences (SPSS) Version 20.0. Data was numerically coded and captured in Microsoft Excel, using an SPSS 20.0 version software program.

3.14 Ethical consideration

In this study interested subjects were given consent forms and the purpose of the research and consent forms were explained to the subject verbally. They were told that participation was fully voluntary and they had the right to withdraw at any time. They were also told that confidentiality would be maintained. Information might be published in any presentations or writing but they would not be identified. The study results might not have any direct effects on them but the members of Physiotherapy population might be benefited from the study in future. They would not be embarrassed by the study. Permission was taken from Institutional Review Board (IRB) of BHPI for research project then permission was taken from the Member of BKSP for data collection. The participants were explained the purpose and goals of the study. This study was followed the rules and regulations of World Health Organization (WHO) & Bangladesh Medical Research Council (BMRC).

The purpose of the study was to find out the prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan and to achieve this goal the result was needed to calculate and analyze in a systematic way by using the SPSS 20.0 version software and the result or analyzed data had been represented by bar graph, pie charts and tables. 50 samples were chose to estimate the prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan.

Prevalence of low back pain

From this study it was found that among the 50 young male cricket players 70% (n=35) cricketers suffered from LBP and 30% cricketers (n=15) did not suffer from low back pain.

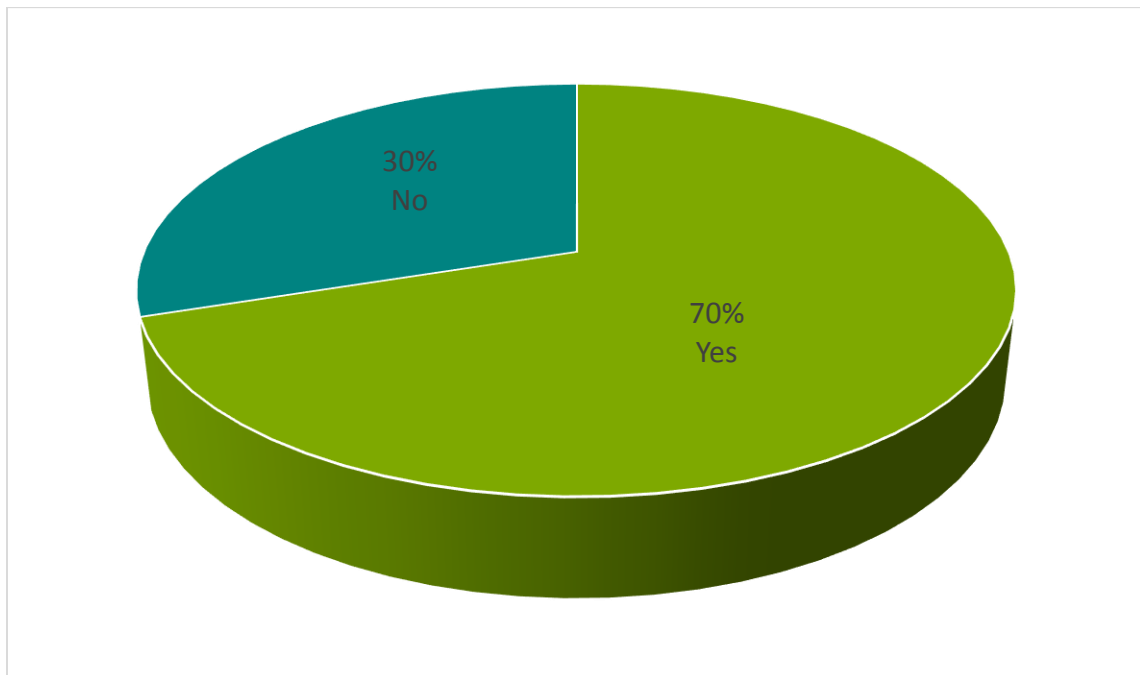


Figure-1: Prevalence of low back pain

4.1 Socio-demographic Information

4.1.1 Age of the young male cricketers

The bar graph showed that, there were six category age of young male cricket players. Those were 14 years, 15 years, 16 years, 17 years, 18 years and 19 years young male cricket players. The percentage of 14 years (n=5) cricketers were 10%, 15 years (n=6) cricketers were 12%, 16 years (n=8) cricketers were 16%, 17 years (n=9) cricketers were 18%, 18 years (n=12) cricketers were 24% and last of all 19 years (n=10) cricketers were 20%.

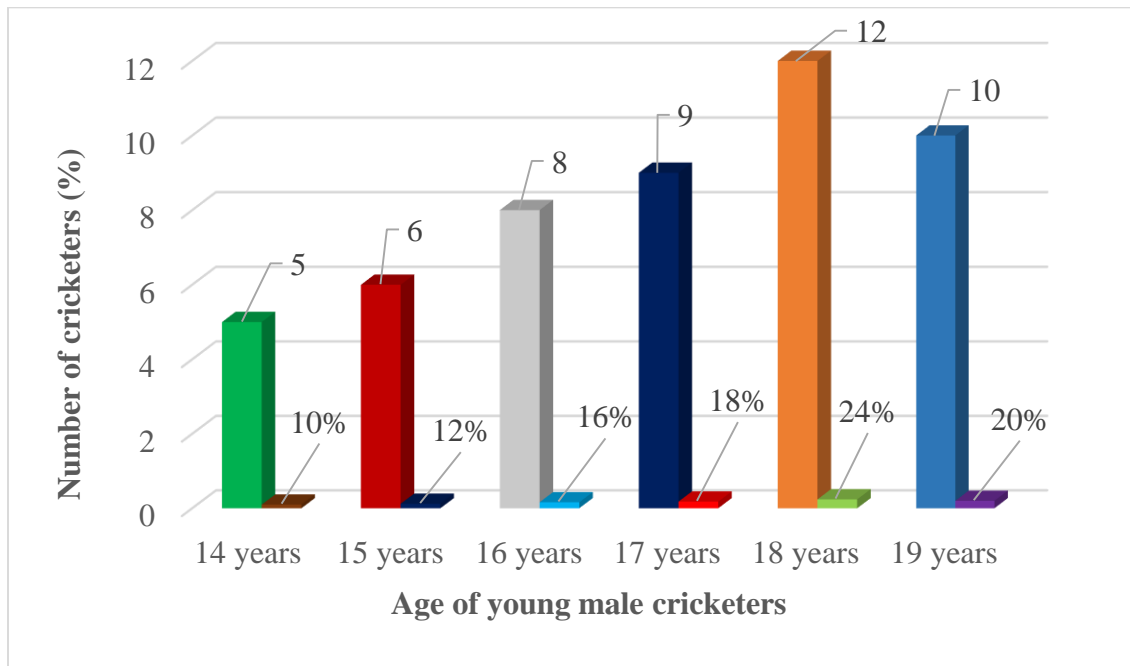


Figure-2: Age of the young male cricketers

Association between age of the young male cricketers and low back pain

Table-1: Association between age of the young male cricketers and low back pain

Variable	Chi square value	P value
Age of the young male cricketers	8.942	0.111

This analysis showed association between age of the young male cricketers and low back pain was not significant ($p < 0.05$).

4.1.2 Relation between age and LBP of affected young male cricketers

Table-2: Relation between age and LBP of affected young male cricketers

Young male cricketers age	Number of cricketers	Percentage (%)
14 years	1	2.9%
15 years	3	8.6%
16 years	6	17.1%
17 years	7	20%
18 years	10	28.6%
19 years	8	22.9%
	Total=35	Total=100%

From this table it was found that among the 35 LBP affected young male cricketers, the most affected age group was 18 years (n=10) male cricketers and they were 28.6%. The least affected age group was 14 years (n=1) and percentage was 2.9%. The 15 years (n=3) male cricketers were 8.6% and 16 years (n=6) cricket players were 17.1% and 17 years (n=7) cricket players were affected about 20% and last of all 19 years (n=8) cricket players were affected by 22.9%.

4.1.3 Educational status of young male cricketers

The bar graph showed that, the young male cricket players from class 8 (n=8) were 16%, class 9 (n=9) were 18%, class 10 (n=10) were 20, class 11 (n=12) were 24% and lastly male cricket players from class 12 (n=11) were 22%.

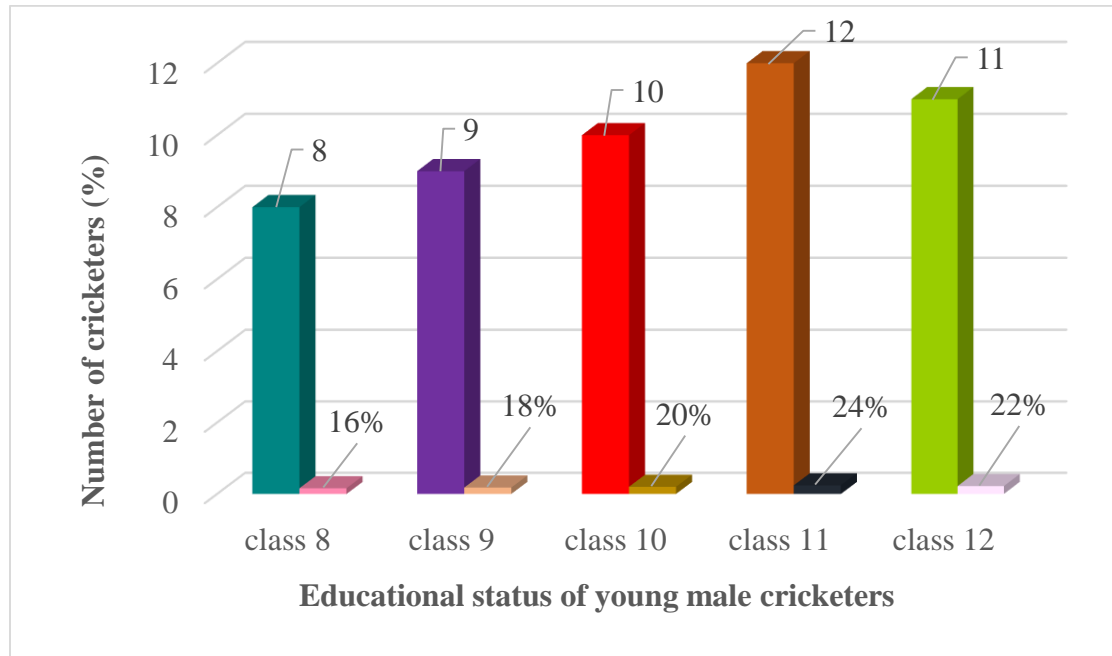


Figure-3: Educational status of young male cricketers

Association between educational status and low back pain

Table-3: Association between educational status and low back pain

Variable	Chi square value	P value
Cricketers educational status	8.594	0.072

This analysis showed association between educational status of young male cricketers and low back pain was not significant ($p < 0.05$).

4.1.4 Height of the young male cricketers

Table-4: Height of the young male cricketers

Young male cricketers height	Number of cricketers	Percentage (%)
5 feet 5 inch	6	12%
5 feet 6 inch	12	24%
5 feet 7 inch	11	22%
5 feet 8 inch	11	22%
5 feet 9 inch	10	20%
	Total=50	Total=100%

In this study the most commonly found young male cricket players height was 5 feet 6 inch (n=12) and the percentage was 24%. Then cricket players height 5 feet 5 inch (n=6) was 12%, 5 feet 7 inch (n=11) was 22%, 5 feet 8 inch (n=11) was 22% and lastly 5 feet 9 inch (n=10) was 20%.

Association between height and low back pain

Table-5: Association between height and low back pain

Variable	Chi square value	P value
Cricketers height	2.338	0.674

This analysis showed association between height of young male cricketers and low back pain was not significant ($p < 0.05$).

4.1.5 Playing position of young male cricketers

Table-6: Playing position of young male cricketers

Playing position of cricketers	Number of cricketers	Percentage (%)
Batsman	11	22%
Fast bowler	14	28%
Spin bowler	10	20%
All-rounder	9	18%
Wicket keeper	6	12%
	Total=50	Total=100%

Among the 50 young male cricket players, batsmen (n=11) were 22%, fast bowlers (n=14) were 28%, spin bowlers (n=10) were 20%, all-rounders (n=9) were 18% and last of all wicket keepers (n=6) were 12%.

Association between Playing position and low back pain

Table-7: Association between Playing position and low back pain

Variable	Chi square value	P value
Cricketers playing position	11.276	0.024

This analysis showed association between Playing position of young male cricketers and low back pain was significant ($p < 0.05$).

4.1.6 Relation between LBP and playing position of affected cricketers

Table-8: Relation between LBP and playing position

Playing position of young male cricketers	Number of LBP affected cricketers	Percentage (%)
Batsman	9	25.7%
Fast bowler	11	31.4%
Spin bowler	5	14.3%
All-rounder	7	20%
Wicket keeper	3	8.6%
	Total=35	Total=100%

Among the LBP affected 35 young male cricket players, the most affected players were fast bowlers (n =11) and the percentage was 31.4%. Then batsmen (n=9) were in the second position and the percentage was 25.7%. After then all-rounders (n=7) were mostly affected and the percentage was 20%. Spin bowlers (n=5) were affected about 14.3% and lastly wicket keepers (n=3) were affected about 8.6%.

4.2 LBP related information

4.2.1 Severity of LBP on VAS scale

The pie chart showed that, the severity of LBP among the young male cricket players on VAS scale, mild (0-3) was 76% and moderate (4-6) was 24%.

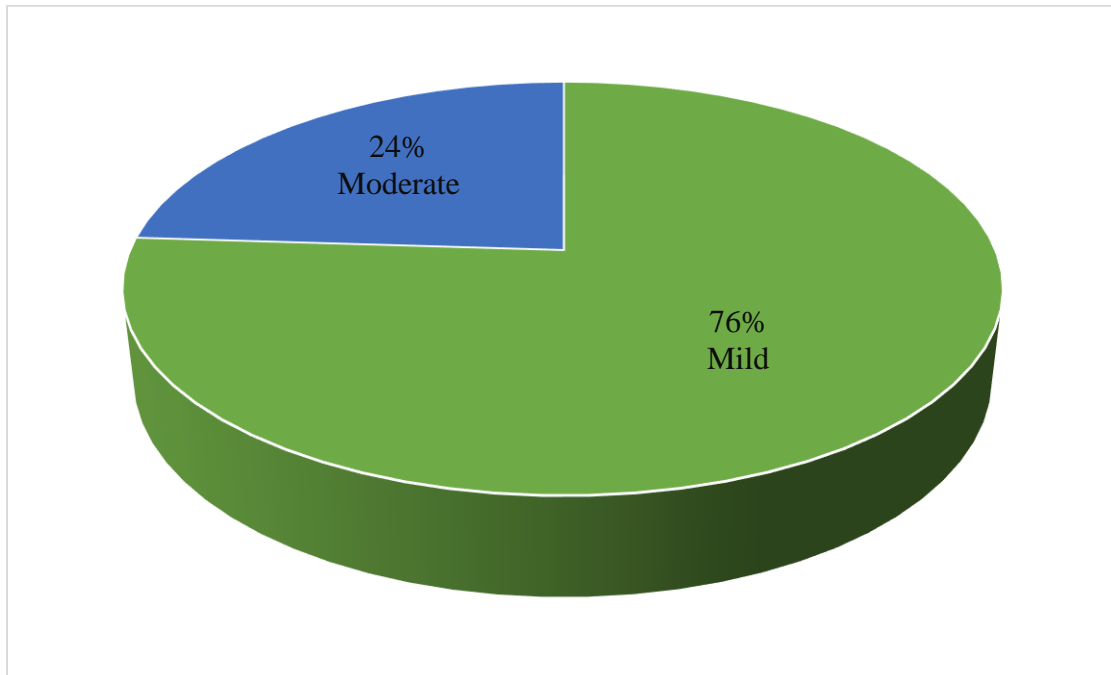


Figure-4: Severity of LBP on VAS scale

Association between LBP on VAS scale and low back pain

Table-9: Association between VAS scale and low back pain

Variable	Chi square value	P value
LBP on VAS scale	6.767	0.009

This analysis showed association between LBP on VAS scale of young male cricketers and low back pain was significant ($p < 0.05$).

4.2.2 Frequency of LBP of young male cricketers

Table-10: Frequency of LBP of young male cricketers

Frequency of LBP	Number of cricketers	Percentage (%)
1 time	27	54%
2 times	6	12%
3 times	2	4%
Not a single time	15	30%
	Total=50	Total=100%

Among the 35 LBP affected young male cricket players, the frequency of LBP among the male cricket players 1 time (n=27) was 54%, 2 times (n=6) were 12% and lastly 3 times (n=2) was 4% and least 15 cricketers (n=15) was not affected by LBP for a single time and the percentage was 30%.

Association between frequency of LBP and low back pain

Table-11: Association between frequency of LBP and low back pain

Variable	Chi square value	P value
frequency of LBP of cricketers	50.000	0.000

This analysis showed association between frequency of LBP of young male cricketers and low back pain was significant ($p < 0.05$).

4.2.3 Recurrence of LBP

The pie chart showed that, the recurrence of LBP among the young male cricket players was 20% and least 80% was not recurrent.

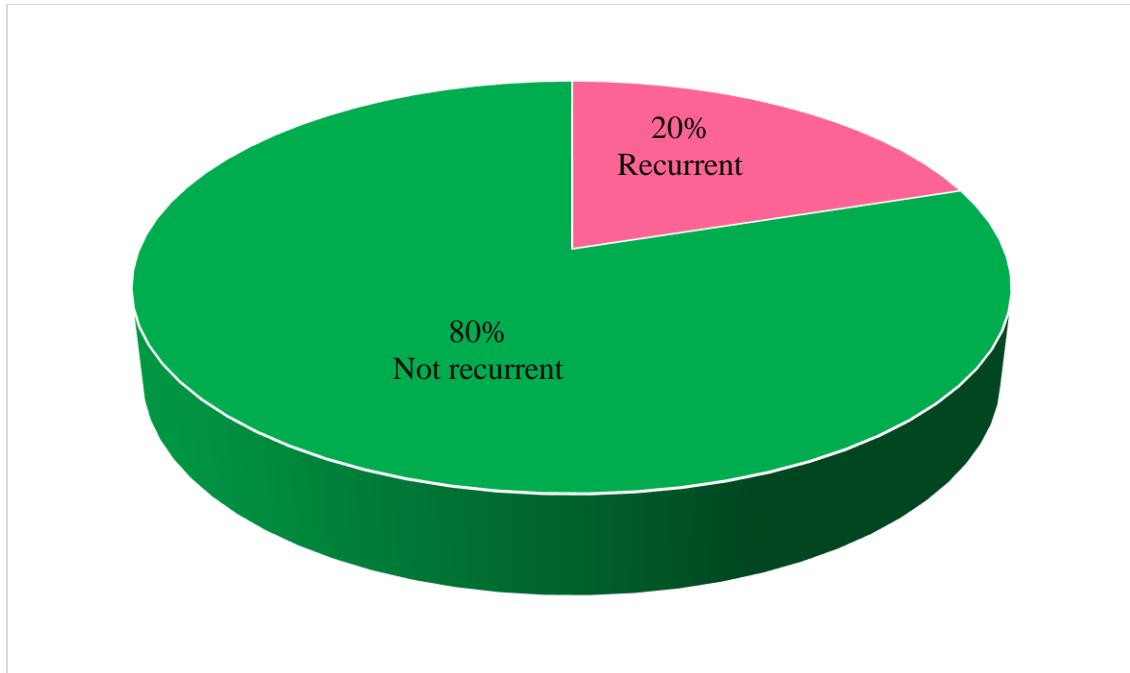


Figure-5: Recurrence of LBP of young male cricketers

Association between recurrence of LBP and low back pain

Table-12: Association between recurrence of LBP and low back pain

Variable	Chi square value	P value
Recurrence of LBP of cricketers	2.188	0.139

This analysis showed association between recurrence of LBP of young male cricketers and low back pain was not significant ($p < 0.05$).

4.2.4 Behavior of LBP of young male cricketers

The pie chart showed that, intermittent (n=13) type of behavior of LBP among the male cricket players was 37.10%. On the other hand occasional (n=22) type of behavior of LBP among the male cricket players was 62.90%.

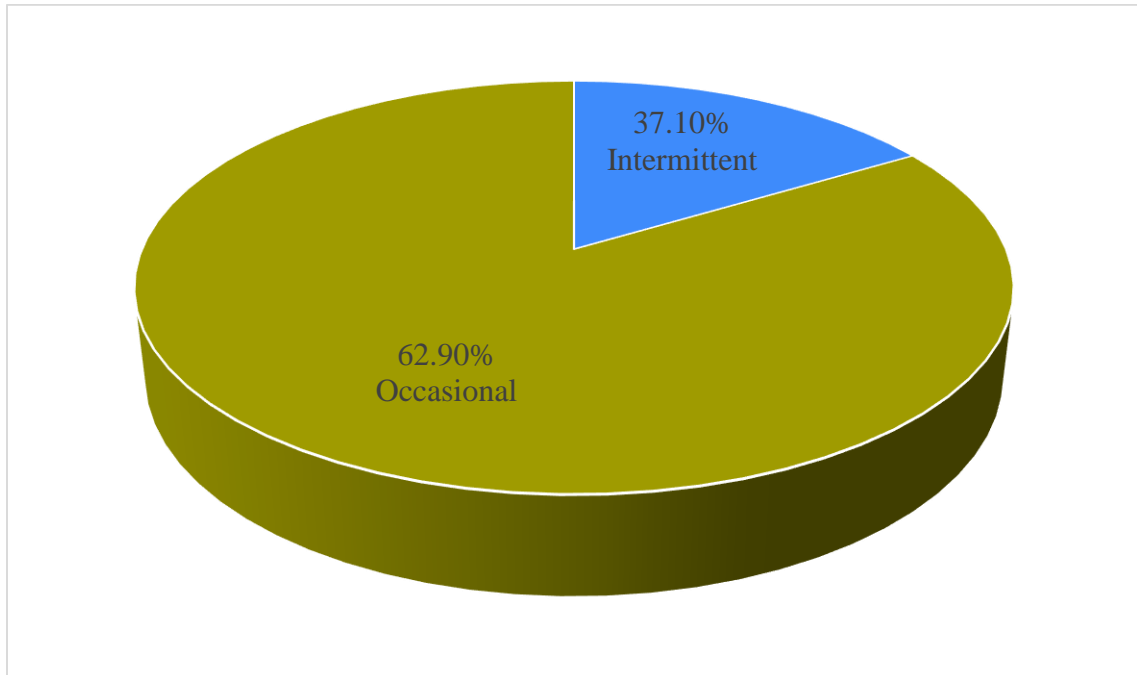


Figure-6: Behavior of LBP of young male cricketers

Association between behavior of LBP and low back pain

Table-13: Association between behavior of LBP and low back pain

Variable	Chi square value	P value
Behavior of LBP of cricketers	5.170	0.023

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

4.2.5 Cricket playing hampered due to LBP

Table-14: Cricket playing hampered due to LBP

Category	Number of cricketers	Percentage (%)
LBP affected cricketers and playing hampered	24	48%
LBP affected cricketers and playing did not hamper	11	22%
Not affected cricketers and playing did not hamper	15	30%
	Total=50	Total=50%

The table showed that, among the 35 LBP affected young male cricket players, 24 cricket players (48%) playing was hampered due to LBP, 11 cricket players (22%) playing did not hamper by LBP and lastly 15 LBP not affected cricketers (30%) playing did not hamper.

Association between playing cricket hampered and low back pain

Table-15: Association between cricket playing hampered and low back pain

Variable	Chi square value	P value
Cricketers Playing hampered	50.000	0.000

This analysis showed association between playing cricket hampered of young male cricketers and low back pain was significant ($p < 0.05$).

4.2.6 Young male cricketers affected by trauma

Table-16: Young male cricketers affected by trauma

Category	Number of cricketers	Percentage (%)
LBP affected cricketers experienced by trauma	5	10%
LBP affected cricketers did not experience trauma	30	60%
Not affected cricketers and did not experience trauma	15	30%
	Total=50	Total=100%

Among the 50 young male cricketers, 5 LBP affected cricketers (10%) experienced trauma, 30 LBP affected cricketers (60%) did not experience trauma and last of all 15 LBP not affected cricketers (30%) did not experience trauma.

Association between trauma and low back pain

Table-17: Association between trauma and low back pain

Variable	Chi square value	P value
Cricketers affected by trauma	50.000	0.000

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

4.2.7 Treatment taken by young male cricketers

Table-18: Treatment taken by young male cricketers

Category	Number of cricketers	Percentage (%)
LBP affected took treatment	28	56%
LBP affected did not take treatment	7	14%
Not affected and did not take treatment	15	30%
	Total=50	Total=100%

The table showed that among the 50 young male cricketers, 28 LBP affected cricketers (56%) took treatment, 7 LBP affected cricketers (14%) did not take any treatment and lastly 15 cricketers (30%) who did not affect by LBP also did not take treatment.

Association between treatment and low back pain

Table-19: Association between treatment and low back pain

Variable	Chi square value	P value
Treatment	50.000	0.000

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

4.2.8 Kind of treatment taken by LBP affected young male cricketers

Table-20: Kind of treatment taken by LBP affected young male cricketers

Kind of treatment	Number of players taken treatment	Percentage (%)
Medication	5	17.9%
Physiotherapy	13	46.4%
Both of treatment	10	35.7%
	Total=28	Total=100%

The table showed that, 28 young male cricketers who took treatment among them only medication (n=5) was taken by 17.9% players, only physiotherapy (n=13) was taken by 46.4% players and both of treatment (n=10) were taken by 35.7% players.

4.2.9 Association of LBP with cricket according to young male cricketers view

Table-21: Association of LBP with cricket according to young male cricketers view

Category	Number of cricketers	Percentage (%)
LBP affected and view was strongly associated	10	20%
LBP affected and view was weakly associated	16	32%
LBP affected and view did not associate	9	18%
Not affected and view did not associate	15	30%
	Total=50	Total=100%

The table showed that, among the 35 LBP affected young male cricketers 20% young male cricket players (n=10) thought that LBP was strongly associated with cricket. 32% young male cricket players (n=16) thought that LBP was weakly associated with cricket and 18% male cricket players (n=9) thought that LBP was not associated with cricket at all and lastly 15 LBP not affected cricketers thought that LBP was not associated at all.

Association between association of LBP with cricket and low back pain

Table-22: Association between Association of LBP with cricket and low back pain

Variable	Chi square value	P value
Association of LBP with cricket	50.000	0.000

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

4.2.10 Health condition of young male cricketers

Table-23: Health condition of the LBP affected young male cricketers

Category	Number of cricketers	Percentage (%)
LBP affected and good health condition	6	12%
LBP affected and very good health condition	15	30%
LBP affected and excellent health condition	14	28%
Not affected and very good health condition	5	10%
Not affected and excellent health condition	10	20%
	Total=50	Total=100%

Among the 35 LBP affected young male cricketers 12% young male cricket players (n=6) health condition were good, 30% cricket players (n=15) health condition were very good and 28% male cricket players (n=14) health condition were excellent and least among the 15 LBP not affected cricketers, 5 cricketers health condition were very good (10%) and 10 cricketers health condition were excellent (20%).

Association between health condition and low back pain

Table-24: Association between health condition and low back pain

Variable	Chi square value	P value
Cricketers health condition	50.000	0.000

This analysis showed association between health condition of young male cricketers and low back pain was significant ($p < 0.05$).

All Chi square test value in a table

Variable	Chi square value	P value	Comments
Age of the young male cricketers	8.942	0.111	Not significant
Cricketers educational status	8.594	0.072	Not significant
Cricketers height	2.338	0.674	Not significant
Cricketers playing position	11.276	0.024	Significant
LBP on VAS scale	6.767	0.009	Significant
frequency of LBP of cricketers	50.000	0.000	Significant
Recurrence of LBP of cricketers	2.188	0.139	Not significant
Behavior of LBP of cricketers	5.170	0.023	Significant
Cricketers Playing hampered	50.000	0.000	Significant
Cricketers affected by trauma	50.000	0.000	Significant
Treatment	50.000	0.000	Significant
Association of LBP with cricket	50.000	0.000	Significant
Cricketers health condition	50.000	0.000	Significant

This study identified the prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Shikkha Protishtan. This study was conducted for the partial fulfillment of degree in Bachelor of Science in Physiotherapy. By this study it had been found that the prevalence of low back pain among the young male cricketers was 70%. On the other hand another study showed the 1-year prevalence of LBP which had been reported to be 68% among the cricket players (Jonasson et al., 2011). Another study stated that 50 cricketers out of 127 cricketers was injured leading to 39% overall prevalence of low back pain (Kumar et al., 2015). Van Hilst et al. (2015) showed that the prevalence of low back pain was 60%.

In this study the age range among the young male cricket players was 14-19 years and it was found that the most affected age group was 18 years (28.6%) and then 19 years (22.9%). Then the age group 14 years was 2.9%, 15 years was 8.6%, 16 years was 17.1% and last of all 17 years was 20%. Whether a study was conducted among the 95 players and age range was 14-34 years. In this study the most affected age group was 19 years (Dhillon et al., 2012). In a recent study showed that young athletes were affected by LBP and the age range was 14-25 years (Van Hilst et al., 2015).

This study showed the relation between LBP and playing position of young male cricketers. Among the all young male cricketers fast bowlers (31.4%) were mostly affected. Then secondly most affected players were batsmen (25.7%). In third position all-rounders (20%) were affected. In the fourth position were spin bowlers (14.3%). Wicket keepers were least commonly affected (8.6%). On the other hand, a study was conducted among the 127 cricket players where the most commonly injured players were fast bowler (50%), followed by the batsmen (44%), all-rounder (39%) and wicket keepers were the least affected (17%) among various playing position in cricket (kumar et al., 2015).

By this study it was found that frequency of LBP among the LBP affected young male cricket players 1 time was (54%), 2 time (12%), 3 time (6%) and LBP not occurs for a single time was 30%. The study also showed the recurrence of LBP was 20%. Whether in

West India 2006, a study was conducted on athletes and they found recurrence in LBP was 10% (Mansingh et al., 2006). The young athletes suffered from LBP of one episode has the possibility of recurrence of LBP (Van Hilst et al., 2015).

This study showed that among the 35 LBP affected young male cricketers, cricket playing was hampered about 48% and 22% cricket players playing were not hampered at all and least 30% cricketers cricket playing was not hampered also. Whatever the cricketers who were affected by LBP resulting in absence in the performance. A study showed that many athletes do not report LBP and do not alter their activities in professional sports and LBP is the most common cause of lost playing time (Bernstein & Cozen, 2007). Another study stated that greater duration of training, training intensity and a lack of relative rest occurring at the expense of tissue overload tend to have more persistent, chronic and recurrent low back symptoms which decrease the performance (Amrinder et al., 2013).

Among the LBP affected athletes 10% players experienced trauma on their lower back which is a possible cause of LBP and 60% players did not experience trauma and the LBP not affected cricketers who did not affect by trauma were 30%. In this study trauma was an associated factor which was seen and for which LBP occurred among the young male cricketers. Most of the low back pain in young cricketers is likely to result from repetitive micro-trauma (Baranto et al., 2009). There were many associated factors which caused LBP. The most common causes of low back pain in the younger athletes is spondylosis or spondylolisthesis, hyper-lordosis syndrome, and discogenic back pain and Adult athletes with low back pain had a far greater risk of discogenic back pain (48%) than nonspecific mechanical back pain (Daniels et al., 2011). On the other hand cancer, osteoarthritis, osteoporosis, and other nonmedical conditions are greater risk factor for low back pain (Bhangle et al., 2009). There are several studies have reported that physical loading related to competitive sports activities is associated with lumbar intervertebral disk degeneration and the association between lifetime experience of low back pain and participants with disk degeneration was significant and the percentage was 45.6% (Hangai et al., 2009).

In this study it was found that after suffering from the LBP, 28 young male cricket players (56%) among the 35 LBP affected players took treatment and 7 cricket players (14%) did not take any treatment and 15 LBP not affected cricketers (30%) did not take any treatment.

So from this study it was easily understood that among the young male cricket players there were possibility to miss the chance of treatment. Among the 28 young cricket players, 17.9% players took medication, 46.4% took physiotherapy and 35.7% players took both of the treatment. Kumar et al. (2015) showed that the players affected by LBP taken physiotherapy and medication for their betterment. To reduce the risk of low back pain ensuring a period of relative rest, activity modification and technique alteration and engaging in physical activity within the limits of pain aids to recovery (Hestbaek et al., 2006). Another study stated that low back pain may be best treated with conservative self-care including application of heat or cold and continued activity within the limits of the pain. (Atlas, 2010). Management of LBP with physiotherapy, chemotherapy and surgery has been well established (Sikiru & Hanifa, 2010). Analgesics are effective for pain relief which is used in LBP (Chou et al., 2007).

At last this study will help in further research on LBP of young male cricket players. Many information is needed to know about the LBP of young male cricket players. There are lack of research in cricket about LBP in the world. So further more research is needed in the field of cricket about the all injury especially LBP. As cricket is a popular sport and largely played so more research is needed in cricket sports related injuries specially LBP.

Regarding this study as below there were some situational limitation or barriers to consider the result of the study:

The samples were collected only from the BKSP and the sample size was too small, so the result of the study could not be generalized to the whole population of BKSP and Time of the study was very short which had a great deal of impact on the study and affect the result of the study to generalize for wider population.

In this study only common risk factors of LBP were observed and did not specify all of the factors properly. So to specify all of the factors properly may find more specific association of the factors. As it was the first research so might be there were some mistakes.

The research project was done by an undergraduate student and it was first research project for him. So the researcher had limited experience with techniques and strategies in terms

of the practical aspects of research. As it was the first survey of the researcher so might be there were some mistakes that overlooked by the supervisor and the honorable teachers.

Bangladesh Krira Sikkha Protisthan (BKSP) is the largest governmental organization which aims to explore talents in sports and train them in specific way with proper cae, also gives opportunity to play in different national or international competitions. From the perspective of Bangladesh number of young male cricket players is increasing day by day. The result of the study indicates young male cricketers of Bangladesh Krira Sikkha Protisthan were most commonly affected by low back pain. Variation in anatomical body structure (height), playing position, age were the primary factors of their injury. The age group 18 was most commonly vulnerable to LBP. The study indicates recurrent of injury was another risk factor for young male cricket players. By this study it was found that the prevalence of low back pain among the young male cricketers was 70%. Among the 35 LBP affected young male cricket players 56% young male cricketers took treatment for the betterment and 14% young male cricketers did not take any treatment. Among them 17.9% took medication, 46.4% took physiotherapy and 35.7% took both of the treatment. Whatever, the young male cricket players of BKSP are conscious about their lifestyle and as well as injury.

However, the objectives of this study was to identify the prevalence of LBP and it's associated factors among the young male cricketers at BKSP, To explore the socio-demography (age, body weight, height, educational status, playing position), measuring the severity of pain by using VAS scale, identifying the behavior of pain, findinding out the percentage of low back pain among the batsmen, fast bowlers, spin bowlers, all-rounders and wicket keepers, identifying the available treatment received by the LBP affected young male cricket players. The findings show the necessity of preventive measure focusing on LBP and health promotion should focus on the young male cricket players.

The researcher proposed the following recommendation to certain authority and Personnel to prevail over limitation. Researcher could manage only 50 samples which are very small to generalize the result for the wider population of the young male cricket players. There are limited literatures about the LBP among the young male cricketers 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 BKSP for a short period of time which will affect the result of the study to generalize for wider population. So for the further proposal it is strongly recommendation to increase sample size and use simple random sampling by include participants from different sports organizations with adequate time to generalize the result in all over the country.

REFERENCES

- Amrinder, S., Gursumeet, S., and Singh, S.J., (2013). Prevalence of low back pain and fatigue levels in Indian athletes. *Medicina Sportiva: Journal of Romanian Sports Medicine Society*, 9(4):2241.
- Atlas SJ, 2010, Nonpharmacological treatment for low back pain, *Journal of Musculoskeletal Medicine*, 27(1):20–27.
- Baranto, A., Hellström, M., Cederlund, C.G., Nyman, R., and Swärd, L., (2009). Back pain and MRI changes in the thoraco-lumbar spine of top athletes in four different sports: a 15-year follow-up study. *Knee Surgery, Sports Traumatology, Arthroscopy*, 17(9):1125-1134.
- Bernstein, R.M., and Cozen, H., (2007). Evaluation of back pain in children and adolescents. *Journal of Pain Research*, 100(5):10-11.
- Bhangle, S.D., Sapru, S., and Panush, R.S., (2009). Back pain made simple: an approach based on principles and evidence. *Cleveland Clinic journal of medicine*, 76(7):393-399.
- Biglarian, A., Seifi, B., Bakhshi, E., Mohammad, K., Rahgozar, M., Karimlou, M., and Serahati, S., (2012). Low back pain prevalence and associated factors in Iranian population: findings from the national health survey. *Pain research and treatment*, 2012(2012):5.
- Buselli, P., Bosoni, R., Busè, G., Fasoli, P., Scala, E.L., Mazzolari, R., Zanetti, F., and Messina, S., (2011). Effectiveness evaluation of an integrated automatic termomechanic massage system in nonspecific sub-acute and chronic low back pain - a randomized double blinded controlled trial, comparing SMATH therapy versus sham therapy: study protocol for a randomized controlled trial. *European Journal of Medical Research*, 12(1):216.
- Caplan, N., Gibbon, K., Hibbs, A., Evetts, S., and Debuse, D., (2014). Phasic-to-tonic shift in trunk muscle activity relative to walking during low-impact weight bearing exercise. *Acta astronautica*, 104(1):388-395.

- Charoenchai, L., Chaikoolvatana, A., and Chaiyakul, P., (2006). The relationship between health behavior and pain scale in patients with low back pain in Thailand. *The Southeast Asian journal of tropical medicine and public health*, 37(5):1040-47.
- Choi, B.K., Verbeek, J.H., Wai-san tum, W., and Jiang, J.Y., (2010). Exercises for prevention of recurrences of low-back pain, *Cochrane Database Systematic Review*, 20(1):1-50.
- Chou, R., Qaseem, A., Snow, V., Casey, D., Cross, J.T., Shekelle, P., and Owens, D.K., (2007). Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Annals of internal medicine*, 147(7):478-491.
- Daniels, J.M., Pontius, G., El-Amin, S., and Gabriel, K., (2011). Evaluation of low back pain in athletes. *Sports Health: A Multidisciplinary Approach*, 3(4):336-345.
- Dhillon, M.S., Gary, B., Soni, R.k., Dhilon, H., and Prabhakar, S., (2012). Nature and incidence of upper limb injuries in professional cricket players a prospective observation. *Sports medicine Arthroscopy Rehabilitation Therapy Technology*, 32(5):156-61.
- Dunnl, K.M., Jordan, K.P. and Croft, P.R., (2011). Contributions of prognostic factors for poor outcome in primary care low back pain patients. *European Journal of Pain*, 15(3):313-319.
- Ferdinands, R.E., Kersting, U., and Marshall, R.N., (2009). Three-dimensional lumbar segment kinetics of fast bowling in cricket. *Journal of biomechanics*, 42(11):1616-1621.
- Fritz, J.M., Cleland, J.A., and Brennan, G.P., (2007). Does adherence to the guideline recommendation for active treatments improve the quality of care for patients with acute low back pain delivered by physical therapists? *Medical care*, 45(10):973-980.
- Geletka, B.J., O'Hearn, M.A., and Courtney, C.A., (2012). Quantitative sensory testing changes in the successful management of chronic low back pain. *Journal of Manual & Manipulative Therapy*, 20(1):16-22.

- Ghaffari, M., Alipour, A., Jensen, I., Farshad, A.A., and Vingard, E., (2006). Low back pain among Iranian industrial workers. *Occupational Medicine*, 56(7):455-460.
- Hangai, M., Kaneoka, K., Hinotsu, S., Shimizu, K., Okubo, Y., Miyakawa, S., Mukai, N., Sakane, M., and Ochiai, N., (2009). Lumbar intervertebral disk degeneration in athletes. *The American journal of sports medicine*, 37(1):149-155.
- Heneweer, H., Staes, F., Aufdemkampe, G., van Rijn, M., and Vanhees, L., (2011). Physical activity and low back pain: a systematic review of recent literature. *European Spine Journal*, 20(6):826-845.
- Hestbaek, L., Leboeuf-Yde, C., Kyvik, K.O. and Manniche, C., 2006. The course of low back pain from adolescence to adulthood: eight-year follow-up of 9600 twins. *Spine*, 31(4):468-472.
- Hicks CM, 2000, *Basic Principles of Research: Research Method for Clinical Therapist Applied Project Design and Analysis*, 3rd edition. Churchill Livingstone,
- Hides, J., Stanton, W., McMahon, S., Sims, K., and Richardson, C., (2008). Effect of stabilization training on multifidus muscle cross-sectional area among young elite cricketers with low back pain. *journal of orthopaedic & sports physical therapy*, 38(3):101-108.
- Hoskins, W., (2012). Low back pain and injury in athletes. *Low back pain pathogenesis and treatment*, 12(3):41-47.
- Hoy, D., Brooks, P., and Buchbinder, F.B.R., (2010). The epidemiology of low back pain. *Best Practice & Research Clinical Rheumatology*, 24:769-781.
- Jacobs, W.C., Rubinstein, S.M., Koes, B., van Tulder, M.W., and Peul, W.C., (2013). Evidence for surgery in degenerative lumbar spine disorders. *Best Practice & Research Clinical Rheumatology*, 27(5):673-684.
- Jensen, R.K., Leboeuf-Yde, C., Wedderkopp, N., Sorensen, J.S., and Manniche, C., (2012). Rest versus exercise as treatment for patients with low back pain and Modic changes. A randomized controlled clinical trial. *BioMed Central medicine*, 10(1):22.

- Jonasson, P., Halldin, K., Karlsson, J., Thoreson, O., Hvannberg, J., Swärd, L., and Baranto, A., (2011). Prevalence of joint-related pain in the extremities and spine in five groups of top athletes. *Knee Surgery, Sports Traumatology, Arthroscopy*, 19(9):1540-1546.
- Koes, B. and Tulder, M.V., (2006). Low back pain (acute), *Clinical Evidence*, 15: 1619–32.
- Kumar, S., Kulandaivelan, S., Kaur, J., Chaturvedi, R., Girdhar, B., Singh, V., Punia, S., and Kumar, V., (2015). One year prevalence of musculoskeletal disorder among cricket Players in Haryana: A retrospective study. *International Journal of Physical Education, Sports and Health*, 2(2):75-77.
- Lederman, E., (2011). The fall of the postural-structural-biomechanical model in manual and physical therapies: exemplified by lower back pain. *Journal of bodywork and movement therapies*, 15(2):131-138.
- Lee, K., (2012). Cricket Related Maxillofacial Fractures. *Journal of Maxillofacial Oral Surgeon*, 11(2):182-185.
- Leeuw, M., (2007). The fear-avoidance model of musculoskeletal pain: Current state of low back pain, *Clinical Rheumatology*, 19(4):655-670.
- Licciardone, J.C., (2008). The epidemiology and medical management of low back pain during ambulatory medical care visits in the United States. *Osteopathic Medicine and Primary Care*, 2(1):11
- Louw, Q.A., Morris, L.D., and Grimmer-Somers, K., (2007). The prevalence of low back pain in Africa: a systematic review. *BioMed Central Musculoskeletal disorders*, 8(1):105.
- Mansingh, A., Harper, L., Headley, S., King-Mowatt, J., and Mansingh, G., (2006). Injuries in West Indies cricket 2003–2004. *British journal of sports medicine*, 40(2):119-123.
- Manek, N.J., and MacGregor, A.J., (2005). Epidemiology of back disorders: prevalence, risk factors, and prognosis. *Current opinion in rheumatology*, 17(2):134-140.
- McBeth, J., and Jones, K., (2007). Epidemiology of chronic musculoskeletal pain. *Best practice & research Clinical rheumatology*, 21(3):403-425.

- Mogensen, A.M., Gausel, A.M., Wedderkopp, N., Kjær, P., and Leboeuf-Yde, C., (2007). Is active participation in specific sport activities linked with back pain? *Scandinavian journal of medicine & science in sports*, 17(6):680-686.
- Morton, S., Barton, C.J., Rice, S., and Morrissey, D., (2013). Risk factors and successful interventions for cricket-related low back pain: a systematic review. *British journal of sports medicine*, 48(8):685-91.
- Odole, A.C., Adegoke, B.O.A., Akinpelu, A.O., and Okafor, A.C., (2010). Low Back Pain At Work: Knowledge and Attitude of Sectional Heads At the University College Hospital, Ibadan. *African Journal of Physiotherapy and Rehabilitation Science*, 3(1):28-35..
- Petering, R.C. and Webb, C., (2011). Treatment options for low back pain in athletes. *Sports Health: A Multidisciplinary Approach*, 3(6):550-555.
- Plouvier, S., Gourmelen, J., Chastang, J.C., Lanoe, J.L., and Leclerc, A., (2011). Low back pain around retirement age and physical occupational exposure during working life. *BioMed Central Public Health*, 11:268.
- Ranson, C.A., Burnett, A.F., and Kerslake, R.W., (2010). Injuries to the lower back in elite fast bowlers. *Bone & Joint Journal*, 92(12):1664-1668.
- Reed, J.J., and Wadsworth, L.T., (2010). Lower back pain in golf: a review. *Current sports medicine reports*, 9(1):57-59.
- George, S.Z., Childs, J.D., Teyhen, D.S., Wu, S.S., Wright, A.C., Dugan, J.L. and Robinson, M.E., (2011). Brief psychosocial education, not core stabilization, reduced incidence of low back pain: results from the Prevention of Low Back Pain in the Military (POLM) cluster randomized trial. *BMC medicine*, 9(1):128.
- Sabino, J. and Grauer, J.N., (2008). Pregnancy and low back pain. *Current reviews in musculoskeletal medicine*, 1(2), pp.137-141.
- Saidu, I.A., Maduagwu, S.M., Abbas, A.D., Adetunji, O.O., and Jajere, A.M., (2011). Lumbar spinal mobility changes among adults with advancing age. *Journal of mid-life health*, 2(2):65.
- Savigny, P., Kuntze, S., Watson, P., Underwood, M., Ritchie, G., Cotterell, M., Hill, D., Browne, N., Buchanan, E., Coffey, P. and Dixon, P., (2009). Low back

pain: early management of persistent non-specific low back pain. London: National Collaborating Centre for Primary Care and Royal College of General Practitioners, 14(1):9-13

- Saw, R., Dennis, R.J., Bentley, D., and Farhart, P., (2009). Throwing workload and injury risk in elite cricketers. *British Journal of Sports Medicine*, 45:805-808.
- Schimmel, J.J., de Kleuver, M., Horsting, P.P., Spruit, M., Jacobs, W.C.H., and van Limbeek, J., (2009). No effect of traction in patients with low back pain: a single centre, single blind, randomized controlled trial of Intervertebral Differential Dynamics Therapy. *European spine journal*, 18(12):1843.
- Shambrook, J., McNee, P., Harris, E.C., Kim, M., Sampson, M., Palmer, K.T., and Coggon, D., (2011). Clinical presentation of low back pain and association with risk factors according to findings on magnetic resonance imaging. *152(7):1659-1665*.
- Sheeran, L., Coales, P., and Sparkes, V., (2015). Clinical challenges of classification based targeted therapies for non-specific low back pain: What do physiotherapy practitioners and managers think?. *Manual therapy*, 20(3):456-462.
- Sikiru, L., and Hanifa, S., (2010). Prevalence and risk factors of low back pain among nurses in a typical Nigerian hospital. *African Health Sciences*, 10(1):26-30.
- Standaert, C.J., (2008). Low back pain in the adolescent athlete. *Physical medicine and rehabilitation clinics of North America*, 19(2):287-304.
- Storch, E.A., Milsom, V.A., DeBraganza, N., Lewin, A.B., Geffken, G.R., and Silverstein, J.H., (2007). Peer victimization, psychosocial adjustment, and physical activity in overweight and at-risk-for-overweight youth. *Journal of pediatric psychology*, 32(1):80-89.
- Stuber, K.J., Bruno, P., Sajko, S. and Hayden, J.A., (2014). Core stability exercises for low back pain in athletes: a systematic review of the literature. *Clinical Journal of Sport Medicine*, 24(6):448-456.
- Tomita, S., Arphorn, S., Takashi, M.U.T.O., Koetkhlai, K., Naing, S.S., and Chaikittiporn, C., (2010). Prevalence and risk factors of low back pain among Thai

and Myanmar migrant seafood processing factory workers in Samut Sakorn Province, Thailand. *Industrial health*, 48(3):283-291.

- Tsao, H., and Hodges, P.W., (2008). Persistence of improvements in postural strategies following motor control training in people with recurrent low back pain. *Journal of Electromyography and Kinesiology*, 18(4):559-567.
- Tveito, T.H., Hysing, M., and Eriksen, H.R., (2004). Low back pain interventions at the workplace: a systematic literature review. *Occupational medicine*, 54(1):3-13.
- Vandergrift, J.L., Gold, J.E., Hanlon, A., and Punnett, L., (2012). Physical and psychosocial ergonomic risk factors for low back pain in automobile manufacturing workers. *Occupational and environmental medicine*, 69(1):29-34.
- Van Hilst, J., Hilgersom, N.F., Kuilman, M.C., Kuijer, P., and Frings-Dresen, M.H., (2015). Low back pain in young elite field hockey players, football players and speed skaters: Prevalence and risk factors. *Journal of back and musculoskeletal rehabilitation*, 28(1):67-73.
- Vandergrift, J.L., Gold, J.E., Hanlon, A. and Punnett, L., (2012). Physical and psychosocial ergonomic risk factors for low back pain in automobile manufacturing workers. *Occupational and environmental medicine*, 69(1):29-34.
- Van Hilst, J., Hilgersom, N.F., Kuilman, M.C., Kuijer, P. and Frings-Dresen, M.H. (2015). Low back pain in young elite field hockey players, football players and speed skaters: Prevalence and risk factors. *Journal of back and musculoskeletal rehabilitation*, 28(1), pp.67-73.
- Vindigni, D., Walker, B.F., Jamison, J.R., Da Costa, C., Parkinson, L., and Blunden, S., (2005). Low back pain risk factors in a large rural Australian Aboriginal community. An opportunity for managing co-morbidities? *Journal of the International Society of Sports Nutrition*, 13(1):21.
- Waddell, G., and Burton, A.K., (2005). Concepts of rehabilitation for the management of low back pain. *Best Practice & Research Clinical Rheumatology*, 19(4):655-670.

- Walker, B.F., Muller, R., and Grant, W.D., (2004). Low back pain in Australian adults. Prevalence and associated disability. *Journal of manipulative and physiological therapeutics*, 27(4):238-244.
- Williams, B.S., and Cohen, S.P., (2009). Greater trochanteric pain syndrome: a review of anatomy, diagnosis and treatment. *Anesthesia & Analgesia*, 108(5):1662-1670.
- Wong, A.Y., Parent, E.C., Funabashi, M., and Kawchuk, G.N., (2014). Do changes in transversus abdominis and lumbar multifidus during conservative treatment explain changes in clinical outcomes related to nonspecific low back pain: A systematic review. *The Journal of Pain*, 15(4):377-385.
- Zhang, Y.G., Guo, T.M., Guo, X., and Wu, S.X., (2009). Clinical diagnosis for discogenic low back pain. *International Journal of Biological Sciences*, 5(7):647-658.

APPENDIX



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই) Bangladesh Health Professions Institute (BHPI)

(The Academic Institute of CRP)

Ref.

CRP-BHPI/IRB/04/17/73

Date: 05/04/17

To
Pangkaz Kanti Dash
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2011-2012 DU Reg. No: 1703
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal –prevalence of low back pain and its associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan.

Dear Pangkaz Kanti Dash,

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 20 to 30 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,

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

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সিআরপি-বিএইচপিআই/০৯/১৬/৬৫১৬

তারিখ : ০৩.০৯.২০১৬

প্রতি
মহাপরিচালক
বাংলাদেশ ক্রীড়া শিক্ষা প্রতিষ্ঠান
জিরানী, সাভার, ঢাকা।

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

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

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

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন ফিজিওথেরাপি কোর্সের ছাত্র পংকজ কান্তি দাস তার রিসার্চ সংক্রান্ত কাজের তথ্য সংগ্রহের জন্য আগামী ২০.০৯.২০১৬ থেকে ১৫.১০.২০১৬ তারিখ পর্যন্ত আপনার প্রতিষ্ঠানে সফর করতে অগ্রহী। তার রিসার্চ শিরোনাম

“Prevalence of low back pain and it's associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan.”

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

ধন্যবাদান্তে

মোঃ ওবায়দুল হক
অধ্যক্ষ-ভারপ্রাপ্ত
বিএইচপিআই।



INFORM CONSENT (ENGLISH)

Assalamualaikum / Namasker, my name is Pangkaz Kanti Dash, I am conducting a study for partial fulfillment of Bachelor of Science in Physiotherapy degree, titled on **“Prevalence of low back pain and it’s associated factors among the young male cricketers at Bangladesh Krira Sikkha Protisthan”** from Bangladesh Health Professions Institute (BHPI) under medicine faculty of University of Dhaka. I would like to know your some personal and other related information about your problem. This will take approximately 20-30 minutes. I need to meet you just once to collect entire information.

The aim of the study is to determine the prevalence of low back pain and it’s associaed factors among the young cricket players. I would like to inform you that this is a purely academic study and obtain information will not be used for any other purpose. All information provided by you will be kept confidential and also the source of information will remain 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.

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 researcher

Signature of the witness

সম্মতিপত্র (বাংলায়)

আসালামু আলাইকুম / নমস্কার, আমার নাম পংকজ কান্তি দাস, আমি এই গবেষণাটি বাংলাদেশ হেল্থ প্রফেশনস ইন্সটিটিউটে (বি এইচ পি আই), ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা অনুষদের অধীনে করছি যা আমার ফিজিওথেরাপী স্নাতক কোর্সের আংশিক অধিভুক্ত যার শিরোনাম হল “ বাংলাদেশ ক্রীড়া শিক্ষা প্রতিষ্ঠানের তরুণ ক্রিকেট খেলোয়াড়দের মধ্যে কোমরে ব্যাথার প্রাদুর্ভাব এবং এর আনুষঙ্গিক ফ্যাক্টর”। আমি এই গবেষণাটির মাধ্যমে বিকেএসপির তরুণ ক্রিকেট খেলোয়াড়দের মধ্যে কোমরে ব্যাথার প্রাদুর্ভাব দেখতে চাচ্ছি। আমি এক্ষেত্রে কিছু ব্যক্তিগত এবং কোমর ব্যাথা সম্পর্কে কিছু আনুষঙ্গিক তথ্য জানতে চাচ্ছি। ফরমে উল্লিখিত কিছু প্রশ্নের উত্তর দেয়ার জন্য আন্তরিকভাবে অনুরোধ জানাচ্ছি যা আনুমানিক ২০ – ৩০ মিনিট সময় নিবে।

এই গবেষণায় লক্ষ্য হল তরুণ ক্রিকেট খেলোয়াড়দের মধ্যে কোমরে ব্যাথার প্রাদুর্ভাব নির্ধারণ করা। প্রতি একশ জন তরুণ ক্রিকেটারদের মধ্যে কত জন তরুণ ক্রিকেট খেলোয়াড় কোমরে ব্যাথায় ভোগতেছেন সেই সম্পর্কে গুরুত্বপূর্ণ তথ্য এই গবেষণাটি থেকে পাওয়া যাবে।

আমি আপনাকে অবগত করছি যে, এটা কেবলমাত্র আমার অধ্যয়নের সাথে সম্পর্কযুক্ত এবং অন্য কোন উদ্দেশ্যে ব্যবহার হবে না। আমি আপনাকে আরো নিশ্চয়তা প্রদান করছি যে, আপনি যে সকল তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহন স্বেচ্ছাপ্রণোদিত এবং আপনি যে কোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক এবং ফলাফল কোন বিরতবোধ ছাড়াই নিজেই প্রত্যাহার করতে পারবেন। এছাড়াও কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তর না দেয়ার এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকার আপনার আছে।

এই সাক্ষাৎকার শুরু করার আগে আপনার কি কোন প্রশ্ন আছে ?

আমি আপনার অনুমতি নিয়ে এই সাক্ষাৎকার শুরু করতে যাচ্ছি ?

হ্যাঁ

সাক্ষাৎকার প্রদানকারীর স্বাক্ষর..... তারিখ

সাক্ষাৎকার গ্রহনকারীর স্বাক্ষর..... তারিখ

সাক্ষীর স্বাক্ষরও তারিখ

QUESTIONNAIRE


Part-I: Personal details

- 1.1 Name:
- 1.2 Address:
- 1.3 Religion:
- 1.4 Date of interview:

Part-II: Socio-demographic Information

2.1	Ageyears
2.2	Body weightKG
2.3	Heightcm
2.4	Educational levelclass
2.5	Playing position	1=Batsman 2=Fast Bowler 3=Spin bowler 4=All-rounder 5=Wicket keeper

Part-III: Low back pain and associated factor related Information

3.1	Have you any low back pain?	1 = Yes 2 = No
	If yes, how severe is your pain on VAS Scale?	
3.2	How many times have you got low back pain?	1= not a single time 2=.....time
3.3	What is the behavior of pain?	1=Occasional 2=Intermittent 3=Constant 4= Not applicable
3.4	Does the low back pain hamper your play?	1=Yes 2=No
	If yes, how much LBP hamper your play?	1= Mildly hamper 2= Moderately hamper 3=Severely hamper 4=Not at all
3.5	Have you experienced any trauma on your lower back?	1=yes 2=no
3.6	Which posture makes your pain worse?	1= Standing 2=Sitting 3=Lying 4=Bending 5=Walking
3.7	Which posture relives your pain?	1= Standing 2=Sitting 3=Lying 4=Bending 5=Walking

3.8	Can you sleep well?	1=Yes 2=No
3.9	Have you difficulty in standing up from a chair?	1=Yes 2=No
3.10	Have you difficulty in turning over in the bed?	1=Yes 2=No
3.11	Have you difficulty in going up the stairs?	1=not difficult at all 2=minimally difficult 3=somewhat difficult 4=fairly difficult 5=very difficult 6=unable to do
3.12	Have you difficulty to walk?	1=not difficult at all 2=minimally difficult 3=somewhat difficult 4=fairly difficult 5=very difficult 6=unable to do
3.13	Did you ever taken any treatment due to low back pain?	1=Yes 2=No
	If yes, what kind of treatment did you receive for low back pain?	1= Medication 2=Physiotherapy 3=Both 4=Not applicable
3.14	In your view, how likely the pain is associated with your play?	1= Strongly associated 2=Weakly associated 3= Not associated at all
3.15	How is your present health condition?	1=always 2=frequently 3=sometimes 4=rarely 5=never

3.16	Do you feel happy?	1=never 2=sometimes 3=almost always 4=always
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প্রশ্নাবলী

কোড নং.....

ব্যক্তিগত তথ্যাবলী

১.১। নামঃ.....

১.২। সাক্ষাতকারের তারিখঃ.....

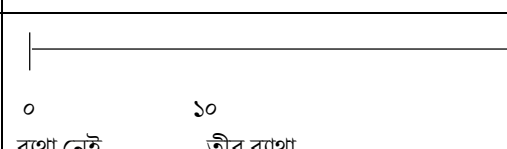
১.৩। ঠিকানাঃ.....

১.৪। ধর্মঃ.....

আর্থ-সামাজিক তথ্যাবলি

২.১	বয়স বছর
২.২	শরীরের ওজন কেজি
২.৩	উচ্চতা সে.মি.
২.৪	শিক্ষাগত যোগ্যতাশ্রেণী
২.৫	খেলার অবস্থান	১ = ব্যাটসম্যান ২ = ফাস্ট বোলার ৩ = স্পিন বোলার ৪ = অলরাউন্ডার ৫ = উইকেট রক্ষক

কোমরে ব্যাথা সংক্রান্ত তথ্যাবলি

৩.১	আপনার কি কোমরে ব্যাথা আছে?	১ = হ্যাঁ ২ = না
	যদি হ্যাঁ হয় তবে ভাস স্কেলে আপনার ব্যাথার তীব্রতা কত?	

৩.২	কতবার আপনার কোমরে ব্যাথা হয়েছে?	১= এক বার ও না ২= বার
৩.৩	আপনার কোমরে ব্যাথার ধরন কেমন ?	১= অনিয়মিত ২= মাঝে মাঝে ৩= সর্বদা ৪= প্রয়োজ্য নয়
৩.৪	কোমরের ব্যাথার জন্য কি আপনার খেলা ব্যাহত হয়?	১= হ্যাঁ ২= না
	যদি হ্যাঁ হয় তবে কোমরের ব্যাথার জন্য আপনার খেলা কতটা ব্যাহত হয়?	১= আংশিক ২= মাঝারি ৩= তীব্র ৪= প্রয়োজ্য নয়
৩.৫	আপনি কি কোমরে আঘাত পেয়েছিলেন?	১= হ্যাঁ ২=না
৩.৬	শরীরের কোন অবস্থাতে আপনার ব্যাথা বৃদ্ধি পায়?	১= দাঁড়ানো ২= বসে থাকা ৩= শয়ান অবস্থা ৪= ভাজ হওয়া ৫= হাটা ৬= প্রয়োজ্য নয়
৩.৭	শরীরের কোন অবস্থাতে আপনার ব্যাথা কমে যায়?	১= দাঁড়ানো ২= বসে থাকা ৩= শয়ান অবস্থা ৪= ভাজ হওয়া ৫= হাটা ৬= প্রয়োজ্য নয়
৩.৮	কোমরে ব্যাথার কারণে আপনি কি ঠিকমত ঘুমাতে পারেন না ?	১= হ্যাঁ ২= না
৩.৯	কোমরে ব্যাথার কারণে, আপনার চেয়ার থেকে উঠে দাঁড়াতে কি অসুবিধা হয় ?	১= হ্যাঁ ২= না
৩.১০	কোমরে ব্যাথার কারণে, আপনার বিছানায় এক পাশ থেকে আর এক পাশে ঘড়ানোতে কি অসুবিধা হয় ?	১= হ্যাঁ ২= না
৩.১১	আপনার কি সিঁড়ি বেয়ে উপরে উঠতে অসুবিধা হয়?	১= মোটেই অসুবিধা হয় না ২= আংশিক অসুবিধা হয় ৩= কিছুটা অসুবিধা হয় ৪= কিছুটা থেকে বেশি অসুবিধা হয় ৫= খুব বেশি অসুবিধা হয় ৬= করতে অক্ষম
৩.১২	আপনার কি হাটতে অসুবিধা হয় ?	১= মোটেই অসুবিধা হয় না ২= আংশিক অসুবিধা হয়

		৩= কিছুটা অসুবিধা হয় ৪= কিছুটা থেকে বেশি অসুবিধা হয় ৫= খুব বেশি অসুবিধা হয় ৬= করতে অক্ষম
৩.১৩	আপনি কি কোমরে ব্যাথার জন্য কখনো কোন চিকিৎসা নিয়েছিলেন ?	১= হ্যাঁ ২= না
	যদি হ্যাঁ হয় তবে আপনি কি ধরনের চিকিৎসা কোমরে ব্যাথার জন্য নিয়েছিলেন ?	১= ঔষধ ২= ফিজিওথেরাপী ৩= উভয়ই ৪= প্রয়োজ্য নয়
৩.১৪	আপনার দৃষ্টিকোণ থেকে এই কোমরে ব্যাথা আপনার খেলার সাথে কেমন ভাবে যুক্ত ?	১= প্রবলভাবে যুক্ত ২= দুর্বলভাবে যুক্ত ৩= মোটেই যুক্ত নয়
৩.১৫	আপনার বর্তমান স্বাস্থ্য এর অবস্থা কেমন ?	১= মন্দ ২= চলনসই ৩= ভাল ৪= খুব ভাল ৫= উত্তম
৩.১৬	আপনি কি সুখী অনুভব করেন ?	১= কখনো না ২= মাঝে মাঝে ৩= প্রায় সর্বদা ৪= সর্বদা