

Title: Patterns of Sports Injuries & Associated Factors among the Volleyball Players of Selected Sports Institutes in Dhaka city

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- This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.
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TABLE OF CONTENTS

CHAPTER	TOPICS	PAGE NO.
CHAPTER I INTRODUCTION	1.1 Introduction	1-4
	1.2 Justification of the Study	5
	1.3 Research Question	6
	1.4 Operational Definition	7-8
CHAPTER II LITERATURE REVIEW	Literature Review	9-13
CHAPTER III RESEARCH METHODOLOGY	3.1 Conceptual Framework	14
	3.2 Aim of the Study	15
	3.3 Study Design	16
	3.4 Study population	16
	3.5 Study Area	16
	3.6 Study period	16
	3.7 Sample Size	17
	5.8 Inclusion criteria & Exclusion criteria	18
	3.9 Sampling Techniques	18
	5.10 Data collection tools/materials	18
	5.11 Data collection technique	18-19
	3.12 Data analysis	19
	3.13 Ethical Consideration	19
CHAPTER IV RESULT	4.1 Socio-Demographic & Physical Factors	20-25
	4.2 Attitude, Life Style & injury Related Factors	25-33
	4.3 Level of competition related factors	34-35
	4.4 Circumstances of sports related factors & environmental factors	35-39
	4.5 Relationship between site of injury and other variables (Cross tabulation & Chi Square)	39-43
	4.6 Relationship between Occurrence of injury and other variables (Cross tabulation & Chi Square)	44-52

	4.7 Relationship between severity of injury and other variables	52-58
	4.8 Relationship between type of injury and other variables	58-65
CHAPTER V DISCUSSION	5.1 Discussion	66-68
	5.2 Limitation	69
CHAPTER VI CONCLUSION	6.1 Conclusion	70
	6.2. Recommendation	70
CHAPTER VII REFERENCES		71-74
APPENDIX		75-80

LIST OF FIGURES

	Page No
Figure 1: Distribution of participants according to their Marital Status.....	20
Figure 2: Distribution of Participants according to their Occupation.....	21
Figure 3: Distribution of respondents according to previous injuries (%).....	23
Figure 4: Common site of previous injury among participants (%)	25
Figure 5: Distribution of participants according to the use of crepe bandages (%)	26
Figure 6: Distribution of participants according to satisfaction of diet and supplementation (%)	27
Figure 7: Percentage distribution of participants according to occurrence of injury..	28
Figure 8: Percentage distribution of participants according to the site of injury....	28
Figure 9: Distribution of participants according to their difficulties participating in normal training and competition due to injury.....	31
Figure 10: Distribution of participants according to their performance affected by injury (%).....	32
Figure 11: Distribution of participants according to reduction of training after injury(%).....	33
Figure 12: Distribution of participants according to taking part in competition (%).....	34
Figure 13: Distribution of participants according to their ideas of preventing injuries (%).....	36
Figure 14: Distribution of participants according to their experience of referee injustice (%).....	37
Figure 15: Distribution of participants according to their type of injury (%).....	38

LIST OF TABLE

	Page No.
Table 1: Socio-demographic details of survey respondents (n=62).....	22
Table 2: Previous Injury related details of the survey respondents (n=29).....	24
Table 3: Attitude, Life Style Related Factors (n=62).....	26
Table 4: Injury Related Factors (n=62).....	30
Table 5: Competition related factors (n=46).....	35
Table 6: Sports and environmental factors.....	36
Table 7: Sports and injury related factors.....	38
Table 8: Cross tabulation between age-group and site of injury.....	39
Table 9: Cross tabulation between weight and site of injury.....	40
Table 10: Cross tabulation between BMI and site of injury.....	40
Table 11: Cross tabulation between Sports experience and site of injury.....	41
Table 12: Cross tabulation of Sleeping hours and site of injury.....	42
Table 13: Cross tabulation of Smoking and site of injury.....	42
Table 14: Cross tabulation of Proper cool down and site of injury.....	43
Table 15: Cross tabulation of Injury affected performance and site of injury.....	43
Table 16: Cross tabulation of age-group and occurrence of injury.....	44
Table 17: Cross tabulation of Weight and occurrence of injury.....	45
Table 18: Cross tabulation of BMI and occurrence of injury.....	45
Table 19: Cross tabulation of Sports experience and occurrence of injury.....	46
Table 20: Cross tabulation of duration of sleep and occurrence of injury.....	47
Table 21: Cross tabulation of smoking and occurrence of injury.....	47

Table 22: Cross tabulation of difficulties participating in normal training and occurrence of injury.....	49
Table 23: Cross tabulation of injury affected performance and occurrence of injury.....	50
Table 24: Cross tabulation of reduced training volume and occurrence of injury.....	51
Table 25: Cross tabulation of reduced training volume and occurrence of injury.....	51
Table 26: Cross tabulation of interval during practice and occurrence of injury.....	52
Table 27: Cross tabulation of severity of injury and age-group.....	53
Table 28: Cross tabulation of severity of injury and weight.....	53
Table 29: Cross tabulation of severity of injury and BMI.....	54
Table 30: Cross tabulation of severity of injury and Sports experience.....	55
Table 31: Cross tabulation of severity of injury and duration of sleep.....	55
Table 32: Cross tabulation of severity of injury and smoking.....	56
Table 33: Cross tabulation of severity of injury and Cool down properly.....	56
Table 34: Cross tabulation of severity of injury and previous injury.....	57
Table 35: Cross tabulation of severity of injury and Satisfaction of diet.....	57
Table 36: Cross tabulation of severity of injury and participation in competition.....	58
Table 37: Cross tabulation of severity of injury and practicing hour.....	58
Table 38: Cross tabulation of severity of injury and idea about injury prevention.....	59
Table 39: Cross tabulation of type of injury and age group.....	59
Table 40: Cross tabulation of type of injury and weight.....	60
Table 41: Cross tabulation of type of injury and BMI.....	61
Table 42: Cross tabulation of type of injury and Sports experience.....	61
Table 43: Cross tabulation of type of injury and smoking.....	62
Table 44: Cross tabulation of type of injury and proper cool down.....	62

Table 45: Cross tabulation of type of injury and Participation in normal training.....	63
Table 46: Cross tabulation of type of injury and injury affected their performance.....	64
Table 47: Cross tabulation between type of injury & severity of pain.....	64
Table 48: Cross tabulation of type of injury and practice hour.....	65
Table 49: Cross tabulation of type of injury and practice hour.....	65

ABSTRACT

Introduction

Volleyball is an increasingly popular team sport. As with any competitive sport, there is always an inherent risk of injury. The participation of volleyball is becoming increasingly common and this increased involvement raises concerns about the risk of installation of sports injuries.

A total number of 62 Volleyball Players from different sports institutes participated in this study. The minimum age of the participants was 15 whilst the maximum age was 34 years. The mean \pm SD (Standard Deviation) age of our participant was 22.94 ± 4.75 with a range of 19. All the participants were male in this study.

Objective(s): The aim of this study was to find out the pattern of sports injuries & associated factors among the volleyball players of selected sports institute.

Methodology:

This study was a cross sectional. Convenience sampling technique was used for sample selection. A Pretested structured questionnaire used to collect data. Data were analyzed using SPSS 20 version.

Result:

Knee (27.4%), ankle (22.6%), Shoulder (16.1%) & lower back (14.5%) were the most common site of injury. Most common type of injury among participants was sprain (46.8%), strain (29%) and tendinopathy (16.1%). Participants with somewhat satisfied diet had more severe injury (n=16, 72.7%) than Participants with very satisfied diet had more mild injury (n=16, 64%). Participants who did not have an idea about injury prevention had suffered severe type of injury (n=56, 90.3%) than those who had idea about injury prevention.

Conclusion: Most common type of injury among participants was sprain (46.8%), strain (29%) and tendinopathy (16.1%). It could be recommended that this study might be helpful to fix treatment protocol as well as formulating injury prevention specifically designed for them.

Key words: Volleyball, Pattern of Sports injury, Associated factors.

1.1 Introduction

Volleyball is an increasingly popular team sport. As with any competitive sport, there is always an inherent risk of injury. The participation of volleyball is becoming increasingly common and this increased involvement raises concerns about the risk of installation of sports injuries. Volleyball is a game that can be played by all ages and both sexes indoors and outdoors. It can be highly competitive, requiring a high level fitness, agility and co-ordination, or it can be a relaxing and highly enjoyable recreation. The players of the game require competitively concentration, quick thinking and a great deal of movement. In addition the speed of the game requires the players to take quick decisions because of the quick changing situations of attack and defense. Volleyball requires a variety of physical attributes and specific playing skills therefore participants need to train and prepare to meet at least a minimum set of physical, physiological and psychological requirements to cope with the demands of the game and to reduce the risk the injuries. Volleyball playing largely involves, jumping, stretching, twisting. Diving, spiking and turning movements that place the players to greater risk of injuries (Jadhav et al., 2010)

Six-person team volleyball is a non-contact team game played by two teams on a hard playing court divided by a net. The object is for each team to send the ball regularly over the net to ground it on the opponent's court, and to prevent the ball from being grounded on its own court. Play is initiated with a serve by the right back-row player to the opponent's court. The opposing team is allowed to hit the ball three times (in addition to the block contact) to return the ball to the opponent's court. The rally continues until the ball touches the ground/floor, goes out of court or the team fails to return it to the opponent's court or commits a fault (Cassell, 2001).

Volleyball players, based on abilities in performing skills and physical features, play at different specialized and organized posts. Setters, line spikers, sprint spikers, strength spikers and leberos are the posts of volleyball. The most important physical and biomechanical features base on specialized posts are including height, vertical and

horizontal jump, reaction time, muscle strength, agility etc. Volleyball skills including spike, service, receiving, set and defense that each volleyball player needs high speed displacement, explosive power and ability to do high vertical jump. For better performance skills and earn more points in the match, reinforcing physical fitness factors is required. Player performances in team sports such as volleyball depend on several factors, including body size, specialized sport skills, team tactics and psychological characteristics (Duncan, 2006).

Setters, line spikers, sprint spikers, strength spikers and libero are the posts of volleyball. The most common injuries among the various playing posts reported about strength spikers. Due to the type of hand movement during spike and hand different rotation during hand throwing above the head, indecent rate of chronic muscle injuries and bursitis and tendinitis in Upper extremity is more than other playing posts. Sprint spikers when placed in front of the net, they will receive set or not, had to jump in order to disrupt the opposing team's defense and support of teammates spikers. This caused a high prevalence of dislocation injuries, tendon chronic injuries in joints and lower extremity ligaments than other playing posts (Sharareh, 2013)

Volleyball requires a variety of physical attributes (speed, power, flexibility, strength and balance) and specific playing skills. Therefore, participants need to train and prepare to meet at least a minimum set of physical, physiological and psychological requirements to cope with the demands of play and reduce the risk of injury (Cassell, 2001)

In all variations of volleyball there are six sport-specific basic skills like Serve, forearm pass/dig, set/overhand pass, hit/spike & block etc. Serves may be overhand or underhand and the ball is hit with the fist. Pass' when receiving the serve and a 'dig' when handling an opponent's attack. Set/Overhand pass: the ball is directed towards the net so that it may be spiked or hit by a team mate. Hit/Spike: the player jumps high into the air and contacts the ball overhead at the highest point of the jump and strikes it down onto the opposition's side of the net. Block may be players on the opposing team will try to

obstruct a spike by jumping with hands raised to intercept the spike and force the ball back to the hitter's side of the net (Sharareh, 2013).

Sports injury is a term as loss or abnormality of bodily structure or functioning resulting from an isolated exposure to physical energy during sports training or competition that following examination is diagnosed by a clinical professional as a medically recognized injury (Timpka, 2014). Sports injuries are common due to contact with player, ground, objects, and other reasons such as pressure, overuse, and falls. Weakness is also a common cause of injuries. For example, physical weakness due to a previous injury, may lead to musculoskeletal injury. Preventing or treating the injury can be achieved through science and research (Abdelnour, 2008)

Sports injuries are a common yet unwanted aspect of participation in sports. These injuries result from complex interaction of extrinsic and intrinsic risk factors. They include injuries to bones, joints ligaments, muscles, tendons and other soft tissues. Apart from its potential to cause sports injuries, participation in sporting activities must be encouraged across age and gender span as a mean of engaging in beneficial physical activity (Akinbo et al., 2007).

Sports injuries usually occur when there is an overload of the musculoskeletal structures that exceeds the ability of regeneration or adaptation (Meeuwisse et.al., 2007). Muscle injury is one of the most common injuries affecting Athletes (Järvinen et.al., 2005). The rapidly increasing numbers participating in sports activities have resulted in a parallel increase in sports related injuries (Finch, 2001). The sports injuries may occur acutely (trauma), or result from repetitive stress (overuse), which tends to be episodic, recurrent, and potentially advance into chronic conditions. Such injuries may include muscle strains, contusions, tendinopathy, fasciitis, bursitis, muscle and tendon tears and ruptures, joint sprains, ligament tears, joint dislocation, bone fractures, cartilaginous damage, and bone stress fractures. (Edward, 2012)

The patterns of sports injuries in cases of volleyball Athlete is dependent on the injury mechanism like jumping, stretching, twisting, diving, spiking and turning movements,

height, body weight, injury sites according to anatomical structure, variety of physical attributes and specific playing skills etc (Kumar, 2013)

Associated factors like internal risk factors, external risk factors & inciting events. Internal risk factors like age (maturation, aging), Gender, Body composition (eg. Body weight, body mass, BMD, Anthropometry), Health (eg History of previous injury, joint instability), Physical fitness (eg Muscle strength/power, Maximum O₂ uptake, joint ROM), Anatomy (eg Alignment intercondylar notch width), Skill level (eg Sport specific technique, Postural stability), External risk factors like Human factors (eg Team mates, opponents, referee), Protective equipment (eg Helmet, shin guards), Environment (eg weather, snow, ice conditions, floor & turf type & maintenance) & Inciting events like joint motion (eg Kinematics, joint force & moment), Playing situation (eg Skill performed), Training program & Match schedule etc. (Bahr, 2003).

1.2 Justification

Sports injuries in volleyball athletes are common due to physical and biomechanical features base on specialized posts are including height, vertical and horizontal jump, reaction time, muscle strength, agility, contact with player, ground, objects, and other reasons such as pressure, overuse, and falls. Physical weakness due to a previous injury, may lead to Sports injury. These injuries result from complex interaction of extrinsic and intrinsic risk factors.

They often suffer different types of sports injuries ranging from mild to severe but due to short of necessary and sufficient information prevention as well as early recovery is hampered. If we can find out the pattern & factors associated with these injuries it will be helpful to fix treatment protocol specifically designed for them.

The Volleyball Athletes are the part and parcel in our Bangladesh. Their wellbeing is closely related to our National wellbeing. Definitely their injury makes difficulty in participate the different national & international competition. If we can identify properly their patterns of Sports injury & its associated factors & it will be helpful and needed in order to formulate preventative, treatment and rehabilitation measures & early as possible.

As far as I go through via internet (Google, Google scholar, Pub Med) such type of study or research findings in the context of Bangladesh was rare or scanty. This study would provides new information on sports person which help take steps for future games in terms of strategies for injury prevention and better management coverage. It explores the pattern of sports injuries & associated factors among the volleyball athletes of selected sports institute in Dhaka city. I think this information will fill up the gap of existing knowledge in terms of type of injuries and ultimately reduce their sufferings as well as burden indeed.

1.3 Research question

What types of sports injuries & associated factors among the volleyball athletes of selected sports institute?

1.4 Operational definitions

Sports: Sports is any activity and experience the human can practice to increase the level of activity to the body and it is focused on fitness, recreation, athletics or leisure.

Injury: Injury is as any incident that occurs during warm up or competition that requires medical attention and causes the player to be absent from sport participation either in a training or match session.

Volleyball: Volleyball can be a very active sport that can provide an excellent level of aerobic and healthy exercise.

Sports Injury: Sports injury is a term that results from complex interaction of extrinsic and intrinsic risk factors. Injuries in sport are common due to contact with player, ground, objects, and other reasons such as pressure, overuse, and falls.

Patterns of sports injuries: Patterns of sports injuries in cases of volleyball athlete is dependent on the injury mechanism like jumping, stretching, twisting, landing and turning movements, height, body weight, injury sites according to anatomical structure, variety of physical attributes and specific playing skills as well as occurrence of injury.

Mechanisms of sports injury: Injury mechanisms may be due to direct contact caused by a single traumatic incident, such as collision with opponent, contactless injuries like rapid changes in movement, jumping and landing & injuries due to overuse that presenting in the form of chronic injury stemming from repetitive effort of the musculoskeletal system over time without allowing adequate recovery

Kinematics: It is the study of movement with reference to the amount of time taken to carry out the activity. It may be osteokinematics (physiological movement) & arthrokinematics (accessory movement). Movement between two bony segments is called osteokinematic. Movement between two articular surfaces is called arthrokinematic.

Flexibility: It is the ability of the human being to carry out a movement with large amplitude (range of motion)

Maximum strength: It is the ability of muscle to get over resistance of maximum intensity of stimulus in a single muscular contraction.

Explosive strength (Power): It is the ability of muscle to get over resistance of sub-maximum intensity of stimulus as quickly as possible

Strength endurance: It is the ability of muscle to get over resistance of medium intensity of stimulus for as long time as possible.

Warm up: It refers to engage in exercise or practice especially before entering a game or contest. Sports injuries are often a result of insufficient preparation to get the body's joints and muscles warm.

Poor posture: It is the posture that results from certain muscles tightening up or shortening while others lengthen and become weak which often occurs as a result of one's daily activities.

Volleyball concerns as a noncontact sport but this sport including Strong motions and shifts, fast, horizontal and vertical movements of the body and all of them require a lot of force to do. Researchers found that the knee, ankle, shoulder and fingers of volleyball players as a anatomical spots are exposed the most injuries. In addition to these injuries, volleyball players most likely to occur mainly in acute knee injuries and knee injuries and repeated activities resulting knee and shoulder injuries (Duncan, 2006; Palwinski, 2008) Ankle injuries mainly occur among volleyball athletes at the net due to unsafe blocking or striking methods; thus, middle, left- and right-side hitters are most susceptible. The primary mechanism for this injury is a spiking strategy at a trajectory that displaces that volleyball athlete on or over the centre line, resulting in foot contact with an opposing team's player. Additionally, it has been reported that incorrect lateral movement and take-off technique causing the volleyball athlete to land on the foot of a teammate following a two-person block is another major mechanism for ankle injury (James, 2014).

The shoulder is the third most common injured body part overall among volleyball athletes. Injuries to the most often occur as the result of chronic overuse. Acute shoulder trauma (such as an anterior shoulder dislocation) does occur, but it often occurs in the context of underlying overuse- related pathology. Spiking is perhaps the most dramatic skill in volleyball. It has been estimated that an elite volleyball player, practicing & competing 16 to 20 hours per week, may perform as 40,000 spikes in one season (Reeser, 2003)

The vast majority of volleyball related ankle injuries arecontact related inversion sprains. Indoors, ankle sprainsoccur most often at the net, as the result of contact between the attacker and the opposing blocker(s) across the centre line. Research has consistently revealed that approximatelyhalf of all such sprains occur when a blocker lands on thefoot of an opposing attacker who has legally penetrated the centre line (Reeser et al, 2006).

The leading cause of ACL injuries amongst volleyball athletes are via non-contact mechanisms such as jumping actions, in particular the landing phase of a spike or block; therefore, middle, left and right hitters are most at risk (James, 2014)

Anterior knee pain represents the second most common diagnosis among volleyball athletes. The most common causes of anterior knee pain among volleyball players are patellofemoral syndrome, and patellar tendinopathy also known as “jumper’s knee” (Reeser, 2003).

Sports injuries are common due to contact with player, ground, objects, and other reasons such as pressure, overuse, and falls. Weakness is also a common cause of injuries. For example, physical weakness due to a previous injury, may lead to musculoskeletal injury. Preventing or treating the injury can be achieved through science and research (Abdelnour, 2008)

A study determined that the presence of poor posture, dysfunctional muscle patterns can develop. These dysfunctions can be due to overuse, misuse, abuse or disuse and the normal response to repeated muscle stress is tightness in the agonist, and in accordance with Sherrington’s Law, weakness of the antagonist due to inhibition, resulting in sub optimal movement patterns, which may predispose injury (Chaitow, 2001)

The associated factors for sports injury can be divided into such factors as environmental (equipment, ground, and climate) and personal, e.g., age, sex, body size, local anatomy, biomechanics, body mass index, training program, back and leg muscle power, right- and left and power, and left handedness (Karsan, 2002).

The risk of a musculoskeletal injury is an unfavorable consequence in physical training. Age, gender, injury history, body size, local anatomy and biomechanics, aerobic fitness, muscle strength, imbalance and tightness, ligamentous laxity, central motor control, psychological and psychosocial factors as well as general mental ability are factors in the predisposition to injury. The majority of injured volleyball athletes in many studies have been males. Because men are more likely to participate in vigorous exercise and sport than women (Abdelnour, 2008)

Back and leg muscle power are greater for noninjured volleyball athletes than for injured ones (Dane, 2002). The most frequently injured body regions were the ankle and the hand. Knee injuries had the highest severity. A study determined that the most frequently injured body regions were the foot and the ankle in volleyball athletes. The least frequently injured body regions was elbow and forearm in volleyball athletes (Dane et al., 2004)

Excessive height and weight have been shown to predispose to stress injuries in physical or sports training. Idiopathic or acquired abnormalities in the anatomy or biomechanics in any joint may lead to a local injury. Lacks of fitness, muscle weakness, joint looseness and poor general flexibility have been suggested as factors in the outcome of athletic injuries. Long simple reaction times to visual stimuli and long choice reaction times to visual stimuli have recently been related to sports injuries. Accumulation of life stress apparently predisposes to an athletic injury (Abdelnour, 2008).

Studies have identified that the knee as the anatomical site most vulnerable to volleyball related musculoskeletal injury, followed by the ankle. Intrinsic factors such as deviant quadriceps angles (Q-angles), genu varum, genu valgum, rear foot varus and rear foot valgus have been associated with vulnerability to knee and ankle injuries (Ellapen, 2013).

The shoulder and knee are the commonly thought of in athletic injury and can have a significant impact especially if initially disregarded with a resultant delay to treatment. Knowledge of common sports-related injuries and therapeutic strategies can help the physician effectively treat the volleyball athlete considering their sports, position, and timing during season (Avery, 2016)

Studies have identified the knee as the anatomical site most vulnerable to volleyball-related sports injury. Predisposing factors contributing to sports injuries include poor training habits, inadequate rehabilitation of previous injuries, incorrect shoes and muscle imbalances (Noakes, 2001)

Volleyball can be a very active sport that can provide an excellent level of aerobic and healthy exercise. In addition, it requires low body fats because it is a sport that involves rapid and forceful movements of the body as a whole. Volleyball players have the best

vertical jump ability compared to any other sports. Vertical jumping is a frequent movement required in volleyball, and it needs low body fat in the body mass (Abdelnour, 2008).

Shoulder overuse injury is common amongst high-level volleyball athletes. Due to the playing time accumulated, high-level volleyball athletes with an average of 11.5 years of playing experience are at increased risk of overuse injuries. A previous shoulder injury and dramatic increase in training load are also considered risk factors. Non-traditional serving styles put the athlete at increased risk for shoulder injury, while middle, left- and right-side hitters execute more asymmetrical actions which lead to greater risk of injury to the dominant shoulder (James, 2014)

Setters, line spikers, sprint spikers, strength spikers and libero are the posts of volleyball. The most common injuries among the various playing posts reported about strength spikers. Due to the type of hand movement during spike and hand different rotation during hand throwing above the head, indecent rate of chronic muscle injuries and bursitis and tendinitis in Upper extremity is more than other playing posts. Sprint spikers when placed in front of the net, they will receive set or not, had to jump in order to disrupt the opposing team's defense and support of teammates spikers. This caused a high prevalence of dislocation injuries, tendon chronic injuries in joints and lower extremity ligaments than other playing posts (Sharareh, 2013)

Volleyball requires a variety of physical attributes (speed, power, flexibility, strength and balance) and specific playing skills. Therefore, participants need to train and prepare to meet at least a minimum set of physical, physiological and psychological requirements to cope with the demands of play and reduce the risk of injury (Cassell, 2001)

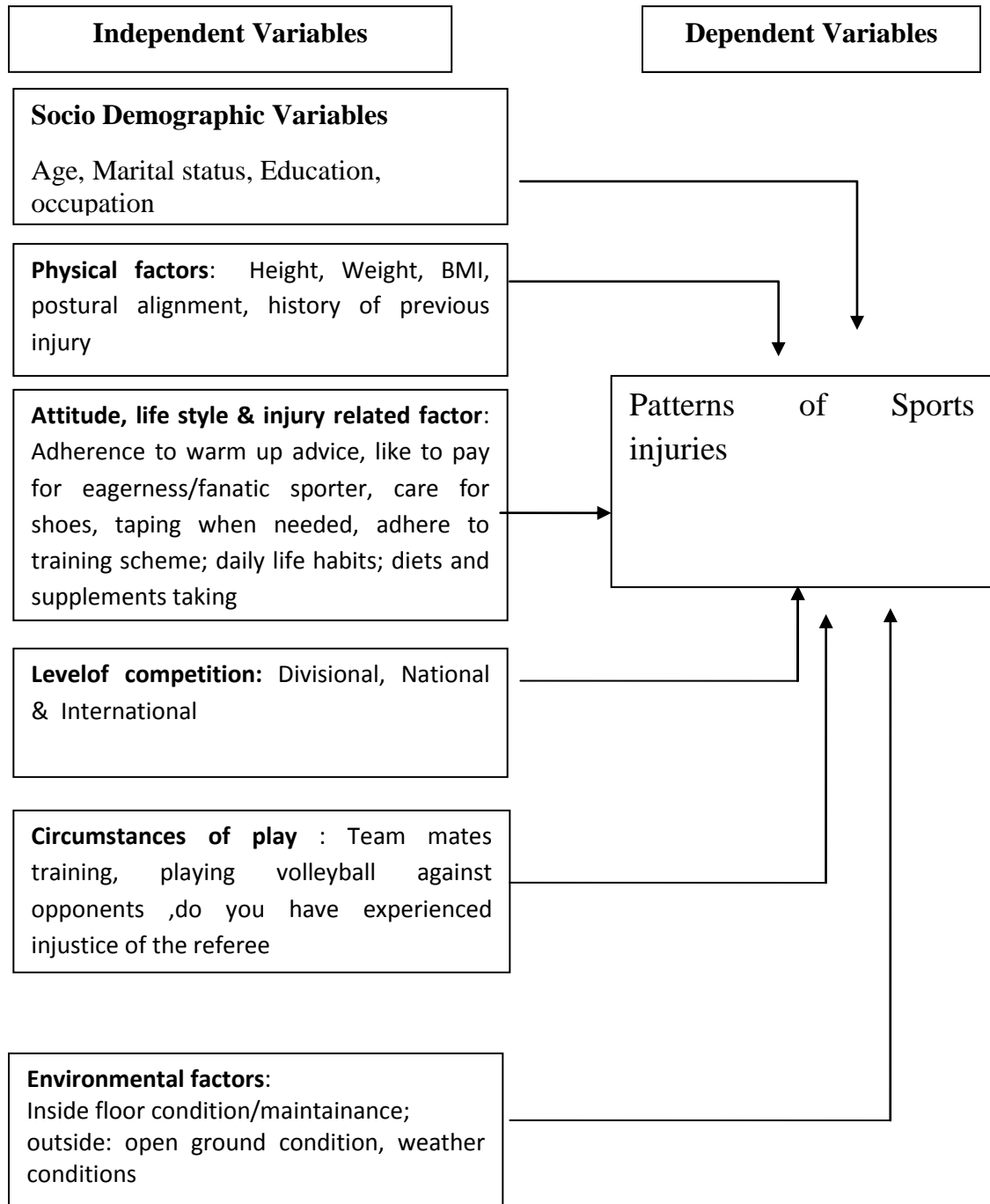
A study determined that the most affected anatomic site was the ankle/foot complex among older, heavier, taller athletes and those with a greater BMI and longer duration of training. The direct contact and contactless mechanisms were the main causes of injury and the training phase was the moment in which more injuries were reported (Vanderlei, 2013)

The majority of the injuries sustained during sports-related activities are injuries to the musculoskeletal system (e.g., tendon and ligament tears, muscle strains and broken bones). Injuries to the lower extremities are the most commonly reported injuries in most sports. A study published in the Journal of Athletic Training followed fifteen different sports teams over a period of sixteen years and found that lower extremity injuries (e.g., knee injuries, muscle strains, and the most common, ankle injuries) comprised more than 50% of all reported injuries (Hootman & Agel, 2007).

Studies have identified the knee as the anatomical site most vulnerable athletes. Predisposing factors contributing to sports injuries include poor training habits, inadequate rehabilitation of previous injuries, incorrect shoes and muscle imbalances (Noakes, 2001). Study have found that minor injuries are damages that less than a week's stay away from sports, moderate injuries, damages to prevent athletes who exercise 8-21 days and serious injuries, damages to prevent athletes who exercise for more than 22 days (Aberneti et al., 2003)

In the context outside of the country, study was done only pattern of sports injuries among the athletes & some research was done only associated factors. But I want to conduct a study regarding pattern of sports injuries & associated factor among the athletes of selected sports institute in Dhaka city. I think this information will fill up the gap of existing knowledge in terms of type of injuries and ultimately reduce their sufferings as well as burden indeed.

3.1 Conceptual Framework



3.2 Objective(s) of the study

3.2.1 General Objective

- To find out the pattern of sports injuries & associated factors among the volleyball athletes of selected sports institute

3.2.2 Specific Objective(s)

- To find out the socio-demographic information among the volleyball players
- To find out the pattern of sports injuries among the volleyball athletes
- To find out the associated factors of sports injuries among the volleyball athletes
- To see the association between the pattern of sports injuries & its associated factors among the volleyball athletes

3.3 Study design

This was a cross-sectional study. Because cross sectional study was helpful to find out the patterns of sports injuries & associated factors among the volleyball athletes. For this reason I choose a cross sectional study as my research study design (Reeser et al., 2006)

3.4 Study population

Study has conducted among the volleyball athletes who were suffer from sports injuries.

3.5 Study area

This study was conducted at BHPI, CRP, Savar but data was collected from Bangladesh Volleyball Federation, Mirpur Indoor Stadium, Army Sports Complex in Dhaka Cantonment & Bangladesh Krira shikha protistan (BKSP), Dhaka. Bangladesh Volleyball Federation, Army sports complex & Bangladesh Krira shikha protistan are the national level sports institutes & many more players could be played in these sports institutes. However this study area was selected in these institutes.

3.6 Study period

This study was finished within eight months from the date of approval of the proposal. This study was an academic part of the Masters course that's why it had to finish according to academic calendar. However it was started on August 2017 and it was finished on April 2018.

5.7 Sample size

Following formula was used to determine the sample size.

$$n = \frac{z^2 pq}{d^2}$$

Here

n = the desired sample size

z = the standard normal deviate usually set at 1.96 which corresponds to 95% confidence level

p = 50% (Estimated prevalence of patterns of sports injury.)

$$q = 1 - p = 1.00 - 0.50$$

$$q = 0.50$$

d = degree of accuracy desired, usually set at 0.05%.

Now, required sample size

$$n = \frac{z^2 pq}{d^2}$$

$$n = \frac{(1.96)^2 \times 0.50 \times 0.50}{(0.05)^2}$$

$$= 384.16$$

So, required sample size is 384.

Due to time constraint & unavailability of resources, sample size has taken 62 study subjects.

5.8 Inclusion criteria & Exclusion criteria

Inclusion criteria

1. Age from 15 to 35 years
2. Male Volleyball athletes who were willing to take part in the study.
3. Volleyball athletes who was sports injured in selected sports institute in different locations

Exclusion criteria

1. Volleyball athletes who were give consent.
2. Seriously sick or ill Volleyball athletes
3. Female Volleyball athletes

5.9 Sampling technique

Convenience sampling technique was used for sample selection.

5.10 Data collection tools & materials

A Pretested structured questionnaire used to collect information on pattern of sports injuries & its associated factors among the volleyball athletes & related variables. Pen, pencil & paper were used as a data collection material.

5.11 Data collection technique

Before collecting the data, permission was taken for this study from Institutional Review Board (IRB) of Bangladesh Health Profession Institute (BHPI). A written permission was also taken from the concerned authority of Bangladesh Volleyball Federation, Dhaka & Bangladesh Krira shikha protistan, Savar, Dhaka for data collection. Participants were asked to fill up written consent form to ensure volunteer participation. Questions were asked to participants that were prepared. Before data collection the respondents did briefed the purpose of the study. After taking verbal consent of the respondents, data was

collected ensuring the privacy and confidentiality. The data was entered in SPSS program for analysis.

3.12 Data analysis

After completion of data collection, data stored and quality control check be performed. Statistical Package for Social Science (SPSS) version 20.0 used for the analysis.

3.13 Ethical consideration:

For conducting this research at first it had proposed to BHPI review board to allow carrying out the research. The investigator obtained permission to conduct research from the Institutional Review Board of Bangladesh Health Professions Institute. The study was done through collection of data from the respondents through interview. There was no physical or mental assault to the respondents. However, prior to interviewing the respondents, they clearly explained about the aim of the data collection which have absolutely confidential. They have completed freedom to be involved in the study because they have asked to give their options to or not to respond to the inter viewers inquiry. A written consent form was developed for all participants and they were guide about all that they reserve to explore during the study.

After taking permission from the secretary & coach of Bangladesh Volleyball Federation, Dhaka & Director General of Bangladesh Krira shikha protistan, Savar, Dhaka for data collection and it was completed within the allocated time frame. All the data was strictly reviewed in strict secure and had maintained confidentially. The appraisal files were strictly secure and it has not opened in front of others. For any kind of use of this study or data there was no identification remark of any participants. Anonymous data was only used. All the ethical consideration of Bangladesh Medical Research Council (BMRC) was followed by this study.

4.1: Socio-Demographic & Physical Factors

A total number of 62 Volleyball Players from different sports institutes participated in this research. The minimum age of the participants was 15 whilst the maximum age was 34 years. The mean \pm SD (Standard Deviation) age of our participant was 22.94 ± 4.75 with a range of 19. All the participants were male in this study (Table 1).

Participants were asked about the marital status of our participants. A majority of the participants were unmarried (n=41, 66.1%), where nearly 34% of them were married (n=21, 33.9%). (Figure 1).

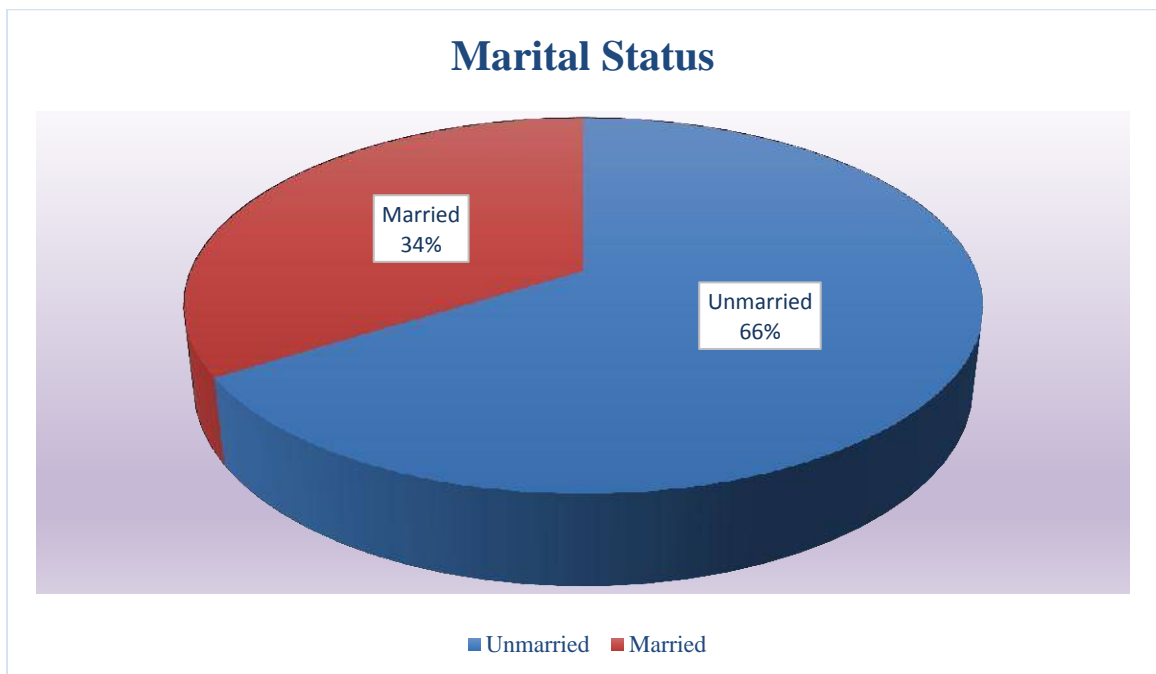


Figure 1: Distribution of participants according to their Marital Status

Regarding years of schooling, the mean \pm SD (Standard Deviation) duration was 11.52 ± 1.39 . Majority of the participants have completed up to 12 years of schooling (n=36, 58.1%). Only one of them have completed 18 years of education (1.6%).

Majority of our participants were service holder (n=45, 72.6%) whilst only (n=17, 27.6%) of them were students. Figure 2 illustrates the details.

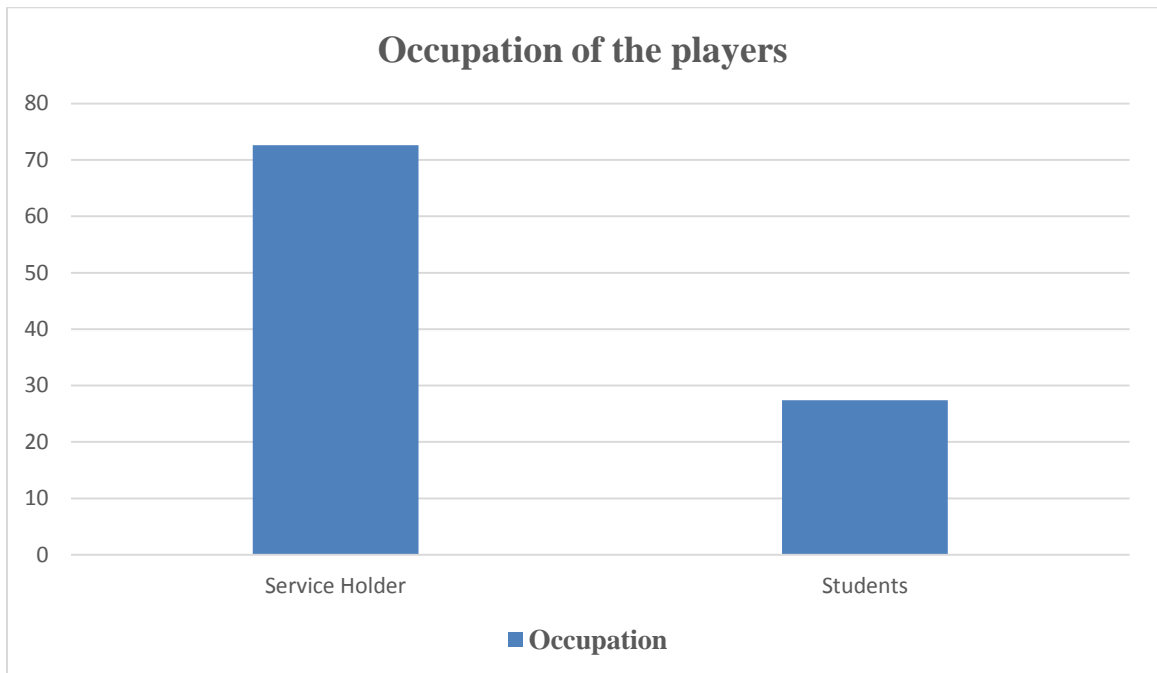


Figure 2: Distribution of Participants according to their Occupation

Majority of our respondents were from Army volleyball team (n=23, 37.1%, whilst (n=19, 30.6%) of them were BKSP volleyball team. Other players were from the National team. (Table 1).

Table 1: Socio-demographic details of survey respondents (n=62)		
Characteristics	Number (n)	Percent (%)
Age group (Years)		
< 20	18	29
21-30	40	64.5
>30	4	6.5
Years of schooling		
≤10 years	16	25.8
10- 15 years	45	72.6
> 15 years	1	1.6
Name of the institutes		
Army Volleyball team	23	37.1
BKSP Volleyball team	19	30.6
National Volleyball team	20	32.3

Anthropometric Details

Weight: The mean \pm SD (Standard Deviation) weight of our respondents was 72.89 ± 9.59 kilograms ranging from 56 to 98 kilograms. Though the weight of the participants varied according to their age .

Height: The mean \pm SD (Standard Deviation) height of the participants was 6.13 ± 0.38 inches ranging from 5.10 to 6.60 inches. Similar to the weight, participant's height also varied according to the age.

BMI: The mean \pm SD (Standard Deviation) BMI of the participants was 21.51 ± 3.21 ranging from 15.98 to 29.35. Majority of participants had normal level of BMI (N=41, 66.1%).

Postural alignment: Most of our respondents had good postural alignment (n=57, 91.9%). But rest of them had poor postural alignment (n=5, 8.1%).

Previous Injury related details

In this survey, nearly half of our participants have replied that they suffered from different types of injuries previously (n=28, 45.2%); whilst many of them said that they did not have any major previous injuries (n=34, 54.8%). (Figure 3).

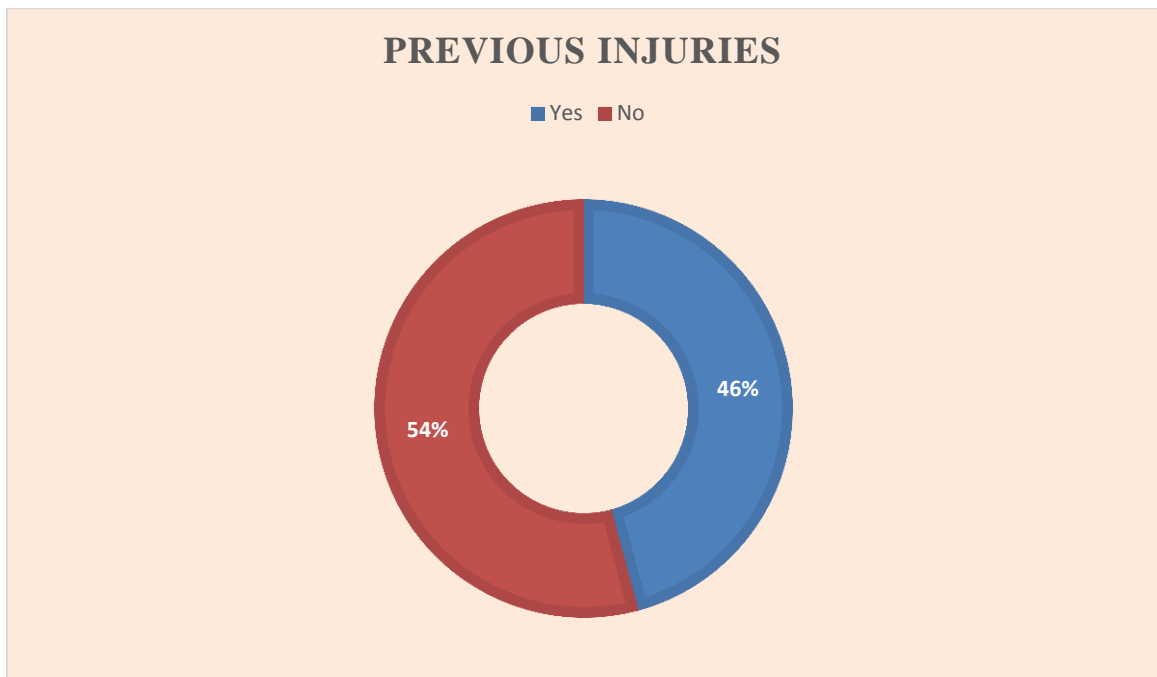


Figure 3: Distribution of respondents according to previous injuries (%)

Among them who had previous injuries, participants were asked further regarding consultation any medical professionals for their previous injury. Majority of them said that they have visited medical professionals (n=25, 40.3%). Majority of them who had previous history of injury were cured from it, only 5 participants have said that they remained uncured from their previous illness (8.1%). Twenty-one of our respondents took medicine for their previous injuries (n=21, 33.9%); whilst the other did not take any medicines (n=8, 12.9%). Only 20 respondents among who were injured previously took physiotherapy for their treatment (n=20, 32.3%); nearly 15 percent of respondents injured previously did not take physiotherapy for their treatment (n=9, 14.5%). Most common

side of previous injury among the participants was right side (n=16, 25.8%); whilst left side (n=8, 12.9%); only 3 of them had both sided injury (4.8%) (Table 2).

Table 2: Previous Injury related details of the survey respondents (n=29)		
Characteristics	Number (n)	Percent (%)
Consultation with medical professionals		
Yes	25	40.3
No	4	6.5
Cured from previous injury		
Yes	24	38.7
No	5	8.1
Took medicines		
Yes	21	33.9
No	8	12.9
Took Physiotherapy		
Yes	20	32.3
No	9	14.5
Common side of previous injury		
Right	16	25.8
Left	8	12.9
Both	3	4.8

According to our participants who had previous injury, most of them had injury to their knees (n=10, 16.1%) followed by ankle (n=10, 16.1%) and shoulder (n=5, 8.1%). Few of them had injury to their elbow, lower back and calf muscles. (Figure 4).

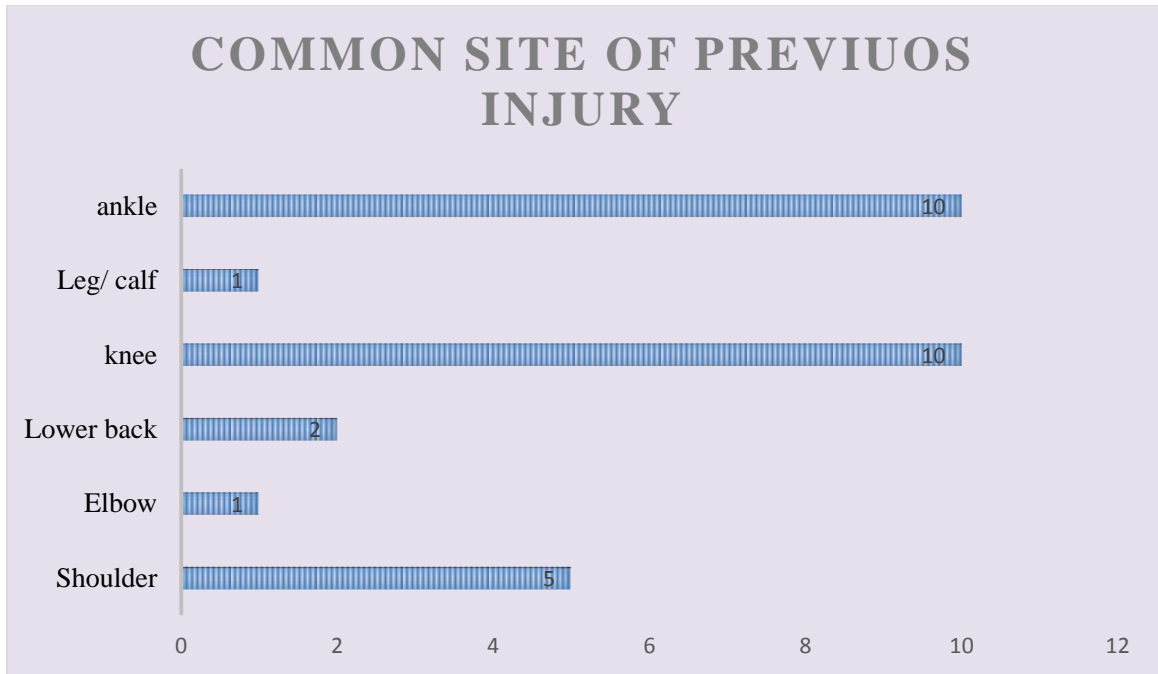


Figure 4: Common site of previous injury among participants (%)

4.2: Attitude, Life Style & injury Related Factors

Participants were asked regarding their exercise regularly. All of them have replied that they performed exercise regularly (n=62, 100%). Participants were asked about the duration of their sleeping. Majority of them have replied that they sleep more than 6 hours (n=34, 54.8%); whilst rest of them replied that they sleep equal to 6 hours or less than that (n=28, 44.2%).

More than half of our participants consider themselves as fanatic sportsman (n=32; 51.6%); whilst rest of them did not consider. Majority of our participants have replied that they do not have smoking habits (n=52, 83.9%); though many of them said of having smoking habits.

All the participants in this survey have replied that they perform warm-up exercise regularly before game (n=62, 100%). But many of them replied that they do not cool down properly after their games (n=26, 41.9%); but majority of them perform cool down properly after the game (n=36, 58.1%). (Table 3)

Table 3: Attitude, Life Style Related Factors (n=62)		
Characteristics	Number (n)	Percent (%)
Duration of Sleeping (Hours)		
≤ 6	34	54.8
>6	28	44.2
Consider as fanatic sportsperson		
Yes	32	51.6
No	30	48.4
Smoking habits		
Yes	10	16.1
No	52	83.9
Warm-up before game		
Yes	62	100
No	0	0
Cool down after game		
Yes	36	58.1
No	26	48.9

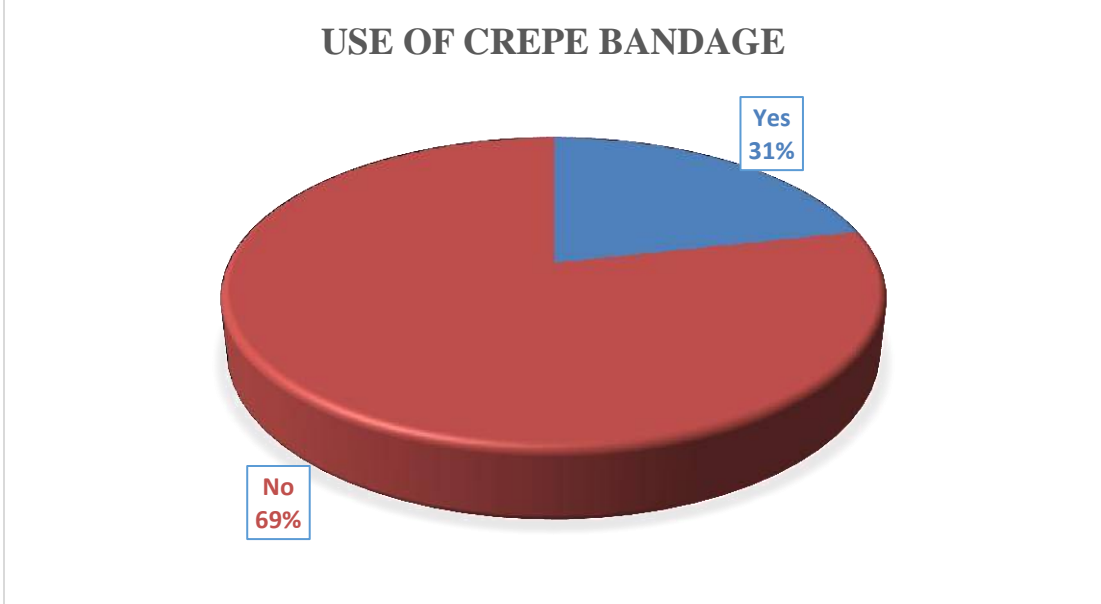


Figure 5: Distribution of participants according to the use of crepe bandages (%)

Very few of our respondents uses/ applies crepe bandages when needed (n=19, 30.6%); though a majority of them denied of using crepe bandages (n=43, 69.4%). (Figure 5)

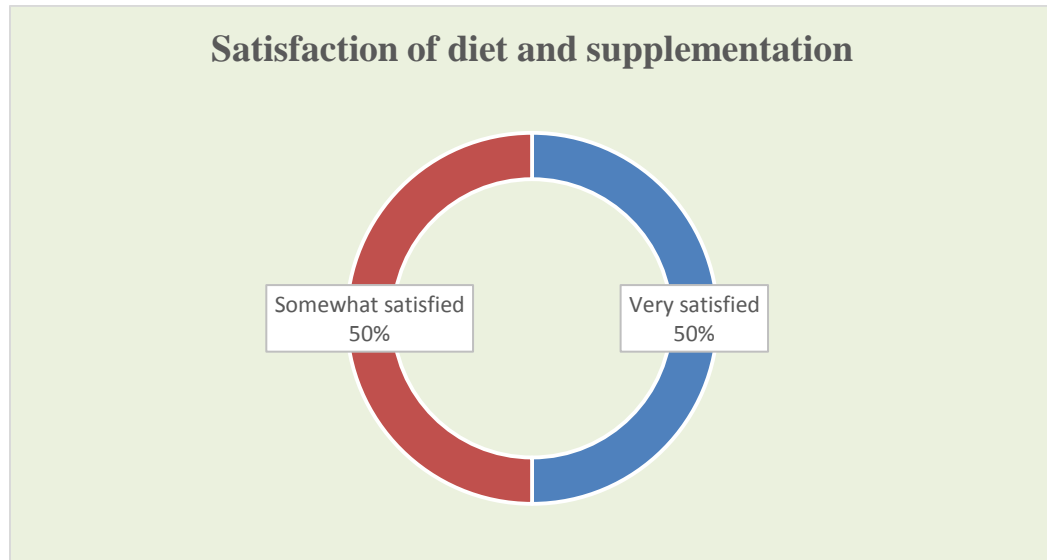


Figure 6: Distribution of participants according to satisfaction of diet and supplementation (%)

Fifty percent of our participants have replied that they are satisfied with their diet and supplementation whilst the same numbers of participants were somewhat satisfied with their regular diet and supplementation. (n=31, 50%). (Figure 6).

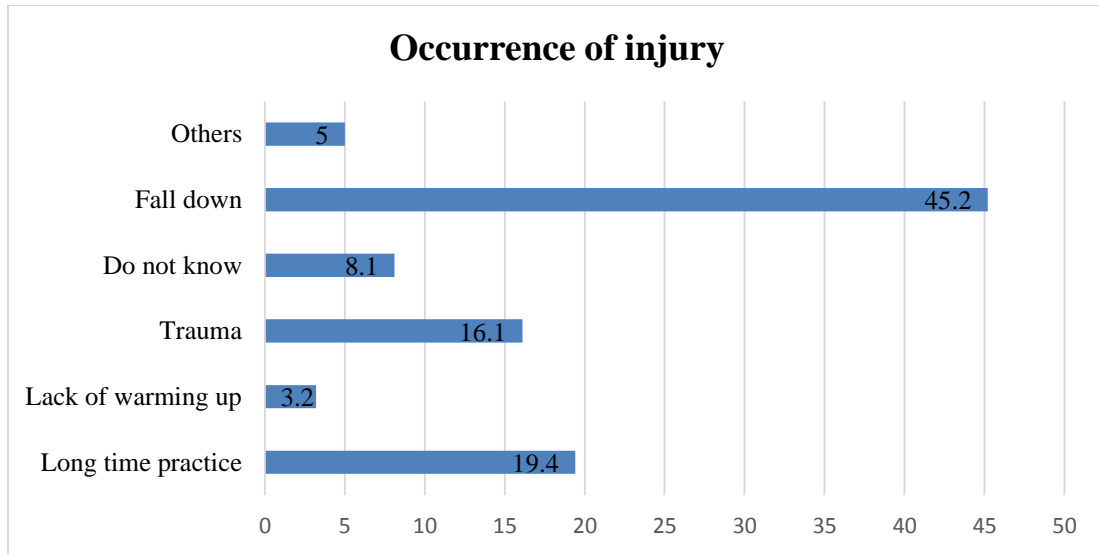


Figure 7: Percentage distribution of participants according to occurrence of injury

Participants were asked about their reason for occurring injury. Majority of them replied that they got injured by falling down (n=28, 45.2%) followed by long time practice (n=12, 19.4%) and trauma (n=10, 16.1%). (Figure 7).

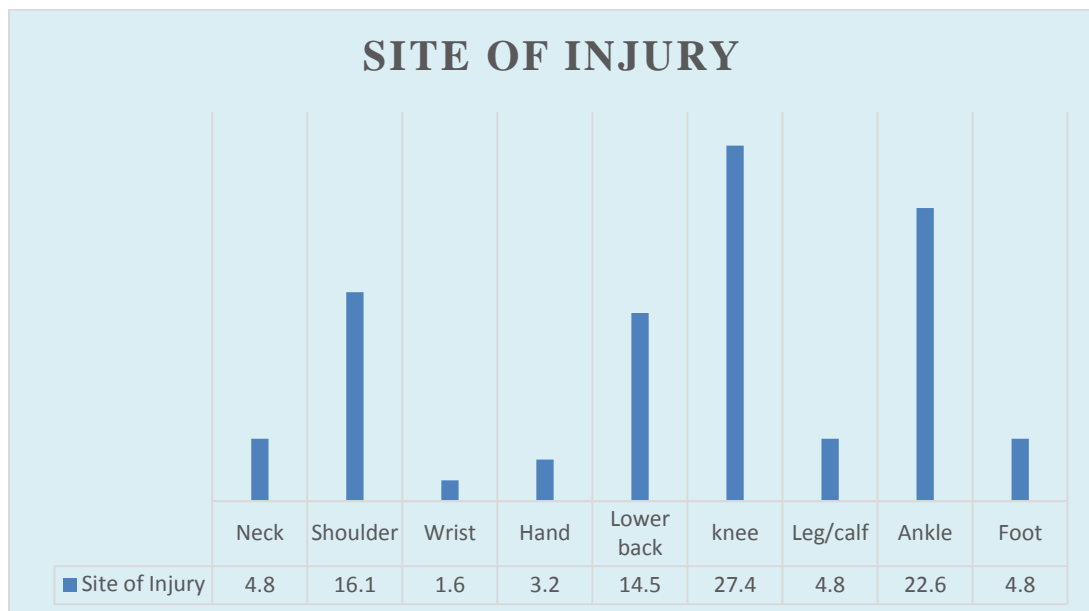


Figure 8: Percentage distribution of participants according to the site of injury

Shoulder (n=10, 16.1%), knee (n=17, 27.4%) and ankle (n=14, 22.6%) were the most common site of injury as replied by our participants. Many of them also replied about lower back as their most common site of injury (n=9, 14.5%). (Figure 8).

The injury occurred in right side of the body was commonly reported by most of the participants (n=39, 62.9%); many of them replied of having injured in left side of the body (n=17, 27.4%); few of them replied of having injured in both sides of the body (n=6, 9.7%). Pattern of pain was intermittent for majority of the participants (n=50, 80.6%) while few of them had continuous type of pain (n=12, 19.4%). Following injury, the pain was severe among only 3 participants (4.8%), most of them had moderate type of pain (n=33, 53.2%) & many of them had mild type of pain (n=26, 41.9%) (Table 4).

Majority of our participants had pain & away from sports for less than 1 month (n=40, 64.5%) followed by 1-3 months (n=17, 27.4%). Only one participant had pain & away from sports more than 6 months (1.6%). Majority of them had sudden onset of pain (n=41, 66.1%). Few of them had gradual onset of pain (n=20, 32.3%). (Table 4). Practicing (n=28, 45.2%), landing (n=13, 21%) and jumping (n=12, 19.4%) were the main aggravating factors of pain according to our participants. (Table 4).

Participants were asked about the relieving factors of their pain. Most them replied that the most common factor for pain relief is rest (n=53, 85.5%). Few of them have replied about gym (n=3, 4.8%) and swimming (n=3, 4.8%). (Table 4)

Table 4: Injury Related Factors (n=62)		
Characteristics	Frequency	Percentage
Side of injury		
Right	39	62.9
Left	17	27.4
Both	6	9.7
Pattern of pain		
Intermittent	50	80.6
Continuous	12	19.4
Severity of pain		
Mild	26	41.9
Moderate	33	53.2
Severe	3	4.8
Duration of pain		
Less than 1 month	40	64.5
1-3 months	17	27.4
3-6 months	4	6.5
>6 months	1	1.6
Cool down after game		
Yes	36	58.1
No	26	48.9
Onset of Pain		
Sudden onset	41	66.1
Rapid onset	1	1.6
Gradual onset	20	32.3
Aggravating factors of pain		
Landing	13	21
Squatting	1	12.9
Jumping	12	19.4
Practicing	28	45.2
Others	1	1.6
Relieving factors of pain		
Practicing	2	3.2
Rest	53	85.5
Gym	3	4.8
Swimming	3	4.8
Others	1	1.6

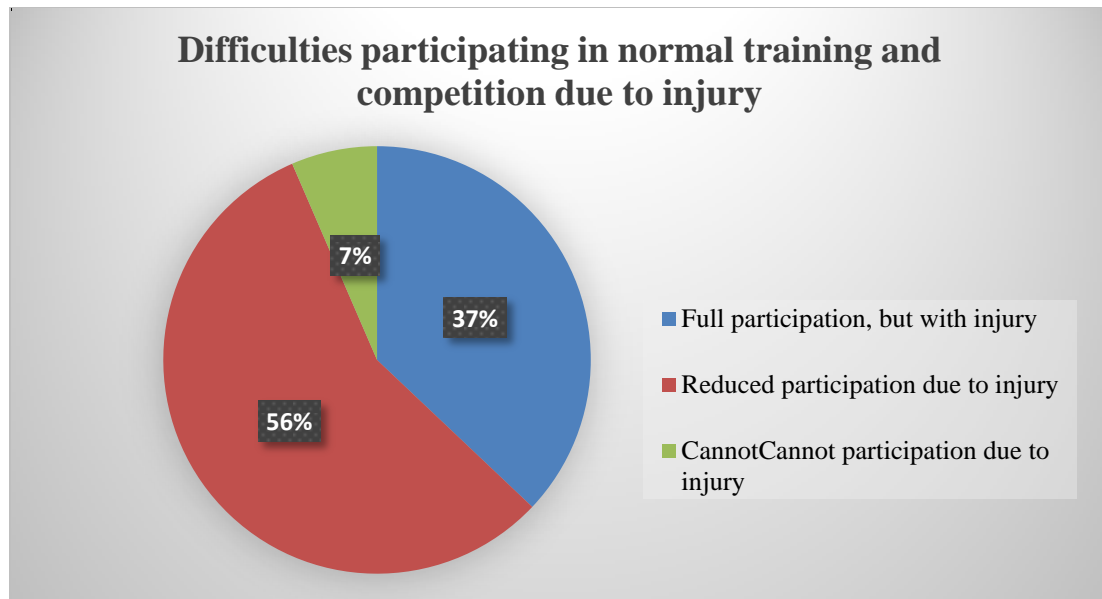


Figure 9: Distribution of participants according to their difficulties participating in normal training and competition due to injury

Participants were asked their any difficulties participating in normal training and competition due to injury. Most of them replied that they had difficulties in participating and they reduced their participation due to injury (n=35, 56.5%); few of the had participated fully with injury (n=23, 37.1%) (Figure 9).

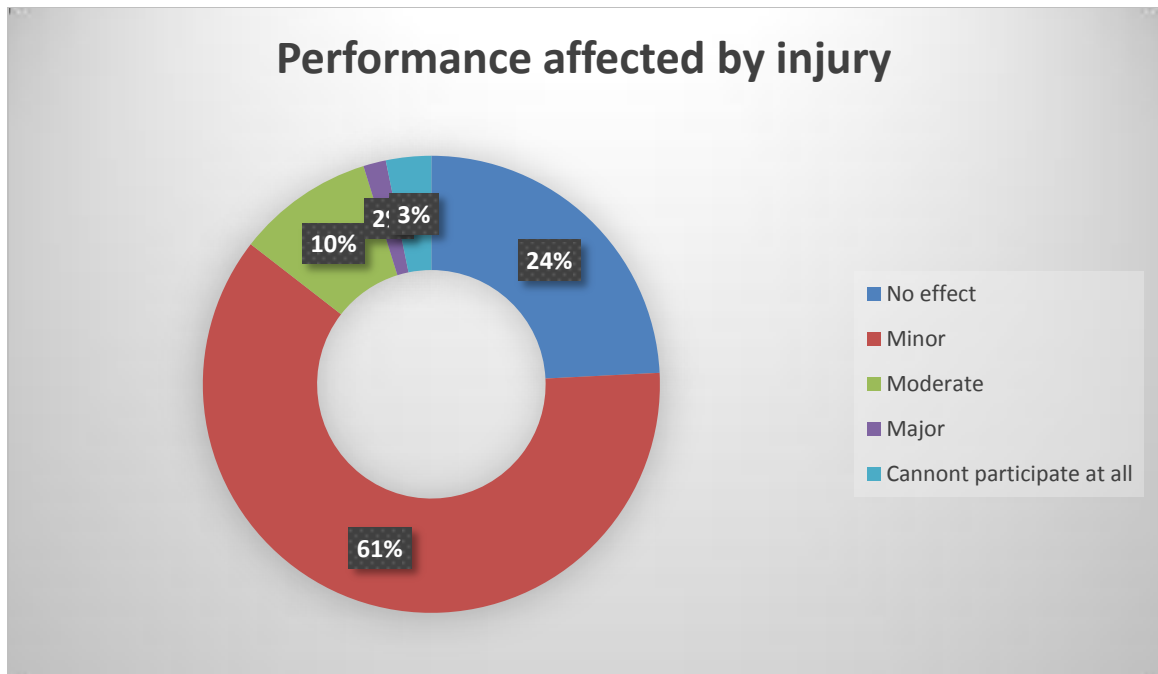


Figure 10: Distribution of participants according to their performance affected by injury (%)

Participants were asked their performance affected by injury. Most of our participants had replied that their injury affected their performance to a minor extent (n=38, 61.1%) followed by no effect (n=15, 24.2%). Few of them had major effect (n=1, 1.6%). (Figure 10).

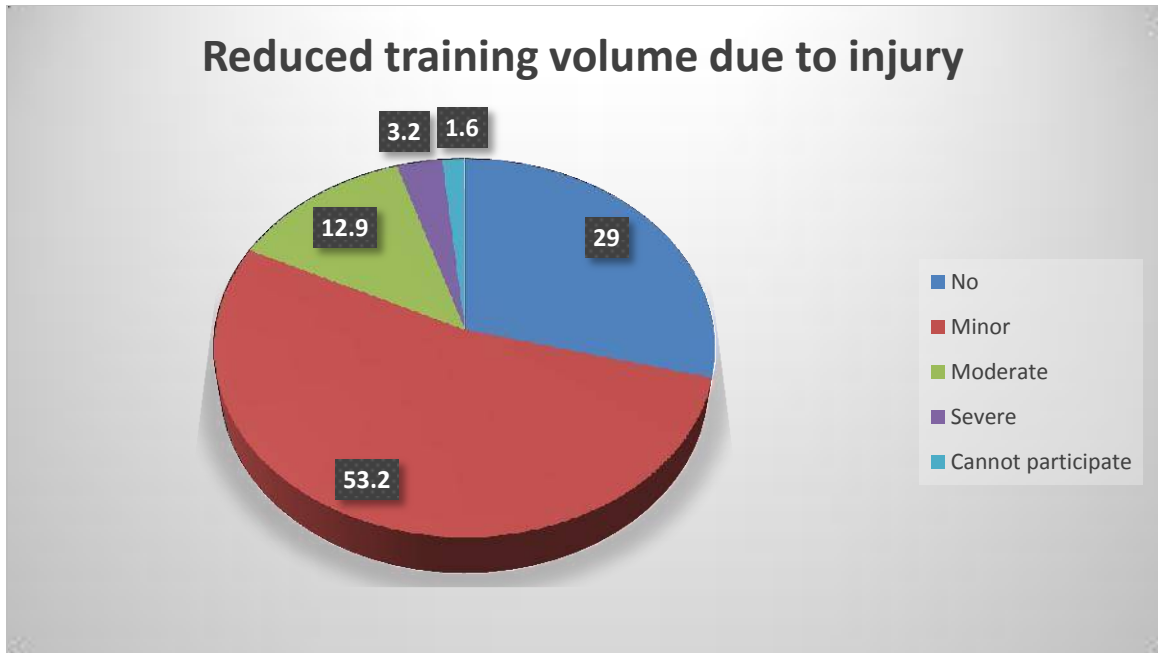


Figure 11: Distribution of participants according to reduction of training after injury (%)

Participants were asked regarding reduced their training volume due to injury. Majority of them reduced their training volume to a minor extent (n=33, 53.2%). But still there were many participants who did not reduce their training volume due to the injury (n=18, 29.0%). (Figure 11).

4. 3: Level of competition related factors

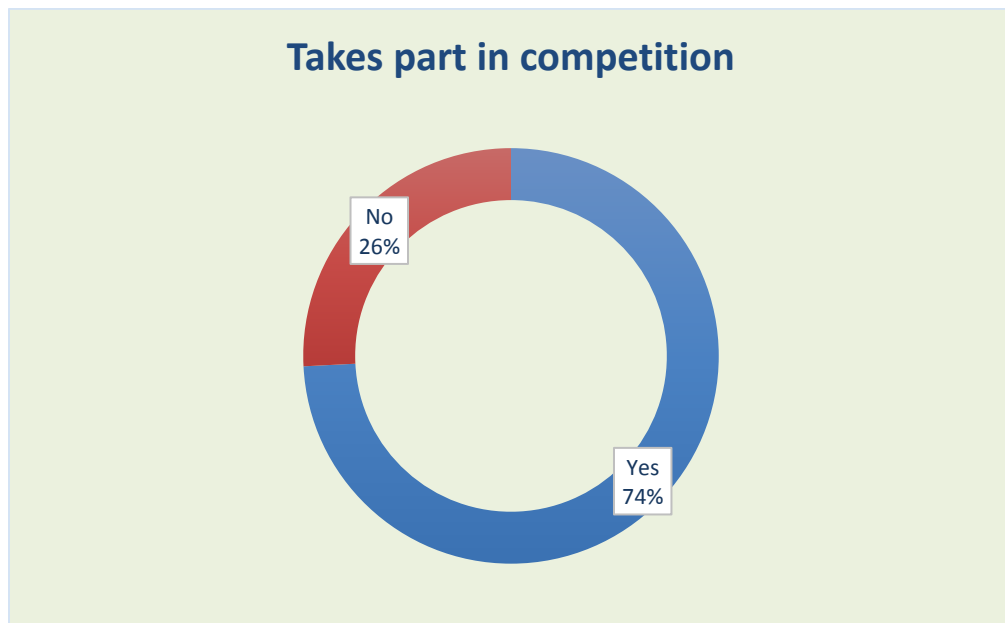


Figure12: Distribution of participants according to taking part in competition (%)

Most of our participants have replied that they participate in different type of competition (n=46, 74.2%), while other do not participate in any kind of competition (n=16, 25.8%). (Figure 12).

Among them who had participated in competition, we have asked them further about the type of game they usually took part. Most of our respondents said that they take part in Divisional competition (n=26, 41.9%) followed by National competition (n=18, 29.0 %). Very few of them took part in International competitions. Many of them have received award for participating in such competitions (n=30, 48.4%) others did not get any award for that (n=16, 25.8%). We have asked our participants about which game they have received the award for; most of them got their award in National games (n=16, 25.8%) followed by divisional games (n=12, 19.4%). Very few of them received award in International games (n=2, 3.2%). Most of the award they received was Gold (n=26, 41.9%). Two of them have received Silver (3.2%) and another two have received Bronze (3.2%). (Table 5).

Table 5: Competition related factors (n=46)		
Characteristics	Number (n)	Percent (%)
Takes part in competition		
Divisional	26	41.9
National	18	29.0
International	2	3.2
Achieved award for competition		
Yes	30	48.4
No	16	25.8
Level of competition they received award		
Divisional	12	19.4
National	16	25.8
International	2	3.2
Award ranking		
Gold	26	41.9
Silver	2	3.2
Bronze	2	3.2
Others	0	0.0

4.4: Circumstances of sports related factors & environmental factors

Most of our participants had sports experience equal or less than 5 years (n=33, 53.2%) while 21 of respondents had sports experience of 6-10 years (33.9%). Participants were asked about their daily practice hours. A vast majority of them replied that they practice equal or less than 5 hours in a day (n=53, 85.5%), very few of them practiced more than 5 hours in a day (n=8, 14.5).

A huge percentage of our respondents also replied that they took interval t times in a week (n=58, 93.5%) while only few of them takes break once in a week (n=4, 6.5%). Nearly all of them takes break with full one day rest in a week according to the response by our participants (n=61, 98.4%). Very few participants did self-massage before, during and after exercise (n=13, 21%) while many of them did not practice this (n=49, 79%). Many of them did not took physiotherapy after injury (n=43, 69.4%), while few of them received physiotherapy following injury (n=19, 30.6%).

Table 6: Sports and environmental factors		
Characteristics	Number (n)	Percent (%)
Sports Experience		
≤ 5 years	33	53.2
6-10 years	21	33.9
> 10 years	8	12.9
Daily practicing hours		
≤ 5 hours	53	85.5
>5 hours	9	14.5
Interval during practice		
Once in a week	4	6.5
Twice in a week	58	93.5
Have one day full rest in a week		
Yes	61	98.4
No	1	1.6
Self-massage during, before and after exercise		
Yes	13	21
No	49	79
Took Physiotherapy after injury		
Yes	19	30.6
No	43	69.4

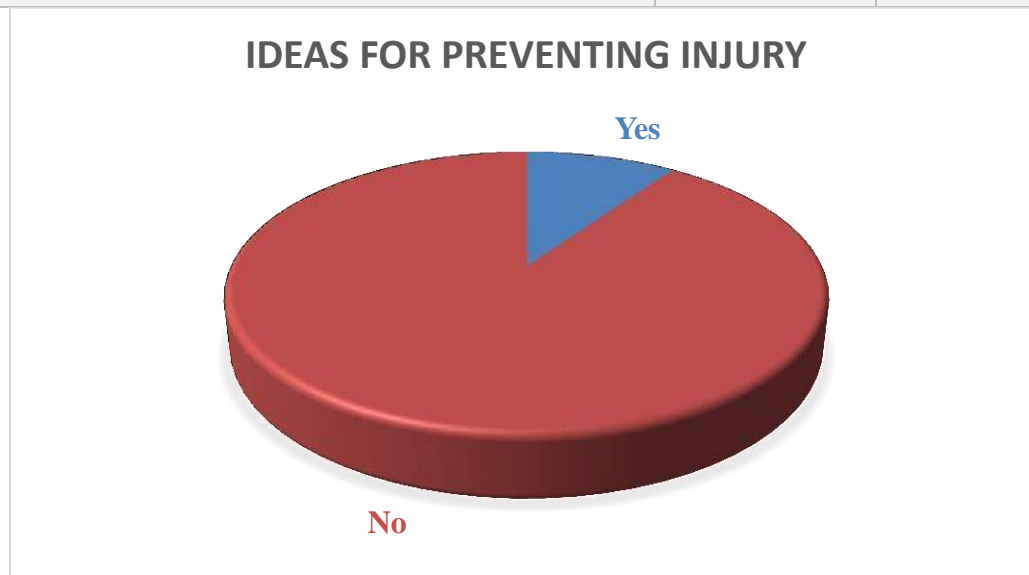


Figure 13: Distribution of participants according to their ideas of preventing injuries (%)

Very few of them had ideas about prevention of injuries (n=6, 9.7%) while majority of them do not have any ideas about injury prevention (n=56, 90.3%). (Figure 13)

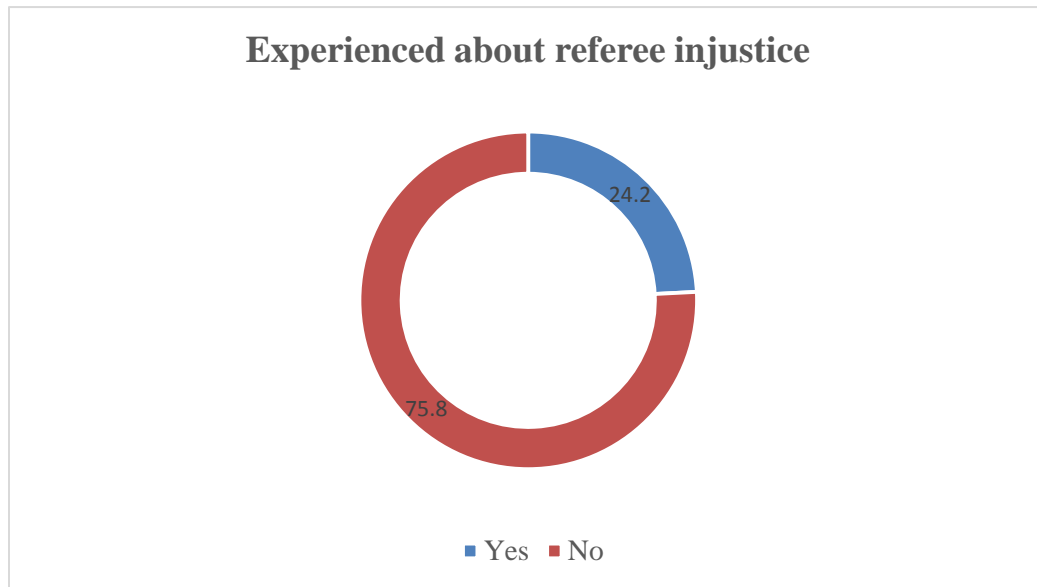


Figure 14: Distribution of participants according to their experience of referee injustice (%)

Many of them had experienced about injustice of referee (n=15, 24.2%) while majority of them did not have the experienced (n=47, 75.8%). (Figure 14)

Participants were asked about positive or negative experienced regarding sports injury during training with team mates. Majority of them did not have such kind of experience (n=51, 82.3%). Again Participants were asked about any positive or negative experienced regarding sports injury during competition with opponents; the response was nearly similar with the previous response where most of them replied that they did not have such experience with their opponents (n=43, 69.4%). Type of playground was outdoor for most of the participants (n=54, 87.1%). Morning time was the most common period for injury (n=36, 58.1%) while afternoon was replied by only few of the participants (n=26, 41.9%) (Table 7).

Table 7: Sports and injury related factors		
Characteristics	Frequency	Percentage
Positive or negative experienced regarding sports injury during training with team mates		
Yes	11	17.7
No	51	82.3
Positive or negative experienced regarding sports injury during competition with opponents		
Yes	19	30.6
No	43	69.4
Type of play ground		
Indoor	8	12.9
Outdoor	54	87.1
Period of injury		
Morning	36	58.1
Afternoon	26	41.9

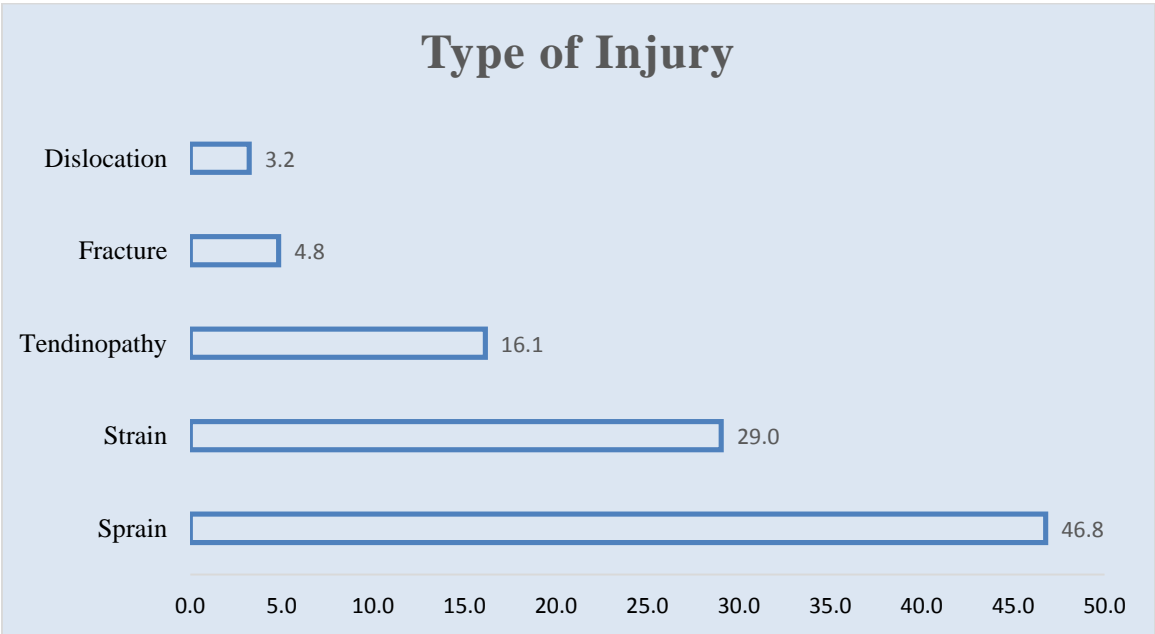


Figure 15: Distribution of participants according to their type of injury (%)

Most common type of injury among our participants was sprain (n=29, 46.8%) followed by strain (n=18, 29%) and tendinopathy (n=10, 16.1%). Only few participants had fracture and dislocation.

4.5: Relationship between site of injury and other variables (Cross tabulation & Chi Square)

A. Site of injury and Age-group

Among 62 participants, maximum site of injury (n=40, 64.5%) occurred at age group 20 to 30 years, about 29.0% (n=18) site of injury occurred at < 20 years' age and about 6.5% (n=4) was injured at above 30 years old. There was significant relationship between site of injury and age-group. Participants between 20-30 age-group have suffered from injury at different sites (p = 0.001). (Table 8).

Table 8: Cross tabulation between age-group and site of injury

Age-group	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
< 20	2	5	0	0	3	3	2	2	1	18
	66.7%	50.0%	0.0%	0.0%	33.3%	17.6%	66.7%	14.3%	33.3%	29.0%
20-30	1	5	1	0	6	13	1	11	2	40
	33.3%	50.0%	100.0%	0.0%	66.7%	76.5%	33.3%	78.6%	66.7%	64.5%
> 30	0	0	0	2	0	1	0	1	0	4
	0.0%	0.0%	0.0%	100.0%	0.0%	5.9%	0.0%	7.1%	0.0%	6.5%

Chi-Square value= 39.75, p value = **0.001**

B. Site of injury and Weight

Participants having weight between 70-80 kilograms have suffered more from different site of injury (n=29, 46.8%). Among the total, 16.1% participants (n=10) who were more than 80- kilograms of weight had injury at different sites. The site of injury did not have any significant relationship with weight category of our participants (p=0.489). (Table 9).

Table 9: Cross tabulation between weight and site of injury

Weight (kg)	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
< 70	2	5	1	0	4	5	2	2	2	23
	66.7%	50.0%	100.0%	0.0%	44.4%	29.4%	66.7%	14.3%	66.7%	37.1%
70-80	1	2	0	1	4	9	1	10	1	29
	33.3%	20.0%	0.0%	50.0%	44.4%	52.9%	33.3%	71.4%	33.3%	46.8%
> 80	0	3	0	1	1	3	0	2	0	10
	0.0%	30.0%	0.0%	50.0%	11.1%	17.6%	0.0%	14.3%	0.0%	16.1%

Chi-Square value= 15.45, p value = **0.489**

C. Site of injury and BMI

BMI and site of injury had significant relationship (**p=0.009**). Participants who were normal in BMI category had suffered from injury at different sites than others (n=41, 66.1%). Most of the participants have suffered from knee and ankle injuries. Among the 62, overweight participants (n=8, 12.9%) have suffered from ankle injuries mostly. (Table 10).

Table10: Cross tabulation between BMI and site of injury

BMI	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
Underweight	0	2	0	0	3	3	0	1	1	10
	0.0%	20.0%	0.0%	0.0%	33.3%	17.6%	0.0%	7.1%	33.3%	16.1%
Normal	1	7	1	1	4	13	2	10	2	41
	33.3%	70.0%	100.0%	50.0%	44.4%	76.5%	66.7%	71.4%	66.7%	66.1%
Overweight	0	1	0	1	2	1	0	3	0	8
	0.0%	10.0%	0.0%	50.0%	22.2%	5.9%	0.0%	21.4%	0.0%	12.9%
Obese	2	0	0	0	0	0	1	0	0	3
	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	4.8%

Chi-Square value= 43.18, p value = **0.009**

D. Site of injury and Sports Experience

The relationship between sports experience and site of injury was statistically significant ($p=.003$). Most of our participants had less than 5 years of experiences and majority of them have suffered from lower back, knee and shoulder injuries more than the others who had more years of sports experience. Participants having 6-10 years of experience, many of them suffered from knee injuries ($n=8$) (Table 11).

Table 11: Cross tabulation between Sports experience and site of injury

Sports experiences (Years)	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
≤ 5	3	7	1	0	7	5	3	4	3	33
	100.0%	70.0%	100.0%	0.0%	77.8%	29.4%	100.0%	28.6%	100.0%	53.2%
6-10	0	2	0	0	2	8	0	9	0	21
	0.0%	20.0%	0.0%	0.0%	22.2%	47.1%	0.0%	64.3%	0.0%	33.9%
> 10	0	1	0	2	0	4	0	1	0	8
	0.0%	10.0%	0.0%	100.0%	0.0%	23.5%	0.0%	7.1%	0.0%	12.9%

Chi-Square value= 35.94, p value = **0.003**

E. Site of injury and Sleeping hours

Sleeping hours of our participants had significant relationship with site of injury ($p = <0.001$). Participants who had sleeping duration of more than 6 hours ($n=34$, 54.8%) had suffered from injury more than the others. Knee ($n=11$) and ankle ($n=10$) injury were the most common in this group. 6 participants have suffered from lower back and knee injuries who had 6 hours of sleeping duration. (Table 12)

Table 12: Cross tabulation of Sleeping hours and site of injury

Sleeping duration (hours)	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
< 6	0	0	0	1	0	0	0	0	0	1
	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%
6	3	3	0	1	6	6	2	4	2	27
	100.0%	30.0%	0.0%	50.0%	66.7%	35.3%	66.7%	28.6%	66.7%	43.5%
> 6	0	7	1	0	3	11	1	10	1	34
	0.0%	70.0%	100.0%	0.0%	33.3%	64.7%	33.3%	71.4%	33.3%	54.8%

Chi-Square value= 41.70, p value = < **0.001**

F. Site of injury and Smoking

We did not find any significant relationship with smoking and site of injury (p= 0.278). Most of the participants were non-smokers in this study (n=52, 83.9%). Most of the participants have suffered from knee injuries, among them 70.6% were non-smokers and 29.4% were smokers. (Table 13).

Table 13: Cross tabulation of Smoking and site of injury

Smoking habit	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
Yes	0	3	0	1	0	5	0	1	0	10
	0.0%	30.0%	0.0%	50.0%	0.0%	29.4%	0.0%	7.1%	0.0%	16.1%
No	3	7	1	1	9	12	3	13	3	52
	100.0%	70.0%	100.0%	50.0%	100.0%	70.6%	100.0%	92.9%	100.0%	83.9%

Chi-Square value= 9.82, p value = **0.278**

G. Site of injury and Cool down

There was no significant relationship with cool down properly and site of injury among the survey participants. Thirty-six (58.1%) participants who perform cool down properly have suffered from different site of injury. Only 26 participants who does not perform proper cool down suffers from different type of injury. (Table 14)

Table 14: Cross tabulation of Proper cool down and site of injury

Proper cool down regularly	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
Yes	2	8	0	2	5	7	2	8	2	36
	66.7%	80.0%	0.0%	100.0%	55.6%	41.2%	66.7%	57.1%	66.7%	58.1%
No	1	2	1	0	4	10	1	6	1	26
	33.3%	20.0%	100.0%	0.0%	44.4%	58.8%	33.3%	42.9%	33.3%	41.9%

Chi-Square value= 7.09, p value = **0.526**

G. Site of injury and Injury affected performance

Site of injury was significantly associated with participant’s injury affected performance (**p=0.007**). Maximum participant replied that their injury affected their performance to a minor extent (n=38, 61.3%) and most of them have suffered from knee (n=14), ankle (n=9) and lower back (n=6) injuries. (Table 15).

Table 15: Cross tabulation of Injury affected performance and site of injury

Injury affected performance	Site of injury									
	Neck	Shoulder	Wrist	Hand	Lower back	Knee	Leg/Calf	Ankle	Foot	Total
No effect	3	4	0	0	2	3	2	1	0	15
	100.0%	40.0%	0.0%	0.0%	22.2%	17.6%	66.7%	7.1%	0.0%	24.2%
To a minor extent	0	5	0	1	6	14	1	9	2	38
	0.0%	50.0%	0.0%	50.0%	66.7%	82.4%	33.3%	64.3%	66.7%	61.3%
To a moderate extent	0	0	1	0	1	0	0	3	1	6
	0.0%	0.0%	100.0%	0.0%	11.1%	0.0%	0.0%	21.4%	33.3%	9.7%
To a major extent	0	1	0	0	0	0	0	0	0	1
	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%

Chi-Square value= 54.71, p value = **0.007**

4.6: Relationship between Occurrence of injury and other variables (Cross tabulation & Chi Square)

A. Occurrence of injury and Age-group

There was no significant relationship between occurrence of injury and age-group ($p=0.308$). Falling down ($n=20$) was the cause of injury among most of the participants between the age group of 20-30 years followed by trauma ($n=6$). (Table 16).

Table 16: Cross tabulation of age-group and occurrence of injury

Age-group	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
< 20	4	0	3	4	7	0	18
	33.3%	0.0%	30.0%	80.0%	25.0%	0.0%	29.0%
20-30	7	2	6	1	20	4	40
	58.3%	100.0%	60.0%	20.0%	71.4%	80.0%	64.5%
> 30	1	0	1	0	1	1	4
	8.3%	0.0%	10.0%	0.0%	3.6%	20.0%	6.5%

Chi-Square value= 11.66, p value = 0.308

B. Occurrence of injury and Weight

There was no significant relationship between weight categories of participants and occurrence of injury ($p=0.073$). Falling down was the most common cause for occurrence of injury among participants ($n=15$) having weight between 70-80 kg. Falling down was the cause for 10 participants having weight below 70 kg. Long time practice was the most common cause for 6 participants having weight between 70-80 kg and for 5 participants having weight below 70kg. (Table 17).

Table 17: Cross tabulation of Weight and occurrence of injury

Weight (Kilograms)	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
< 70	5	0	2	5	10	1	23
	41.7%	0.0%	20.0%	100.0%	35.7%	20.0%	37.1%
70-80	6	1	4	0	15	3	29
	50.0%	50.0%	40.0%	0.0%	53.6%	60.0%	46.8%
> 80	1	1	4	0	3	1	10
	8.3%	50.0%	40.0%	0.0%	10.7%	20.0%	16.1%

Chi-Square value= 17.04, p value = 0.073

C. Occurrence of injury and BMI

There was a significant relationship between BMI and occurrence injury ($p=0.009$). Fall down ($n=20$, 71.4%), long time practice ($n=9$, 75%) and trauma ($n=6$, 60%) were the most common cause of injury among participants having normal BMI level. Three participants do not know about their occurrence of injury who were underweight. (Table 18).

Table 18: Cross tabulation of BMI and occurrence of injury

BMI	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
Underweight	1	0	1	3	5	0	10
	8.3%	0.0%	10.0%	60.0%	17.9%	0.0%	16.1%
Normal	9	2	6	0	20	4	41
	75.0%	100.0%	60.0%	0.0%	71.4%	80.0%	66.1%
Overweight	1	0	3	0	3	1	8
	8.3%	0.0%	30.0%	0.0%	10.7%	20.0%	12.9%
Obese	1	0	0	2	0	0	3
	8.3%	0.0%	0.0%	40.0%	0.0%	0.0%	4.8%

Chi-Square value= 30.87, p value = **0.009**

D. Cross tabulation between occurrences of injury with sports experience

Among 62 participants, maximum occurrences of injury (n=33, 53.2%) happened among participants < 5 years of sports experience, about 33.9% (n=21) occurrences of injury happened at 5 to 10 years of sports experiences and about 12.9% (n=8) was injured at above >10 years of sports experiences. So Less sports experiences are more occurrences of sports injury but more time of sports experiences is less occurrence of sports injury. The relationship was not significant (p=0.276) (Table 19).

Table 19: Cross tabulation of Sports experience and occurrence of injury

Sports experience	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
≤ 5	5	0	4	5	16	3	33
	41.7%	0.0%	40.0%	100.0%	57.1%	60.0%	53.2%
6-10	4	2	4	0	10	1	21
	33.3%	100.0%	40.0%	0.0%	35.7%	20.0%	33.9%
> 10	3	0	2	0	2	1	8
	25.0%	0.0%	20.0%	0.0%	7.1%	20.0%	12.9%

Chi-Square value= 12.14, p value = 0.276

E. Cross tabulation between occurrences of injury with duration of sleep

There was not relationship between duration sleeping hours and occurrence of injury (p=0.762). Most injury occurred among participants who sleep about more than 6 hours per day (n=34, 54.8%). Fall down and longtime practice were the most common cause of injury among them. Fall down (n=11) and trauma (n=5) were the most common cause of occurring injury among participants who sleep about 6 hours. (Table 20).

Table 20: Cross tabulation of duration of sleep and occurrence of injury

Sleeping hours	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
< 6	0	0	1	0	0	0	1
	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	1.6%
6	5	1	5	2	11	3	27
	41.7%	50.0%	50.0%	40.0%	39.3%	60.0%	43.5%
> 6	7	1	4	3	17	2	34
	58.3%	50.0%	40.0%	60.0%	60.7%	40.0%	54.8%

Chi-Square value= 6.61, p value = 0.762

F. Cross tabulation between occurrences of injury with smoking

Smoking was significantly associated with occurrence of injury ($p=0.013$). Non-smoker participants had the most occurrence of injury and fall down ($n=26$, 92.9%) were the most common cause for them followed by long time practice ($n=10$, 83.3%). Trauma was the common cause of injury occurrence among smokers. (Table 21).

Table 21: Cross tabulation of smoking and occurrence of injury

Smoking	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
Yes	2	2	3	0	2	1	10
	16.7%	100.0%	30.0%	0.0%	7.1%	20.0%	16.1%
No	10	0	7	5	26	4	52
	83.3%	0.0%	70.0%	100.0%	92.9%	80.0%	83.9%

Chi-Square value= 14.51, p value = 0.013

G. Cross tabulation between occurrences of injury with proper cool down

Fall down was the most common cause of injury among participants who performs proper cool down (n=15, 53.6%) followed by long time practice (n=6, 50.0%). The finding was near to similar among participants who does not perform proper cool down. The relationship was also not significant according to cross-tabulation and chi-square (p=0.699). (Table 21).

Table 21: Cross tabulation of proper cool down and occurrence of injury

Proper cool down	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
Yes	6	2	6	4	15	3	36
	50.0%	100.0%	60.0%	80.0%	53.6%	60.0%	58.1%
No	6	0	4	1	13	2	26
	50.0%	0.0%	40.0%	20.0%	46.4%	40.0%	41.9%

Chi-Square value= 3.00, p value = 0.699

H. Cross tabulation between occurrences of injury with difficulties participating in normal training

Occurrence of injury did not have any significant relationship with difficulties participating in normal training (p=845). But majority of participants (n=35, 56.5%) have reduced participation in normal training due to occurrence of injury and fall down and longtime practice were the most common. Fall down was also common cause of injury occurrence among those who had full participation but with injury (n=10, 35.7%). (Table 22).

Table 22: Cross tabulation of difficulties participating in normal training and occurrence of injury

Difficulty participating in training	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
Full participation but with injury	6	0	4	2	10	1	23
	50.0%	0.0%	40.0%	40.0%	35.7%	20.0%	37.1%
Reduced participation due to injury	6	2	5	3	15	4	35
	50.0%	100.0%	50.0%	60.0%	53.6%	80.0%	56.5%
Cannot participation due to injury	0	0	1	0	3	0	4
	0.0%	0.0%	10.0%	0.0%	10.7%	0.0%	6.5%

Chi-Square value= 5.63, p value = 0.845

I. Cross tabulation between occurrence of injury with injury affected performance

The relationship between injury affected performance and occurrence of injury was not significant ($p=0.966$). Most of the participants who had fall down as cause of injury have affected their performance to a minor extent ($n=16,57.1\%$). 7 (58.3%) participant's performance was affected to a minor extent having long time practice as a cause of injury and 4 (33.3%) participant's performance had no effect having long time practice as a cause of injury. (Table 23).

Table 23: Cross tabulation of injury affected performance and occurrence of injury

Injury affected performance	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
No effect	4	1	2	2	5	1	15
	33.3%	50.0%	20.0%	40.0%	17.9%	20.0%	24.2%
To a minor extent	7	1	7	3	16	4	38
	58.3%	50.0%	70.0%	60.0%	57.1%	80.0%	61.3%
To a moderate extent	1	0	0	0	5	0	6
	8.3%	0.0%	0.0%	0.0%	17.9%	0.0%	9.7%
To a major extent	0	0	0	0	1	0	1
	0.0%	0.0%	0.0%	0.0%	3.6%	0.0%	1.6%
Cannot participate at all	0	0	1	0	1	0	2
	0.0%	0.0%	10.0%	0.0%	3.6%	0.0%	3.2%

Chi-Square value= 10.11, p value = 0.966

J. Cross tabulation between occurrence of injury with reduced training volume

Occurrence of injury did not also have any significant relationship with reduced training volume ($p=0.601$). Injury caused by fall down ($n=12$), trauma ($n=6$) and longtime practice ($n=6$) have reduced training volume to a minor extent. Most of the participants have reduced training volume to a minor extent due to occurrence of injury. No reduction of training volume has also seen due to long time practice, trauma and fall down as a cause of injury occurrence among many participants. (Table 24).

Table 24: Cross tabulation of reduced training volume and occurrence of injury

Reduced Training volume	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
No reduction	5	0	3	2	7	1	18
	41.7%	0.0%	30.0%	40.0%	25.0%	20.0%	29.0%
To a minor extent	6	2	6	3	12	4	33
	50.0%	100.0%	60.0%	60.0%	42.9%	80.0%	53.2%
To a moderate extent	1	0	0	0	7	0	8
	8.3%	0.0%	0.0%	0.0%	25.0%	0.0%	12.9%
To a major extent	0	0	0	0	2	0	2
	0.0%	0.0%	0.0%	0.0%	7.1%	0.0%	3.2%
Cannot participate at all	0	0	1	0	0	0	1
	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	1.6%

Chi-Square value= 17.79, p value = 0.601

K. Cross tabulation between occurrence of injury with type of playground

Participants played in outdoor had more occurrence of injury, though the relation was not significant statistically ($p=0.444$). Fall down ($n=22$, 78.6%), long time practice ($n=91.7\%$) and trauma ($n=10$, 100%) were the most common cause of injury among them who played in outdoor field compared to those who played indoor. Fall down were the common cause of injury among participants who played indoor. (Table 25).

Table 25: Cross tabulation of reduced training volume and occurrence of injury

Type of playground	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
Indoor	1	0	0	0	6	1	8
	8.3%	0.0%	0.0%	0.0%	21.4%	20.0%	12.9%
Outdoor	11	2	10	5	22	4	54
	91.7%	100.0%	100.0%	100.0%	78.6%	80.0%	87.1%

Chi-Square value= 4.77, p value = 0.444

L. Cross tabulation between occurrence of injury with interval during practice

Interval during practice did not have any significant relationship with occurrence of injury ($p=0.451$). Participants who had interval more than twice a week had more occurrence of injury ($n=58, 93.5\%$). Fall down and longtime practice was the most common cause of injury for most of the participants in this group. Very few who had interval once in a week had occurrence of injury (Table 26).

Table 26: Cross tabulation of interval during practice and occurrence of injury

Interval during practice	Occurrence of injury						
	Long time practice	Lack of warm up	Trauma	Donot know	Fall down	Others	Total
Once a week	0	0	2	0	2	0	4
	0.0%	0.0%	20.0%	0.0%	7.1%	0.0%	6.5%
Twice a week	12	2	8	5	26	5	58
	100.0%	100.0%	80.0%	100.0%	92.9%	100.0%	93.5%

Chi-Square value= 4.71, p value = 0.451

Relation between Severities of injury other variables

A. Cross tabulation between Severity of injury with age-group

Age-group of participants and severity of injury did not have any significant relationship in this study ($n=0.171$). The severity of injury was highest among the age between 20-30 years ($n=40, 64.5\%$). Most of the participants in this age group have suffered from moderate injuries. Many participants had mild injury at the age group less than 20 years ($n=10, 40.0\%$).(Table 27).

Table 27: Cross tabulation of severity of injury and age-group				
Age-group	Severity of injury			
	Mild	Moderate	Severe	Total
< 20	10	5	3	18
	40.0%	33.3%	13.6%	29.0%
20-30	14	10	16	40
	56.0%	66.7%	72.7%	64.5%
> 30	1	0	3	4
	4.0%	0.0%	13.6%	6.5%

Chi-Square value= 6.41, p value = 0.171

A. Cross tabulation between Severity of injury with weight

Weight of participants had significant relationship with severity of injury. Participants having 70=80 kilograms had more severe injury than their comparison group (n=29, 46.8%). Participants having 70-80 kg of weight had more severe injury than others (n=16, 72.7%) while participants having weight less than 70 kg weight had mild injury mostly (n=11, 44%). 7 participants having more than 80 kg weight had mild injury (28%).

Table 28: Cross tabulation of severity of injury and weight				
Weight (Kg)	Severity of injury			
	Mild	Moderate	Severe	Total
< 70	11	8	4	23
	44.0%	53.3%	18.2%	37.1%
70-80	7	6	16	29
	28.0%	40.0%	72.7%	46.8%
> 80	7	1	2	10
	28.0%	6.7%	9.1%	16.1%

Chi-Square value= 12.40, p value = **0.015**

B. Cross tabulation between Severity of injury with BMI

BMI of our participants did not have any significant association with severity of injury ($p=0.143$). Though participant with normal BMI level had more severity of injury than the other comparison group ($n=41$, 66.1%). Around 77.3% participants having severe injury had normal level of BMI while 18.2% having severity of injury were overweight. (Table 29).

Table 29: Cross tabulation of severity of injury and BMI

Weight (Kg)	Severity of injury			
	Mild	Moderate	Severe	Total
Underweight	6	3	1	10
	24.0%	20.0%	4.5%	16.1%
Normal	13	11	17	41
	52.0%	73.3%	77.3%	66.1%
Overweight	3	1	4	8
	12.0%	6.7%	18.2%	12.9%
Obese	3	0	0	3
	12.0%	0.0%	0.0%	4.8%

Chi-Square value= 9.59, p value = **0.143**

C. Cross tabulation between Severity of injury with Sports experience

Most of the participants having sports experience less than 5 years had severe injury (Mild) ($n=33$, 53.3%). That means, the more they experienced the less severe injury they have suffered. But the relationship was not significant statistically ($p=0.181$). (Table 30).

Table 30: Cross tabulation of severity of injury and Sports experience

Sports experience	Severity of injury			
	Mild	Moderate	Severe	Total
≤ 5	16	8	9	33
	64.0%	53.3%	40.9%	53.2%
6-10	6	7	8	21
	24.0%	46.7%	36.4%	33.9%
> 10	3	0	5	8
	12.0%	0.0%	22.7%	12.9%

Chi-Square value= 6.25, p value = **0.181**

D. Cross tabulation between Severity of injury with Sleeping hours

Participants who used to sleep more than 6 hours had more severe injury (n=34, 54.8%). Thirteen participants had mild and severe injuries had duration of sleep more than 6 hours (n=13, 59.1%). This could imply that, the more they sleep the more is the chance of severe injury. (Table 31).

Table 31: Cross tabulation of severity of injury and duration of sleep

Duration of sleep	Severity of injury			
	Mild	Moderate	Severe	Total
< 6 hours	1	0	0	1
	4.0%	0.0%	0.0%	1.6%
6 hours	11	7	9	27
	44.0%	46.7%	40.9%	43.5%
> 6 hours	13	8	13	34
	52.0%	53.3%	59.1%	54.8%

Chi-Square value= 6.25, p value = **0.181**

E. Cross tabulation between Severity of injury with smoking

Severity of injury and smoking did not have any significant association with smoking habit of our participants ($p=0.512$). Non-smoker participants had more severe injury than smokers. (Table 32).

Table 32: Cross tabulation of severity of injury and smoking				
Smoking	Severity of injury			
	Mild	Moderate	Severe	Total
Yes	5	1	4	10
	20.0%	6.7%	18.2%	16.1%
No	20	14	18	52
	80.0%	93.3%	81.8%	83.9%

Chi-Square value= 1.33, p value = **0.512**

F. Cross tabulation between Severity of injury with Cool down properly

Proper cool down and severity of injury did not have any significant association ($p=0.184$). Participants who perform proper cool down had more severe injury. Eighteen participants had mild injury who performs proper cool down, while the number was only

Table 33: Cross tabulation of severity of injury and Cool down properly				
Proper cool down	Severity of injury			
	Mild	Moderate	Severe	Total
Yes	18	7	11	36
	72.0%	46.7%	50.0%	58.1%
No	7	8	11	26
	28.0%	53.3%	50.0%	41.9%

Chi-Square value= 3.38, p value = **0.184**

seven who does not perform proper cool down. (Table 33).

H. Cross tabulation between Severities of injury & previous injury

Any previous injury did not have significant association with severity of injury ($p=0.073$), though participants with no previous injury had suffered more. Equal number

of participants had severe type of injury who with or without history of previous injury (n=11, 50%). (Table 34).

Table 34: Cross tabulation of severity of injury and previous injury

Previous injury	Severity of injury			
	Mild	Moderate	Severe	Total
Yes	14	3	11	28
	56.0%	20.0%	50.0%	45.2%
No	11	12	11	34
	44.0%	80.0%	50.0%	54.8%

Chi-Square value= 5.22, p value = **0.073**

I. Cross tabulation between Severities of injury with satisfaction of diet

Satisfaction of diet has significant association with severity of injury (p=0.029). Participants with very satisfied diet had more mild injury (n=16, 64%) whilst participants with somewhat satisfied diet had more severe injury (n=16, 72.7%) than their comparison group.(Table 35).

Table 35: Cross tabulation of severity of injury and Satisfaction of diet

Satisfaction of diet	Severity of injury			
	Mild	Moderate	Severe	Total
Very Satisfied	16	9	6	31
	64.0%	60.0%	27.3%	50.0%
Somewhat Satisfied	9	6	16	31
	36.0%	40.0%	72.7%	50.0%

Chi-Square value= 7.10, p value = **0.029**

J. Cross tabulation between Severity of injury with participation in competition

Respondents who had participated in competition had more severe injury than those who did not. The relationship was not significant (p=0.188). Around 87% participants had severe injury who had participated in competition. (Table 36)

Table 36: Cross tabulation of severity of injury and participation in competition

Participation in competition	Severity of injury			
	Mild	Moderate	Severe	Total
Yes	18	9	19	46
	72.0%	60.0%	86.4%	74.2%
No	7	6	3	16
	28.0%	40.0%	13.6%	25.8%

Chi-Square value= 3.34, p value = **0.188**

K. Cross tabulation between Severity of injury with practicing hour

Practice hour and severity of injury did not have any significant association ($p=0.777$). Participants who practices less than or equal to 5 hours had more severe injury than who practiced more than 5 hours. This means the more you practice the less your severity of injury. (Table 37).

Table 37: Cross tabulation of severity of injury and practicing hour

Practicing hour	Severity of injury			
	Mild	Moderate	Severe	Total
≤ 5 hours	22	12	19	53
	88.0%	80.0%	86.4%	85.5%
> 5 hours	3	3	3	9
	12.0%	20.0%	13.6%	14.5%

Chi-Square value= 0.505, p value = **0.777**

L. Cross tabulation between Severity of injury and idea about injury prevention

Participants who did not have an idea about injury prevention had suffered severe type of injury ($n=56, 90.3\%$) than those who had idea about injury prevention; There was a significant relationship between Severity of injury and idea about injury prevention ($p=0.007$). (Table 38).

Table 38: Cross tabulation of severity of injury and idea about injury prevention

Idea about injury prevention	Severity of injury			
	Mild	Moderate	Severe	Total
Yes	6	0	0	6
	24.0%	0.0%	0.0%	9.7%
No	19	15	22	56
	76.0%	100.0%	100.0%	90.3%

Chi-Square value= 9.83, p value = **0.007**

4.8: Relationship between type of injury and other variables**A. Cross tabulation between types of injury with age-group**

Age-group was not significantly associated with type of injury ($p=0.558$). Participants between 20-30 age group had suffered from different type of injuries than the other age group. Sprain, strain and tendinopathy was the most common type of injury in this age group. Strain was the most common injury among participants of less than 20 years (Table 39).

Table 39: Cross tabulation of type of injury and age group

Age-group	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
< 20 years	6	8	2	2	0	18
	20.7%	44.4%	20.0%	66.7%	0.0%	29.0%
20-30 years	21	9	7	1	2	40
	72.4%	50.0%	70.0%	33.3%	100.0%	64.5%
> 30 years	2	1	1	0	0	4
	6.9%	5.6%	10.0%	0.0%	0.0%	6.5%

Chi-Square value= 6.80, p value = 0.558

D. Cross tabulation between type of injury with Weight

Weight category of our participants was not significantly associated with type of injury ($p=0.284$). Participants having their weight of 70-80 kg had suffered from different type of injury than the other weight categories. Sprain was most common type of injury among participants having weight of 70-80 kg ($n=17$, 58.6%) while strain was the most common type of injury among participants having weigh below 70 kg ($n=10$, 55.6%). (Table 40).

Table 40: Cross tabulation of type of injury and weight

Weight (Kg)	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
< 70	8	10	3	2	0	23
	27.6%	55.6%	30.0%	66.7%	0.0%	37.1%
70-80	17	5	4	1	2	29
	58.6%	27.8%	40.0%	33.3%	100.0%	46.8%
> 80	4	3	3	0	0	10
	13.8%	16.7%	30.0%	0.0%	0.0%	16.1%

Chi-Square value= 9.73, p value = 0.284

E. Cross tabulation between type of injury with BMI

BMI of our participants was also not associated significantly with type of injury ($p=0.230$). Participants who had normal level of BMI had the highest prevalence of different types of injury ($n=41$, 66.1%). Sprain ($n=20$) and strain ($n=12$) was the most common type of injury among participants who had normal BMI level. Among underweight participants, sprain was the most common type of injury for 6 participants (Table 41).

Table 41: Cross tabulation of type of injury and BMI

BMI	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
Underweight	6	3	1	0	0	10
	20.7%	16.7%	10.0%	0.0%	0.0%	16.1%
Normal	20	12	6	1	2	41
	69.0%	66.7%	60.0%	33.3%	100.0%	66.1%
Overweight	3	1	3	1	0	8
	10.3%	5.6%	30.0%	33.3%	0.0%	12.9%
Obese	0	2	0	1	0	3
	0.0%	11.1%	0.0%	33.3%	0.0%	4.8%

Chi-Square value= 15.22, p value = 0.230

F. Cross tabulation between type of injury with sports experience

Different type of injury was most common among participants having less than 5 years' sports experience (n=33, 53.2%). Though the relationship was not significant statistically (p=0.158). Sprain and strain were the most common type of injury among participants having less than 5 years of sports experience. Sprain was also commonly found among participants having 5-10 years of sports experience (n=10) (Table 42).

Table 42: Cross tabulation of type of injury and Sports experience

Sports experience	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
< 5 years	16	12	2	2	1	33
	55.2%	66.7%	20.0%	66.7%	50.0%	53.2%
5-10 years	10	3	7	1	0	21
	34.5%	16.7%	70.0%	33.3%	0.0%	33.9%
> 10 years	3	3	1	0	1	8
	10.3%	16.7%	10.0%	0.0%	50.0%	12.9%

Chi-Square value= 11.84, p value = 0.158

G. Cross tabulation between type of injury with smoking

Smoking and type of injury was not significantly associated among our survey participants ($p=0.280$). Participants who were non-smokers have suffered from different types of injury; sprain ($n=26$) and strain ($n=13$) were the most common type of injury among them. (Table 43).

Table 43: Cross tabulation of type of injury and smoking						
Smoking habit	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
Yes	3	5	1	0	1	10
	10.3%	27.8%	10.0%	0.0%	50.0%	16.1%
No	26	13	9	3	1	52
	89.7%	72.2%	90.0%	100.0%	50.0%	83.9%

Chi-Square value= 5.07, p value = 0.280

H. Cross tabulation between type of injury with proper cool down

There was also no significant association between type of injury and proper cool down ($p=0.558$). Strain was the most common type of injury among participants who performs proper cool down ($n=13$, 72.2%) while sprain was most common among participants who did not perform proper cool down ($n=17$, 58.6%) (Table 44).

Table 44: Cross tabulation of type of injury and proper cool down						
Proper cool down	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
Yes	12	13	8	3	0	36
	41.4%	72.2%	80.0%	100.0%	0.0%	58.1%
No	17	5	2	0	2	26
	58.6%	27.8%	20.0%	0.0%	100.0%	41.9%

Chi-Square value= 6.80, p value = 0.558

I. Cross tabulation between type of injury with participation in normal training

Most of the participants have reduced their participation in normal training due to their injury, among them (n=17, 58.6%) have had sprain (n=9, 50.0%) had strain. Some participants with sprain had full participation in normal training. The relationship between this two variable was not significant statistically (p=0.332) (Table 45).

Table 45: Cross tabulation of type of injury and Participation in normal training

Participation in normal training	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
Full participation but with injury	11	7	2	3	0	23
	37.9%	38.9%	20.0%	100.0%	0.0%	37.1%
Reduced participation due to injury	17	9	7	0	2	35
	58.6%	50.0%	70.0%	0.0%	100.0%	56.5%
Cannot participation due to injury	1	2	1	0	0	4
	3.4%	11.1%	10.0%	0.0%	0.0%	6.5%
Chi-Square value= 9.12, p value = 0.332						

J. Cross tabulation between type of injury with injury affected their performance

Type of injury did not have any significant association with their performance (p=799). Type of injury have affected performance to a minor extent for most of the participants (n=38, 61.3%) and most common injury were sprain and strain for them. (Table 46).

Table 46: Cross tabulation of type of injury and injury affected their performance

Injury affected their performance	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
No effect	7	5	1	2	0	15
	24.1%	27.8%	10.0%	66.7%	0.0%	24.2%
To a minor extent	19	10	6	1	2	38
	65.5%	55.6%	60.0%	33.3%	100.0%	61.3%
To a moderate extent	2	2	2	0	0	6
	6.9%	11.1%	20.0%	0.0%	0.0%	9.7%
To a major extent	0	1	0	0	0	1
	0.0%	5.6%	0.0%	0.0%	0.0%	1.6%
Cannot participate at all	1	0	1	0	0	2
	3.4%	0.0%	10.0%	0.0%	0.0%	3.2%

Chi-Square value= 11.17, p value = 0.799

K. Cross tabulation between type of injury & severity of pain

Severity of pain and type of injury did not also have any significant association ($p=0.555$). Most of the participants had moderate and mild type of pain. Sprain was the most common type of injury among participants who had mild and moderate type of pain (Table 47).

Table 47: Cross tabulation between type of injury & severity of pain

Severity of pain	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
Mild	10	8	6	2	0	26
	34.5%	44.4%	60.0%	66.7%	0.0%	41.9%
Moderate	18	8	4	1	2	33
	62.1%	44.4%	40.0%	33.3%	100.0%	53.2%
Severe	1	2	0	0	0	3
	3.4%	11.1%	0.0%	0.0%	0.0%	4.8%

Chi-Square value= 6.83, p value = 0.555

L. Cross tabulation between type of injury with practice hour

Most of the participants with different types of injury had practice hour less than 5 hours. This means the more practice hour the less chance to suffer from different types of injury. Though the relation was not statistically significant ($p=0.258$). (Table 48).

Table 48: Cross tabulation of type of injury and practice hour

Practice hour	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
≤ 5	23	16	10	3	1	53
	79.3%	88.9%	100.0%	100.0%	50.0%	85.5%
> 5	6	2	0	0	1	9
	20.7%	11.1%	0.0%	0.0%	50.0%	14.5%

Chi-Square value= 5.29, p value = 0.258

M. Cross tabulation between type of injury with type of play ground

Type of playground and type of injury also did not have any significant relationship ($p=0.147$). Though participants played in outdoor have suffered from different type of injury ($n=54$). Sprain and strain were the most common type of injury among outdoor players. (Table 49).

Table 49: Cross tabulation of type of injury and practice hour

Type of play ground	Type of injury					
	Sprain	Strain	Tendinopathy	Fracture	Dislocation	Total
Indoor	5	0	1	1	1	8
	17.2%	0.0%	10.0%	33.3%	50.0%	12.9%
Outdoor	24	18	9	2	1	54
	82.8%	100.0%	90.0%	66.7%	50.0%	87.1%

Chi-Square value= 6.79, p value = 0.147

5.1 DISCUSSION

This study reveals that Knee (27.4%), ankle (22.6%), Shoulder (16.1%) & lower back (14.5%) were the most common site of injury. One study showed that the Knee & ankle was the most common injured body site in Volleyball players (Fong, D et al., 2007). Another study showed that among the injured players, ankle and knee injuries showed the highest injury prevalence with 25.5% for each followed by 19.6% for shoulder injuries.(Abdelnour,2008). Another study showed that among the volleyball players, increases the risk of ankle, calf and knee injuries (Deda & Kalaja, 2015). The findings support the statement with the other study results in volleyball players. Majority of the participants reduced their training volume to a minor extent (53.2%) due to the injury. Most of the participants did not have any ideas about injury prevention (90.3%) while very few of them had ideas about prevention of injuries (9.7%) .

Most common type of injury among participants was sprain (46.8%), strain (29%) and tendinopathy (16.1%). Only few participants had fracture and dislocation. There was significant relationship between site of injury and age-group. One study showed that the most common type of injuries are sprains and strain. It was establishing that the most common injury is in Muscle strain and ligament sprain (36%) (Gamez et al., 2006). The findings support the statement with the other study results in volleyball players. Maximum site of injury (64.5%) occurred at age group 20 to 30 years where knee & ankle injury is the most common site. One study showed that the across all ages, ankle was the most commonly injured body part (25.9%) followed by the knee (15.2%), fingers/thumb (10.7%) and lower back (8.9%) (Bere et al., 2015).

Most of the participants had less than 5 years of experiences and majority of them have suffered from lower back, knee and shoulder injuries more than the others who had more than 5 years of sports experience and there was a significant relationship between sports experience and site of injury ($p=0.03$).

This study showed that Majority of the participant had sudden onset of pain (n=41, 66.1%). Much more participant of them had gradual onset of pain (n=20, 32.3%). One study showed that Half of the injuries (50%), which occurred gradually onset (Abdelnour, 2008). Another study showed that 41% of all injuries had a gradual onset (Augustsson, 2009). Participants who had sleeping duration of more than 6 hours had suffered from injury (54.8%) more than the others. Knee and ankle injury were the most common in this group and there was a significant relationship between Sleeping hours with site of injury ($p = <0.001$). Maximum participant affected their performance to a minor extent (61.3%) and most of them have suffered from knee, ankle and lower back injuries. Site of injury was significantly associated with participant's injury affected performance ($p=0.007$).

Fall down (n=20, 71.4%), long time practice (n=9, 75%) and trauma (n=6, 60%) were the most common cause of injury among participants having normal BMI level, although it was statistically significant ($p=0.009$). There was a significant relationship between Weight of participants and severity of injury. Participants having 70-80 kilograms had more severe injury than their comparison group (46.8%) and there was a significant relationship between Weight of participants and severity of injury.

Participants with very satisfied diet had more mild injury (n=16, 64%) whilst participants with somewhat satisfied diet had more severe injury (n=16, 72.7%) than their comparison group and there was a significant relationship between diet and severity of injury ($p=0.029$). Majority of the participant (90.3%) who did not have any idea about injury prevention have suffered from severe type of injury than those who had idea about injury prevention and There was a significant relationship between idea about injury prevention and severe injury ($p=0.007$). One study found that a higher incidence of ankle sprains in volleyball players due to lack of injury preventative information (Moeller & Lamb, 1997)

This study found that type of injury have affected performance to a minor extent for most of the participants (61.3%) and most common injury were sprain and strain for them. Most of the participants have reduced their participation in normal training due to their injury, among them (58.6%) have had sprain and (50.0%) had strain. Some participants

with sprain had full participation in normal training. Type of injury like sprain, strain, tendinopathy, fracture & dislocation was most common among participants having less than 5 years of sports experience (53.2%) than more than 5 years. Sprain and strain were the most common type of injury among participants having less than 5 years of sports experience, although it was not statistically significant. One study showed that knee injuries occurred in subjects with a high degree of fitness and more experience (Moeller & Lamb, 1997)

5.2 Limitation

This study presents severe limitations. First of all, the sample size was small due to time constraint & unavailability of resources, Secondly, Target respondents were not enough in number and thirdly injury associations with the different anthropometric measurements did not necessarily correlate with injuries.

6.1 Conclusion

Knee (27.4%), ankle (22.6%), Shoulder (16.1%) & lower back (14.5%) were the most common site of injury. Most common type of injury among participants was sprain (46.8%), strain (29%) and tendinopathy (16.1%). Participants with somewhat satisfied diet had more severe injury (n=16, 72.7%) than Participants with very satisfied diet had more mild injury (n=16, 64%). Participants who did not have an idea about injury prevention had suffered severe type of injury (n=56, 90.3%) than those who had idea about injury prevention.

6.2 Recommendation

It will be recommending that this study will be helpful to fix treatment protocol as well as formulating injury prevention specifically designed for them. It is also recommended that further study need to conduct to see the association and correlation between different variables in relation to patterns of sports injury.

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বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট (বিএইচপিআই)
সিআরপি, সাভার, ঢাকা।

সনাক্তকরণ নং-

সম্মতিপত্র

আসসালামুআলাইকুম/নমস্কার

আমি মো: দেলোয়ার হোসেন চৌধুরী, ঢাকা বিশ্ববিদ্যালয়ে লচিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট (বিএইচপিআই) এ এমএসসি ইন রিহ্যাবিলিটেশন সাইন্স (এমআরএস) প্রোগ্রামের এক জননিয়মিত ছাত্র। মাষ্টার'স প্রোগ্রামের অংশ হিসাবে আমার একটি গবেষণা করা প্রয়োজন।

আমার গবেষণার বিষয়: Patterns of Sports Injuries & Associated Factors among the volleyball Players of Selected Sports Institutes in Dhaka City. যেটি আমিকর ছিজাহাঙ্গীর নগর

বিশ্ববিদ্যালয়ের ইনফরমেশন

টেকনোলজি ইনস্টিটিউটের সহযোগী অধ্যাপক জনাব

মোঃ ফজলুল করিম পাটোয়ারী স্যারের তত্ত্বাবধানে। গবেষণা সম্পৃক্ত তথ্য পেতে সাক্ষাতে আপনার কাছ থেকে খেলাধুলা ও ইঞ্জুরী বিষয়ক কিছু তথ্য জানা প্রয়োজন, যদি আপনি সম্মতি প্রদান করেন। আপনার সরবরাহকৃত যাবতীয় তথ্য গোপন রাখা হবে। এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছাকৃত। সাক্ষাতকার নিতে ১০-১৫ মিনিট সময় প্রয়োজন। সাক্ষাতকারের যেকোন পর্যায়ে আপনি যদি মনেকরেন গবেষণা থেকে নিজেকে প্রত্যাহার করেনি বেন তবে তা আপনার পছন্দ মত প্রত্যাহার করতে পারবেন এবং প্রশ্নের উত্তর দেওয়া থেকে নিজেকে বিরত রাখতে পারবেন।

অংশগ্রহণকারীর স্বাক্ষর

উপাভ্যাসকারী/গবেষকের স্বাক্ষর.....

তারিখ:

সময়:

QUESTIONNAIRE

Title:Patterns of Sports Injuries & Associated Factors among the Volleyball Players of Selected Sports Institutes in Dhaka City

Respondent's Identification

(উত্তরদাতার এর পরিচয়)

ID No:.....
(সনাক্তকরণ নং)

Name of the Interviewer:

.....

(সাক্ষাতকারীর নাম)

Date of interview: __ / __ / ____

(সাক্ষাতকারের তারিখ)

(পূর্বাঙ্ক/অপরাঙ্ক)

Time of interview:..... am/pm

(সাক্ষাতকারের সময়)

Name of the

respondent:.....

(উত্তরদাতার নাম)

Address:

.....

(ঠিকানা)

Contact no:e-mail address:

.....

(যোগাযোগ নং)

(ই-মেইল ঠিকানা)

Section 1: Socio-Demographic & Physical Factors

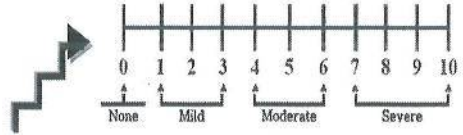
(সামাজিক জনসংখ্যাগত এবং শারীরিক ফ্যাক্টর)

Sl. No. (ক্রমিক নং)	QUESTION (প্রশ্ন)	RESPONSE (উত্তর)
01	Age of the participant (অংশগ্রহণকারীর বয়স)	<input type="text"/> Years (বছর)
02	Marital Status (বৈবাহিক অবস্থা)	(1= Married (বিবাহিত), <input type="text"/> 2= Unmarried (অবিবাহিত), 3 = Separated (বিচ্ছিন্ন), 4=Divorced (ভালাকপ্রাপ্ত))
03	Year of Schooling (কত বছর ধরে স্কুলে পড়াশুনা)	<input type="text"/> Years (বছর)
04	Occupation (পেশা)	(1= Service Holder (চাকুরীজীবী), <input type="text"/> 2= Student (ছাত্র), 3=Business man (ব্যবসায়ী), 4= Others(অন্যান্য))
05	Height (উচ্চতা)	<input type="text"/> Inch (ইঞ্চি)
06	Weight (ওজন)	<input type="text"/> Kg (কেজি)
07	Postural alignment (ভঙ্গুর সংমিশ্রণ)	<input type="text"/> (1.Good (ভাল) 2. Poor (মন্দ))
Sl. No.	QUESTION	RESPONSE
08	Did you have any type of previous injury? (আপনি কি পূর্বে আঘাত প্রাপ্ত হয়েছেন?)	<input type="text"/> (1= Yes (হ্যাঁ), 2= No (না))
09	Did you consult any medical professionals for your previous injury? (আপনার পূর্বের আঘাতের জন্য কি কোন চিকিৎসা পেশাজীবির পরামর্শ নিয়েছেন)	<input type="text"/> (1= Yes (হ্যাঁ), 2= No (না))
10	Have you cured from your previous injury? (আপনার পূর্বের আঘাত কি ভাল হয়েছিল?)	<input type="text"/> (1= Yes (হ্যাঁ), 2= No (না))
11	Did you take any medicine regarding your Previous injury? (পূর্বের আঘাতের জন্য আপনাকে কি কোন ঔষধ খেতে হয়েছিল?)	<input type="text"/> (1= Yes (হ্যাঁ), 2= No (না))
12	Did you take physiotherapy regarding your Previous injury? (পূর্বের আঘাতের জন্য	<input type="text"/> (1= Yes (হ্যাঁ), 2= No (না))

	আপনি কি কোন ফিজিওথেরাপী নিয়েছিলেন?)	
13	Site of previous injury? (পূর্ববর্তী আঘাতটি শরীরের কোন অংশে ছিল?)	(1= Head (মাথা), 2=Neck (ঘাড়), 3=Shoulder (কাধ), 4=Arm (বাহু), 5=Elbow (কনুই), 6=Forearm, 7=Wrist (কজি), 8=Hand (হাত), 9=Upper back (উচ্চ পিছনে), 10=Lower back (নিম্ন পিছনে), 11=Hip, 12=Thigh, 13=Knee, 14=Leg/calf, 15=Ankle, 16=Foot, 17=abdomen)
14	Side of previous injury (পূর্ববর্তী আঘাতটি শরীরের কোন পাশে ছিল)	<input type="checkbox"/> (1=Right (ডান), 2=Left (বাম), 3= Both (উভয়))

Section 2: Attitude, Life Style & injury Related Factors (মনোভাব, জীবনধারা এবং আঘাত সংক্রান্ত বিষয়)

Sl. No.	QUESTIONS	RESPONSES
15	Do you perform exercise regularly? (আপনি কি নিয়মিত ব্যায়াম করেন?)	<input type="checkbox"/> (1= Yes (হ্যাঁ), 2= No(না))
16	How much do you sleep(Per day)? (দৈনিক কত ঘন্টা ঘুমান?)	<input type="checkbox"/> (1= Less than 6 hours (ছয় ঘন্টার কম), 2 = 6 hours (ছয় ঘন্টা), 3 = More than 6 hours (ছয় ঘন্টার বেশী))
17	Do you consider yourself as a fanatic sporter? (আপনি কি নিজেকে কটরপন্থী খেলোয়াড় হিসেবে বিবেচনা করেন?)	<input type="checkbox"/> (1= Yes (হ্যাঁ), 2= No(না))
18	Do you have smoking habit? (আপনার কি ধূমপানের অভ্যাস আছে?)	<input type="checkbox"/> (1= Yes (হ্যাঁ), 2= No(না))
19	Do you always have proper warm up before starting sports? (খেলা শুরু করার আগে আপনি কি ওয়ার্মআপ করেন)	<input type="checkbox"/> (1= Yes(হ্যাঁ), 2= No(না))
20	Do you always have proper cool down after finishing sports?(খেলা শেষ হবার পর আপনি কি কুলডাউন (শীতল) করেন?)	<input type="checkbox"/> (1= Yes(হ্যাঁ), 2= No(না))
21	Do you apply tapping/ Crepe bandaging when needed?(প্রয়োজনের সময় আপনি কি ক্রেপ ব্যান্ডেজ অথবা টেপিং ব্যবহার করেন?)	<input type="checkbox"/> (1= Yes(হ্যাঁ), 2= No(না))
22	Do you satisfy regarding your diet & supplement taking? (যে খাবার গ্রহণ করেন তাতে কি আপনি সন্তুষ্ট?)	<input type="checkbox"/> (1=Very satisfied (অত্যন্ত সন্তুষ্ট), 2=Somewhat satisfied (কিছুটা সন্তুষ্ট), 3=Neither satisfied nor dissatisfied)

		(সন্তুষ্ট না আবার অসন্তুষ্টও না), 4=Somewhat dissatisfied (কিছুটা অসন্তুষ্ট), 5=Very dissatisfied(বেশি অসন্তুষ্ট))
23	How injury occurs? (কিভাবে আঘাত প্রাপ্ত হন?)	(1= long time practice(দীর্ঘ সময় অনুশীলন), 2=lack of warm up (উষ্ণতার অভাব), 3 =lack of coal down (শীতলতার অভাব), <input type="checkbox"/> 4=Trauma (আঘাত), 5=Don't know (জানিনা), 6= Fall down (পরে যাওয়া), 7=Others(অন্যান্য))
24	Site of injury? (শরীরে কোন অংশে আঘাত?)	(1= Head (মাথা), 2=Neck (ঘাড়), 3=Shoulder (কাধ), 4=Arm (বাছ), 5=Elbow (কনুই), 6=Forearm, <input type="checkbox"/> 7=Wrist (কজি), 8=Hand (হাত), 9=Upper back (উচ্চ পিছনে), 10=Lower back (নিম্ন পিছনে), 11=Hip, 12=Thigh, 13=Knee, 14=Leg/calf, 15=Ankle, 16=Foot, 17= other (অন্যান্য))
25	Side of injury? (শরীরে কোন পাশে আঘাত?)	<input type="checkbox"/> (1= Right (ডান), 2= Left (বাম), 3= Both(উভয়))
26	Pattern of pain? (ব্যথার ধরন?)	<input type="checkbox"/> (1= Intermittent (বিরতি), 2=Continuous (ক্রমাগত))
27	Severity of pain? (ব্যথার তীব্রতা?)	 <input type="checkbox"/> (1= Mild pain (হালকা ব্যথা), 2= Moderate pain (মাঝারি ব্যথা), 3 = Severe pain (গুরুতর ব্যথা))
28	Duration of pain? (ব্যথার সময়কাল?)	<input type="checkbox"/> Day(s)/ <input type="checkbox"/> Month(s)/ <input type="checkbox"/> Year(s) (দিন) (মাস) (বছর)
31	Onset of pain? (ব্যথা শুরু?)	<input type="checkbox"/> (1=Sudden (হঠাৎ), 2=Rapid (দ্রুত), 3=Gradual (আস্তে আস্তে))
32	Aggregating factor? (ব্যথা বাড়ানোর ফ্যাক্টর?)	<input type="checkbox"/> (1=Landing (পতিত), 2=squatting(3=Jumping (লাফ), 4=Practicing(অনুশীলন), 5=Others অন্যান্য)

33	Relieving factor? (ব্যথা মুক্তির বা কমার ফ্যাক্টর?)	<input type="checkbox"/> (1=Practicing(অনুশীলন), 2=Rest (বিশ্রাম), 3=Gym (জিম), 4=swimming (সাতার), 5= Others (অন্যান্য))
34	Have you had any difficulties participating in normal training and competition due to injury? (আপনার স্বাভাবিক প্রশিক্ষণ ও প্রতিযোগিতায় অংশ নিতে সমস্যা হয় কি?)	<input type="checkbox"/> (1=Full participation, but with injury, (সম্পূর্ণ যোগদানে) 2=Reduced participation due to injury, (কমিয়ে অংশগ্রহণ) 3=Cannot participation due to injury) (অংশগ্রহণ করতে না পাড়া)
35	To what extent has it injury affected your performance? (আঘাতপ্রাপ্তের ফলে কর্মক্ষমতায় আপনাকে কি পরিমাণ প্রভাব করছে?)	<input type="checkbox"/> (1= No effect (প্রভাব নেই), 2= To a minor extent (অল্প প্রভাব), 3=To a moderate extent (মাঝারি প্রভাব), 4= To a major extent (বড় প্রভাব), 5= Cannot participate at all (অংশগ্রহণ করতে না পাড়া)
36	To what extent have you reduced you training volume due to injury? (আঘাত প্রাপ্তের ফলে প্রশিক্ষণ পরিমাপ আপনার কি কমে যাচ্ছে?)	<input type="checkbox"/> (1= No reduction (হ্রাস নয়), 2= To a minor extent (অল্প পরিমাণ হ্রাস পায়), 3=To a moderate extent (মাঝারি পরিমাণ), 4= To a major extent (বেশি পরিমাণ), 5= Cannot participate at all) (অংশগ্রহণ করতে না পারা)

Section 3: Level of competition related factors (প্রতিযোগিতা ও প্রতিযোগিতামূলক স্তর)

Sl. No.	QUESTIONS	RESPONSES
37	Did you participate any level of competition? (আপনি অংশগ্রহণ করেছেন প্রতিযোগিতার কোন স্তরে?)	<input type="checkbox"/> (1= Yes (যদি হ্যাঁ), 2= No (না))
38	If yes which type of competition had you participated? (যদি হ্যাঁ হয় কোন ধরনের প্রতিযোগিতায় আপনি অংশগ্রহণ করেছেন?)	<input type="checkbox"/> (1= Divisional (বিভাগীয়), 2= National (জাতীয়), 3= International(আন্তর্জাতিক), 4= Inter-service (আন্তবাহিনী), 5= Others (অন্যান্য))
39	Did you achieve any award for any level of competition? (প্রতিযোগিতার কোন স্তরে আপনি কোন পুরস্কার অর্জন করেছেন?)	<input type="checkbox"/> (1= Yes (হ্যাঁ), 2= No (না))

40	If yes, Which level of competition you got award? (যদি হ্যা হয়, প্রতিযোগিতার কোন লেভেলে আপনি পুরস্কার পেয়েছেন?)	<input type="checkbox"/> (1= Divisional (বিভাগীয়), 2= National (জাতীয়), 3= International(আন্তর্জাতিক), 4=Inter-service (আন্তবাহিনী), 5= Others (অন্যান্য))
41	Award ranking? (পুরস্কারের র্যাংকিং?)	<input type="checkbox"/> (1= Gold (সোনা), 2= Silver (সিলভার), 3=Bronze (তামা), 4=Others (অন্যান্য))

Section 4: Circumstances of sports related factors& environmental factors

(ক্রীড়া জনিত পরিস্থিতি ও পরিবেশ ফ্যাক্টর)

Sl. No.	QUESTIONS	RESPONSES
42	Sports experience? (ক্রীড়া অভিজ্ঞতা)	<input type="checkbox"/> Month(s) (মাস)/Year(s) (বছর)
43	Practicing hour (Per day)? (অনুশীলন ঘন্টা প্রতিদিন)	<input type="checkbox"/> Hour(s) (ঘন্টা)
44	Interval during practice? (অনুশীলনের সময় বিরতী)	<input type="checkbox"/> (1= Once a week (সপ্তাহে ১বার) , 2 = Twice a week (১ সপ্তাহে ২বার), 3=Once every two week) (একবার প্রতি দুই সপ্তাহে)
45	Do you have any full day rest per week? (আপনার প্রতি সপ্তাহে সারাদিন বিশ্রাম আছে?)	<input type="checkbox"/> (1= Yes (হ্যা), 2= No(না))
46	Do you take any self-massage before, during &after playing? (খেেলার আগে, খেলার সময় এবং খেলার পরে আপনি কি নিজে ম্যাসেজ করেন?)	<input type="checkbox"/> (1= Yes (হ্যা), 2= No (না))
47	Do you take any physiotherapy after injury? (আঘাতের পরে আপনি কোন ফিজিওথেরাপী নেন?)	<input type="checkbox"/> (1= Yes (হ্যা), 2= No (না))
48	Have any idea about injury prevention? (আঘাত প্রতিরোধ সম্পর্কে আপনার কোন ধারণা আছে?)	<input type="checkbox"/> (1= Yes (হ্যা), 2= No (না))
49	Do you have experienced injustice of the referee? (র্যাফারি অবিচার সম্পর্কে আপনার কোন অভিজ্ঞতা আছে?)	<input type="checkbox"/> (1= Yes (হ্যা), 2= No (না))
50	Do you have positive or negativeexperienced regarding sports injury during training with team mates? (প্রশিক্ষণের সময় সহকর্মীদের সঙ্গে ক্রীড়া আঘাত সংক্রান্ত কোন ইতিবাচক বা নীতিবাচক অভিজ্ঞতা আছে?)	<input type="checkbox"/> (1= Yes (হ্যা), 2= No (না))

51	Do you have positive or negative experienced regarding sports injury during competition with opponents? (প্রশিক্ষণের সময় বিরোধীদের সঙ্গে ক্রীড়া আঘাত সংক্রান্ত কোন ইতিবাচক বা নীতিবাচক অভিজ্ঞতা আছে?)	<input type="checkbox"/> (1= Yes (হ্যাঁ), 2= No (না))
52	Which type of the play ground regarding your injury? (ইঞ্জুরীর সময় কোন ধরনের খেলার মাঠ ছিল?)	<input type="checkbox"/> (1= Indoor play ground (ইনডোর খেলার মাঠ), 2=outdoor play ground) (বহিরাঙ্গন খেলা মাঠ)
53	Your injury period? (আঘাতের সময়কাল)	<input type="checkbox"/> (1= Morning (সকাল), 2=Afternoon (দ্বিপ্রহর), 3= Evening (সন্ধ্যা))
54	Types of injury?	<input type="checkbox"/> (1. Sprain 2. Strain 3. Tendinopathy 4. Fracture 5. Dislocation)

Thank you for your patience

(আপনার ধৈর্যের জন্য ধন্যবাদ)



BANGLADESH HEALTH
PROFESSIONS INSTITUTE

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

Ref.

CRP-BHPI/IRB/02/18/194

Date: 18/02/2018

To
Md. Delowar Hossain Chowdhury
M.Sc in Rehabilitation Science
Session: 2016-2017, Student ID: 181160050
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of thesis proposal "Pattern of sports injuries and associated factors among the volleyball players of selected sports institute" by ethics committee.

Dear Md. Delowar Hossain Chowdhury,

Congratulations!

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application on 03/05/2017 to conduct the above mentioned dissertation with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

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

Since the study involves exploring pattern of sports injuries and associated factors among the volleyball players of selected sports institutes through a questionnaire that takes 25 to 30 minutes and have no likelihood of any harm to the participants, the members of the ethics committee have approved the study to be conducted in the presented form at the meeting held at 9:00 AM on May 06, 2017 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

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

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন : ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স : ৭৭৪৫০৬৯

P-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org



বাংলাদেশ ক্রীড়া শিক্ষা প্রতিষ্ঠান
জিরানী, সাভার, ঢাকা।
প্রশাসন শাখা
www.bksp.gov.bd

স্মারক নম্বর: ৩৪.০৪.০০০০.০০০.২৫.০১২.১৭.১২৭

তারিখ: ২১ চৈত্র ১৪২৪

০৪ এপ্রিল ২০১৮

বিষয়: গবেষণা কাজের জন্য তথ্য-উপাত্ত সংগ্রহের অনুমতি প্রদান প্রসঙ্গে।

সূত্র: ১২/৩/২০১৮ তারিখে দাখিলকৃত আপনার পত্র।

উপর্যুক্ত বিষয় ও সূত্রের প্রতি দৃষ্টি আকর্ষণ পূর্বক আপনার আবেদনের পরিপ্রেক্ষিতে আপনার গবেষণা কাজে সহযোগিতার লক্ষ্যে অত্র প্রতিষ্ঠানের কোচ (ভলিবল) জনাব মোঃ শফিকুর রহমান-এর সহিত আলোচনা/সমন্বয়পূর্বক ভলিবল বিভাগের প্রশিক্ষার্থীদের নিকট হতে ১০-১৫ মিনিটকালীন গবেষণা সহায়ক তথ্য-উপাত্ত সংগ্রহের নির্দেশক্রমে অনুমতি প্রদান করা হলো।

১০-৪-২০১৮

মোঃ ছগির হোসেন
উপ-পরিচালক

Md Delowar Hossain Chowdhury,
Session: 2016-2017, Student ID:
181160050
BHPI, CRP, Savar, Dhaka

স্মারক নম্বর: ৩৪.০৪.০০০০.০০০.২৫.০১২.১৭.১২৭/১

তারিখ: ২১ চৈত্র ১৪২৪

০৪ এপ্রিল ২০১৮

সদয় অবগতি ও কার্যার্থে প্রেরণ করা হলঃ

- ১) মহাপরিচালক, বিকেএসপি।
- ২) পরিচালক (প্রশাসন ও অর্থ), বিকেএসপি।
- ৩) পরিচালক (প্রশিক্ষণ), বিকেএসপি।
- ৪) অধ্যক্ষ, ক্রীড়া কলেজ, বিকেএসপি।
- ৫) উপ-পরিচালক (প্রশিক্ষণ), বিকেএসপি।
- ৬) কোচ (ভলিবল), বিকেএসপি। (প্রয়োজনীয় সহযোগিতা প্রদান করবেন)।
- ৭) নিরাপত্তা সুপারভাইজার, বিকেএসপি।

১০-৪-২০১৮

মোঃ ছগির হোসেন
উপ-পরিচালক

Date: 12th March, 2018

To,
Director General
BKSP, Savar, Dhaka

Subject: Regarding permission of data collection for Master's thesis.

বাংলাদেশ ক্রীড়া শিক্ষা প্রতিষ্ঠান	
মহাপরিচালক.....	০৩/০৩/১৮
পরিচালক (প্রশাসন ও অর্থ).....	
পরিচালক (প্রশিক্ষণ).....	
পরিচালক (ক্রীড়া বিভাগ).....	
অধ্যক্ষ.....	
মিনিশি প্রকৌশলী.....	
হিসাব রক্ষণ কর্মকর্তা.....	
সহকারী পরিচালক (প্রশাসন).....	
চিঠি গ্রহণকারী.....	
থলন নং ৬৭৭.....	তারিখ ১২/৩/১৮

Sir,

With the due respect I would like to draw your kind attention that I am a student of M. Sc in Rehabilitation science program at Bangladesh Health Professional Institute (BHPI) an academic Institute of CRP under Faculty of Medicine of University of Dhaka. This is 02 years full time course under the project of Regional Inter- Professional Master's program in Rehabilitation science funded by SAARC Development Fund (SDF). I have to conduct a thesis entitled "Patterns of Sports Injuries & Associated Factors among the Volleyball Players of Selected Sports Institutes in Dhaka City" under honorable supervisor, Md. Fazlul Karim Patwary, Associate Professor, Institute of IT, Jahangirnagar University, Dhaka.

The purpose of this study is to find out the pattern of sports injuries & associated factors among the volleyball athletes of selected sports institute or organization. Data will be collected for 04 weeks from February 2018. A questionnaire will be used that will take about 10-15 minutes. Data collection will receive informed consent from all the participants & data collection will be kept confidential. So I will be obliged if you grant me permission to collect data.

Sincerely yours

Md. Delowar Hossain Chowdhury

Session: 2016-2017

Student ID: 181160050

Student of M. Sc in Rehabilitation Science (MRS),

BHPI, CRP, Savar, Dhaka

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বাংলাদেশ ক্রীড়া শিক্ষা প্রতিষ্ঠান
কেন্দ্র-৩
সাবার, ঢাকা

Date: 12th February, 2018

To,
Secretary
Bangladesh Volleyball Federation
Dhaka, Bangladesh

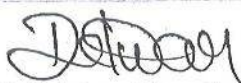
Subject: Regarding permission of data collection for Master's thesis.

Sir,

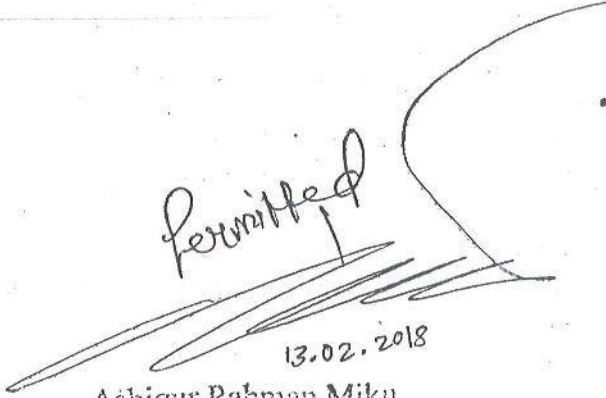
With the due respect I would like to draw your kind attention that I am a student of M. Sc in Rehabilitation science program at Bangladesh Health Professional Institute (BHPI) an academic Institute of CRP under Faculty of Medicine of University of Dhaka. This is 02 years full time course under the project of Regional Inter- Professional Master's program in Rehabilitation science funded by SAARC Development Fund (SDF). I have to conduct a thesis entitled "Patterns of Sports Injuries & Associated Factors among the Volleyball Players of Selected Sports Institutes in Dhaka City" under honorable supervisor, Md. Fazlul Karim Patwary, Associate Professor, Institute of IT, Jahangirnagar University, Dhaka.

The purpose of this study is to find out the pattern of sports injuries & associated factors among the volleyball athletes of selected sports institute or organization. A questionnaire will be used that will take about 15-20 minutes. Data collection will receive informed consent from all the participants & data collection will be kept confidential. So I will be obliged if you grant me permission to collect data.

Sincerely yours



Md. Delowar Hossain Chowdhury
Session: 2016-2017
Student ID: 181160050
Student of M. Sc in Rehabilitation Science (MRS),
BHPI, CRP, Savar, Dhaka

Permitted

13.02.2018
Ashiqur Rahman Miku
General Secretary
Bangladesh Volleyball Federation