Prevalence and its associated risk factors of sport injury in the case of male Volleyball premiere League clubs residing in Amhara Region

Abeje kumilachew, Alemayehu Belay, Ephrem Tamirat

College of Natural and Computational Science, Department of Sport Science, University of Gondar, Ethiopia, P.O. Box. 196
abejekumlachew@gmail.com

Abstract: Background: Volleyball is one of the most widely played sports in addition to football and basketball. International de Volley-Ball Federation (FIVB) represents about 150 million players in approximately 170 countries played volleyball. While a large body of research has been conducted regarding the nature and prevalence of volleyball injuries internationally, but not conducted in Ethiopia. Objective: the aim of this study was to determine the prevalence of injuries, injured body part and factors on volleyball players of a club in Wollo Anbasal and Tana Bahir-Dar in the season of 2014-2016 G.C. Methods: Descriptive survey study was used. For this study all players and coaches was included on the two selected clubs (20 volleyball players and 2 coaches). A self–administered questions and observation were used. The collected data were taken and analyzed by means of the Statistical Package for Social Science version 16.0. The associations between variables were evaluated by means of the chi-square test. The results are displayed using table and figures. Results: response rate of 100% was obtained, 80% of the volleyball players experienced with one or more injuries in the season, 26 injuries occurred on the seasons and the rate were 1.3 per player. Among the injured players knee (34.6%), foot and abrasion injuries showed each (15.4%). Players in the left and right front row were more exposed to injury at the time of spiking & blocking, higher injury occurred due to contact with players and wrong landing. Most injury occurred during the 3rd and 4th set of the game. Conclusion: Knee, foot and abrasion injuries were the most common types of injuries occurred to players. Above half of the injured players were not used kneepads. Playing court also increase the prevalence of injury. Players were not getting access of water during match & training, and physiotherapy services were not functional in the club due to absence of physiotherapists. Finally most injuries were occurred due to extrinsic factors.

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1. Introduction

The current study was aimed at determining the prevalence of sport injuries related to volleyball and associated risk factors and examining the Preventative actions implemented among players at the Amhara region male volleyball clubs that participate in Ethiopian primer league.

This chapter will include background information of sport injury regarding to general and specifically volleyball injuries, worldwide and at Amhara region male volleyball clubs. The definition of volleyball and the incidents of injury are included and linked with some studies related to injury prevention and incidents. The chapter also includes the problem statement, objectives of the study, significance of the study and delimitation of the study.

Volleyball is one of the most widely played sports in addition to football and basketball. It has become a very popular sport globally over the last 30 years. The International Federation of Volleyball represents about 150 million people played in approximately 170 countries. The Volleyball World Championship was started in 1974 for men by the FIVB and is now run every four years. Three years later, the women's version was added to the championship (Stasinopoulos, 2004; Verhagen *et al*., 2004).

The Beach volleyball joined as an Olympic sports event in 1992 at the Barcelona Olympic Games. It was then added officially to the Olympic Games in 1996 during Atlanta Olympic Games. In beach volleyball, the energy produced is higher due to the movement on sand. Indoor volleyball players usually find it difficult to jump and move on sand, because the ability to transfer position during playing is more difficult on the sand as compared to hard court volleyball. Furthermore, the energy needed in beach volleyball is much more, because the player needs to cover a greater percentage of the court, which require the development of stronger leg muscles (Quadriceps and Hamstring) as well as the necessary power to

overcome the compliant nature of sand (Bahr and Reeser, 2003; Smith, 2006).

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. There are difficult movements that need to be achieved while playing volleyball. For example, 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. Therefore, exercise and training towards reducing the body fat in volleyball are recommended by volleyball coaches for the players (Davies, 2002; Verhagen *et al*., 2004).

Due to the huge forces involved in vertical jumping and other movements in volleyball, it will expect that injuries would be happening. It was recognized that the overall injury rate in volleyball was relatively low when compared to other team sports but injuries do occur in a specific pattern. Researchers were attributed this difference in injury rate to the non-contact nature of the game. The prevalence of certain injuries, such as acute Ankle Sprains in volleyball was, very high comparable to those found in contact sports such as soccer and basketball (Bahr, 1997; Stasinopoulos, 2004; Reeser *et al*., 2006).

Injuries in sport were common due to contact with player, ground, objects, and other reasons such as pressure, overuse, and falls. Weakness was also a common cause of injuries. For example, physical weakness due to a previous injury, may lead to an injury in the same area. Preventing or treating the injury could be achieved through science and research. According to, the researcher in dealing with injury, there were factors to be considered like knowing the injury delay, the mechanisms, and the preventative strategies (Hawkins and Metheny, 2001).

Ankle, shoulder, and knee injuries are common injuries in volleyball which need physiotherapy care for rehabilitation. Research showed that early mobilization in Ankle Sprain shows better outcomes than immobilization (Briner and Kacmar, 1997; Bahr, 1997). In addition, physiotherapy management results to fewer residual symptoms and improves the range of motion and early return to sport. The physiotherapy treatment in Ankle Sprain will be focus on reducing pain, swelling, and restoring the ankle motion as well. That can be achieved through applying ice bath with specific exercise (Jibuike *et al*., 2003).

A large body of research has been conducted regarding the nature and prevalence of volleyball injuries internationally, very few has been done on the African continent to assess the status of injuries experienced at professional or amateur levels even though researchers believe that the injury prevalence in Africa could be higher than the cases observed in the developed countries. But there was no related research in Ethiopia in this case (Saavedra, 2003).

One of the most important reasons for collecting data on the prevalence of sport injuries was to provide a guide for injury-prevention and improve sport safety. The researcher expressed their concern that an increase in the ratio of injury among volleyball players might be attributing to an increase in frequency, intensity and duration of injury, which lead to a need to increase the prevalence of treatments. Increase in duration of injury may lead to absence from sporting activities in most cases. Volleyball currently has a good status sports program in this region. In this region there is two male volleyball clubs that representing the region in Ethiopian male volleyball premiere league and those clubs live in different countries in the regions (Agustsson *et al*., 2006).

Volleyball injury is needs to be directed to injuries occurring as a result of participation in volleyball. Due to injury, players restricted from participation for one or more days from training and games, clubs loose points from games. If this problem will not be resolved, the players can't play permanently, will be affect with chronic injury and the clubs will also getting the least rank with volleyball competition. Considerable researches have been done abroad in sport injury related to volleyball sport. However as per the knowledge of the researcher there was no research that conducted in Ethiopia to assess the prevalence and associated factors of volleyball injuries occurred on professional volleyball players.

2. Material and Methods

The purpose of this study was to assess the prevalence and associated risk factors of sport injury related to volleyball. To address the mentioned purpose a cross-sectional survey design was employed.

The study was conducted at the Amhara region male volleyball clubs, which participate at the Ethiopian primer league. The State of Amhara consists of 10 administrative zones, one special zone, 105 woredas, and 78 urban centres. Amharic is the working language of the state. The capital city of the State of Amhara is Bahir-Dar.

The primary aim of this study was to determine the prevalence and associated risk factors of injuries that occurred to the selected volleyball club players related with volleyball sport in the season of 2014 - 2016 G.C.

3. Results

The demographic information's of volleyball players are presented in table 1.Data about injury prevalence's, intrinsic and extrinsic factors, and injured body parts are included. The physiotherapy access and the challenges to physiotherapy access by volleyball players are also presented.

A total of 20 volleyball players were expected to participate in the study, so all players participated and completed the questionnaires.

Table 1. Demographic information's of volleyball players

Demographic information	NO. of respondents	Minimum	Maximum	Mean	Std. Deviation
Age	20	22 year	32 year	25.15 year	2.16 year
Height	20	1.76 cm	1.89 cm	1.84 cm	0.042 cm
Weight	20	73 kg	78 kg	75 kg	1.256 kg
Experience	20	1 year	5 year	3.15 year	1.14 year

60% of the respondents were completed secondary school and 25% of respondent's diploma and above, the rest 15% of respondents completed elementary school. In addition to educational status 95% of respondents were single and 5% were married.

Prevalence and sites of injury

A total of 26 injuries were occurred during the season 2014/2016, giving an injury rate of 1.3 injuries per player. The majority of the volleyball players (80%) were experienced at least one or more injuries during the season. Four players (20%) were not injured.

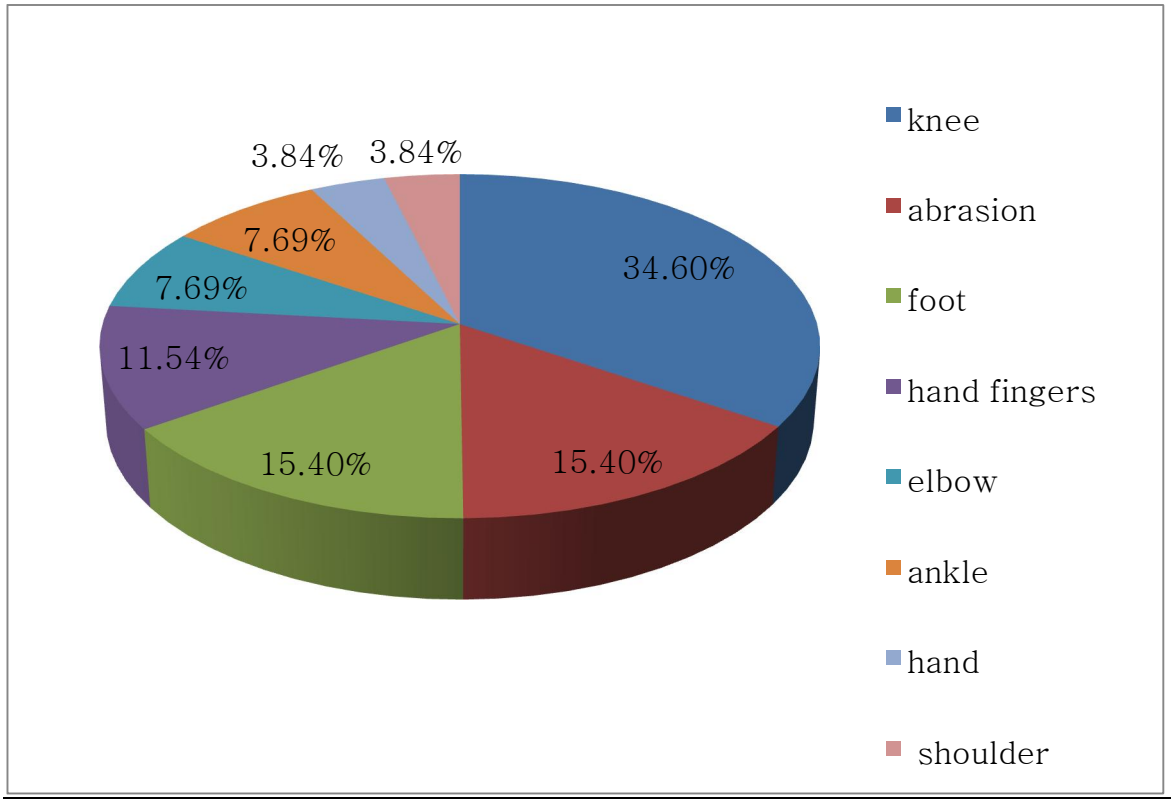

Figure 1. Injured body parts of the players

As shown in figure 1, injuries according to body parts were occurred as follows; knee injury was occurred at the highest rate (34.6%), followed by injuries in the abrasion & foot each 15.4%, hand fingers was 11.54%, elbow & ankle were each 7.69%, finally hand and shoulder injuries were each 3.84% occurred on volleyball players from 2014- 2016 G.C.

Mechanisms of injury occurrences

From the total percent's of injured players more than half (56.25%) were injured due to spiking and the rest 43.75% injury happened with blocking.

Most injuries (56.25%) were occurred on the left/right front positions of the court, 37.5% injuries happened on the positions of setter and the rest 6.25% were on the left/right back court positions.

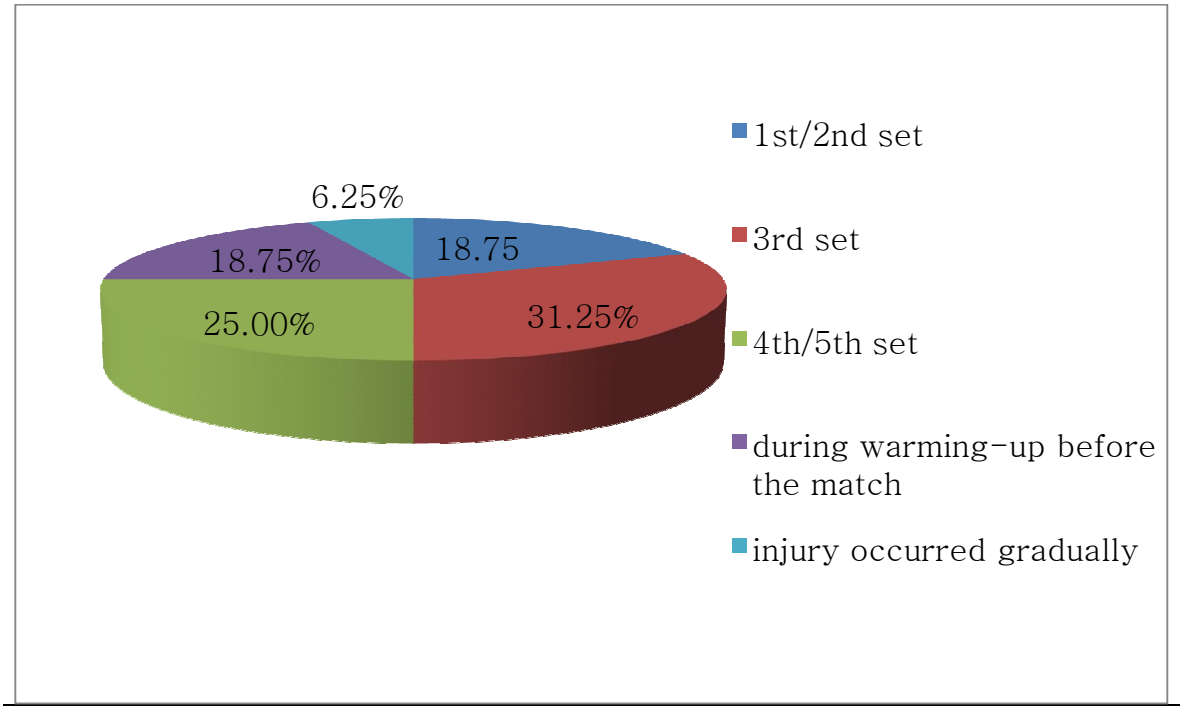

Figure 2. Injury occurred on the game set

Figure 2, shows that 31.25 % players injured in the 3rd set, 18.75% injured on first/second set, 25% players injured in fourth/fifth set, 18.75% players injured during warming up before the match and 6.25% player injured gradually.

Severity of injury

In this study 68.78% of the injured players were completed the training but the rest 31.22% were not completed at the time of injury happened. Most injuries were occurred moderate injuries (37.5%) followed by minor injuries (25%) among injured players, major injury occurred 6.25% of the injured players and 31.25% of injured players were not absence followed to injury happened on the training.

Players that were playing in the selected clubs were injured also at the time of match's. Due to this from the injured players most injuries occurred in moderate injuries (43.75%) followed by minor injuries (18.75%), major injury occurred 6.25% and 31.25% of injured players were not absence from the match.

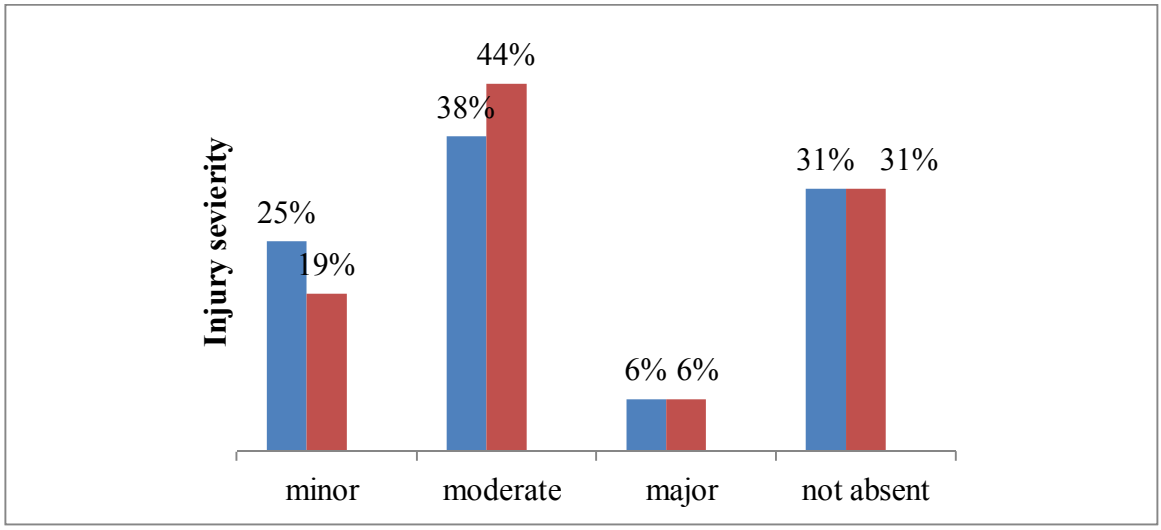

Figure 3. Severity of injury during training & match

The above figure shows very high amount of moderate injuries were occurred on players at the match but minor injury was low compared to injury happened on training.

Causes of injuries

Table 2. Training days & hours

Number of respondents	Amount of training days per week	Amount of training hours per week
10	3	9
10	5	12.5

As shown the above table amount of training days and hours relatively difference in the two selected clubs.

According to this study 40% of the total players were used kneepad, 25 % were using sometimes and 35% players were not using kneepad. From this 37.5 % injured players were used always, 18.5% sometimes used kneepad and 43.75 % were not used kneepad from 2014 G.C up to the day of data collected (February 2016).

The current study indicates 65% of the total players were participated with other sport as recreation; from the total 50% (10/20) were injured players. 35% of the total players not engaged with other sport; from the total 30% (6/20) were injured players. Thus from injured players 62.5% were engaged with other sport like, WTF, jogging, football and handball, the rest injured players were not participated any sport.

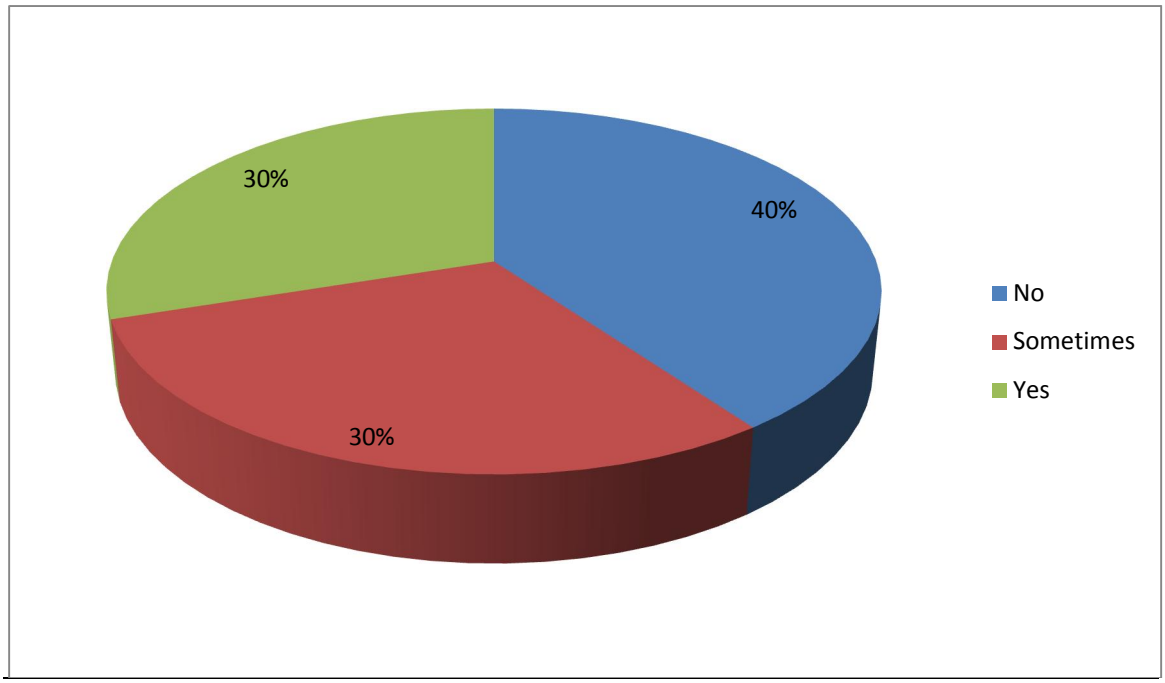

Figure 4. Availability of water

Figure 4 shows that 40% of the total players were not getting access of water, 30% of players were sometimes used and the rest 30% were used water during competition & training. From total injured players 37.5% were not used water, 37.5 % were used sometimes and the rest 25% of injured players were used supply of water.

According to the study result 37.5% of injuries were happened due to contact with another player, 12.5% were occurred fall on ground, 37.5% with wrong landing and 12.5% injuries as the results of players contact with opponents shows as in figure 5 below.

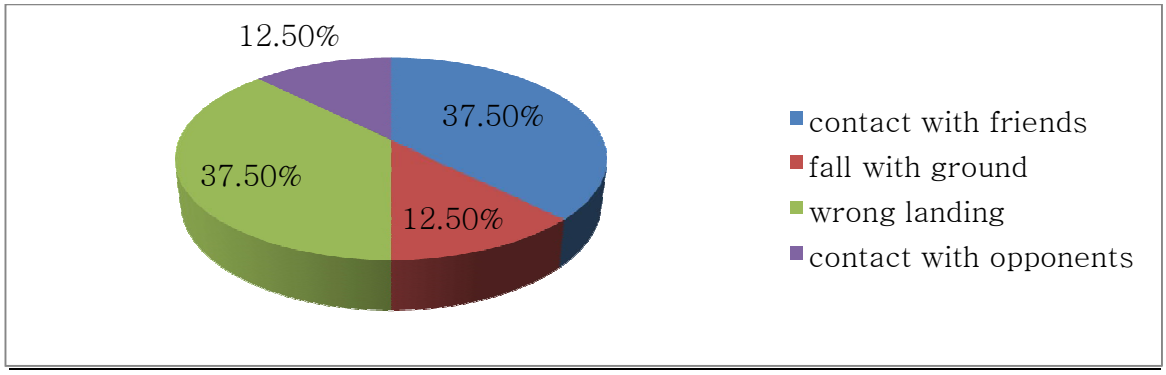

Figure 5. Situations of injury occurrence on injured players

Access to treatment services

From the total injured players 56.25% of were not getting an access of physiotherapy services while 25% were getting access sometimes and the rest 19% of injured players were getting an access of physiotherapy treatments by opponent club physiotherapist, coaches and teammates. The reason of not getting physiotherapy treatments was due to absent of physiotherapist and lack of financial problem to fulfill the treatment materials.

The next Figure 6 illustrate 43.75% of the injured players were doing rehabilitation exercise to recovering their injury with in short period of time. Players also gave responses the questions of what type of exercise you done. From this 50% of injured players were doing jogging, rope jump & strength exercise (pushup, pull-up), the rest 6.25% of injured player were doing swimming but 56.25% of the total inured players were not doing instead of lack of information about the types and necessary of rehabilitation exercises.

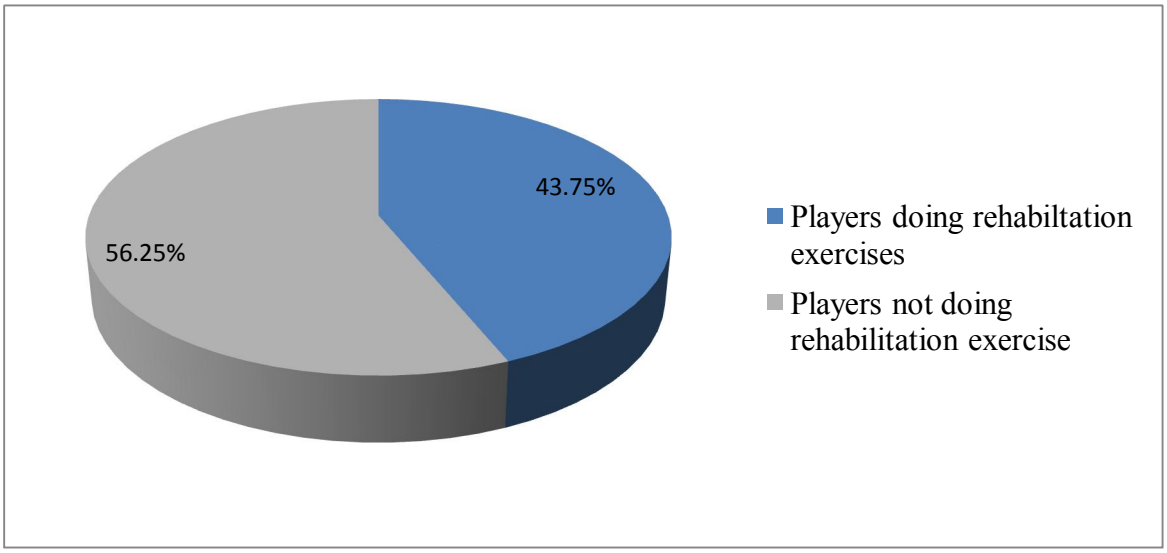

Figure 6. Rehabilitation exercises after injured

Responses from coaches

Table 1. Demographic information of coach's

Age	Marital status	Educational level	Coaching experience
40 years	married	Diploma & above	16 years
46 years	married	Diploma & above	15 years

Table 2. Incidences of injury

Related factors for injury	Yes	No	Total
The clubs have their own volleyball court?	0	2	2
Players train & play at safe volleyball court?	0	2	2
Did you see incidence of injury on your player's competition or training?	2	0	2
Is a club having a physiotherapist?	0	2	2

The above table shows the two clubs did not have their own volleyball court; players were not train & play at safe environment, coaches seen incidence of injury. There was no a physiotherapist in the club due to these the injured players at the time of match treated by the opponent club physiotherapists but at the time of training injured players were treated by their coach and teammates. Coaches were seen injury happened on players both the time of competition and training.

Results from observations

The researcher was observed the listed points at the time of training.

Playing court: - from the observation the playing court surface was used long for period of time due to this it was rough and not level asphalt.

This court gave multi-purpose for training and game to clubs and other intramural competitions; at the time of observation children's were playing football when volleyball players were doing worming up.

Availability of water: - at the time of observation on training there was not availability of water to players. The researcher seen few players was buying with their money but most players were not used water.

Kneepad: - at the time of training some players were not used kneepad but the rest players were used old kneepad to preventing knee injury. At the observation some player used ankle brace.

Physiotherapy services: - when at the time of observation there was no a physiotherapist on the training. The researcher seen injury happened on players due to jumping to spike without worming up. The injured player was treated with his coach.

Associations of injury occurrence and different variables.

Table 3. Relation b/n injury occurrence and spiking/ blocking

Items	Alternatives	Responses	
		Frequency	Percent
Kind of situation players get injured.	serving	0	0
	blocking	7	43.75
	spiking	9	56.25
	Total	16	100

A chi-square test was conducted to assess the association between volleyball skills and injury. There was strong evidence of relationships between volleyball skills and injury occurrence (chi.sq. = 20.00 at df = 2, p-value 0.000). This result suggests that kind of situation can have an effect on injury occurrence. Specially, the result shows more injury were happened when a player playing in spiking than blocking.

Table 4. Injury occurred at the right/left front and setter positions of court

Items	Alternatives	Responses	
		Frequency	Percent
Players of position at the time of injury	Receiver	0	0
	Setter	6	37.5
	Left/right front	9	56.25
	Left/right back	1	6.25
	Total	16	100

A chi-square test was conducted to assess the association between player's position and injury. There was strong evidence of relationships between players' position and injury occurrence (chi.sq. = 20.00 at df = 3, p-value 0.000). This result suggests that player's position can have an effect on injury occurrence. Specially, the result shows more injuries were happen the positions of left/right front than setter.

Table 5. Injury occurred at the 3rd set of the game

Items	Alternatives	Responses	
		Frequency	Percent
Sets of the game when the injury occurred	$1^{st}/2^{nd}$ set	3	18.75
	3^{rd} set	5	31.25
	$4^{th}/5^{th}$ set	4	25
	During warming up	3	18.75
	Injury occurred gradually	1	6.25
Total		16	100

A chi-square test was conducted to assess the associated between game sets and injury occurrence. There was an evidence of relation between game sets and injury occurrence (chi.sq.= 20.000 at df= 4, p- 0.000). This result suggests that game sets have an effect of injury occurrence. Especially the result shows more injuries were happen the 3rd set than 4th/5th of the game.

Table 6. Players not completing the game/training at the time of injury occurred

Items	Alternatives	Responses	
		Frequency	Percent
Complete the training/match plays at the time of injury occurred.	Yes	11	68.75
	No	5	31.35
	Total	16	100

A chi-square test was conducted to assess the associated between complete the training/match at the time of injury occurred and injury occurrence. There was an evidence of relation between complete the training/match at the time of injury occurred and injury occurrence (chi.sq.= 20.00 at df= 1, p-0.000). This result suggests that not completing game/training at the time of injury happened were an effect of injury occurrence.

Table 7. Amount of absent players following to injury from training

Items	Alternatives	Responses	
		Frequency	Percent
Amount of absent on training following the injury.	Absent less than 1 week	4	25
	Absent 2- 4 weeks	6	37.5
	Absent more than 4 weeks	1	6.25
	Not absent	5	31.25
	Total	16	100

A chi-square test was conducted to assess the associated between absent from the training the following injury occurred and injury occurrence. There was a strong evidence of relation between players absent from training following injury occurred and injury occurrence (chi.sq. =20.00 at df= 3, p-0.000). This result suggests that players amount of absent from training following injury happened were effects of injury occurrence.

A chi-square test was conducted below table 10 to assess the associated between absent from the match following injury happened and injury occurrence. There was a strong evidence of relation between players absent from match following injury occurred and injury occurrence (chi.sq. =20.00, at df= 3, p-0.000). This result suggests that players amount of absent from match following injury happened were effects of injury occurrence.

Table 8. Amount of absent players following to injury from match

Items	Alternatives	Responses	
		Frequency	Percent
Amount of absent on training following the injury.	Absent less than 1 week	3	18.75
	Absent 2- 4 weeks	7	43.75
	Absent more than 4 weeks	1	6.25
	Not absent	5	31.25
	Total	16	100

Table 9. Conditions of injury occurred during game/training

Items	Alternatives	Responses	
		Frequency	Percent
Conditions of injury occurred on players in training/game.	Contact with friends	6	37.5
	Fall on ground	2	12.5
	Wrong landing	6	37.5
	Contact with opponents	2	12.5
	Total	16	100

A chi-square test was conducted to assess the associated between conditions of injury happened and injury occurred. There was a strong evidence of relationship between conditions injury happened and injury occurrence (chi.sq.= 20.00 at df= 3, p-0.000). This result suggests that players contact with friends and wrong landing were an effect of injury occurrence.

4.Discussion

The aim of the study was to assess the prevalence of injuries experienced by volleyball players of a club in the Amhara Region male volleyball clubs that participate in primer league of Ethiopian volleyball in one & half season. This chapter will show how the objectives of the study have been achieved and will discuss all the aspects related to the prevalence of the volleyball injuries at the two Volleyball Clubs as well as the sites and causes of injuries. The chapter will compare the findings with other studies in the same field. The findings are the results collected from Wollo Anbasal & Tana Bahir-Dar volleyball players in the volleyball season.

Discussion and Results found in the present study is done in order to research questions.

- To what extent injuries happened to male volleyball players related with volleyball sport in the selected study clubs?
- What are the sites of sport injuries that occurred to volleyball players linked with volleyball sport?
- What are the intrinsic and extrinsic factors associated with injury occurrence among volleyball players in the last year season?

Prevalence of injuries

In this study the research question presented in number one is answered. Injury was defined as any happening that occurs on players during training, warm-up & competition that requires medical attention (Zemper and Pieter, 1989) and causes the player to be absent from sport participation either in a training session or a match (McKay *et al.,* 2001). The severity of an injury was defined based on the time of absence due to the injury (Augustsson *et al.,* 2006; Bahr and Reeser, 2003). The first objective of the study was to determine the prevalence of volleyball injuries experienced among the two Volleyball club Players in a volleyball season.

In volleyball, there are challenges facing studies in injury prevalence. According to Augustsson *et al.,* (2006), some players may be absent due to an injury, while others continue with the same injury and others forget minor injury.

In this study, there were 80% of the volleyball players experienced one or more injuries during the season. This finding was higher than that of a previous study by Augustsson *et al*., (2006), whereby only 52%, Bahr and Reeser, (2003), 43% of the players experienced one or more injury, but the results of this study was less than the study of Hassan (2008), he indicates 88.1% of the volleyball players experienced one or more injuries in the season. The injury rate of the current study was 1.3. It was lower than the study conducted by Bahr (1997), which had 1.7 injuries per player and Hassan, (2008) indicates 1.43 injuries per players. This injury rate was higher than a previous study by Augustsson *et al.* (2006), which indicated 0.68 per players.

There were a total of 26 injuries which occurred in the season. The Injury prevalence was higher in the present study when compared to the previous. Based on the respondents injury prevalence was higher than that of the previous studies because of court surface, less awareness on kneepad, lack of takeoff, blocking, spiking and landing techniques.

Sites of injuries

In this study the research question presented in number two is answered. Among the injured players, knee, foot and hand finger injuries showed the highest prevalence in the present study which correlate with studies conducted by (Augustsson *et al.,* 2006; Verhagen *et al.,* 2004; Bahr *et al*, 2003; Bahr, 1997; Hassan, 2008; Agel *et al*., 2007).

Knee injury occurred on the players of this study was very high related to the past researchers. In this study from injured volleyball players 34.6% of injury occurred on the knee. Bahr, (1997) indicated 8%; Bahr *et al*., (2003) 30%; Verhagen *et al.*, (2004) figure out 12% of players were injured; Augstsson *et al*.,(2006) showed 18% players injured; Agel *et al*., (2007) illustrated 14.1% of injured players were injured; Hassan, (2008) figure out 25.5% of injured players in the study were injured with knee injury.

In the 2007/2008 volleyball season with 3.84% ankle injury was occurred on players but it is less percentage related to the past researcher studies. Bahr, (1997) indicate 54%; Bahr *et al*., (2003) 17%; Verhagen *et al.*, (2004) figure out 41% of players were injured; Augstsson *et al*.,(2006) showed 23% players injured; Agel *et al*., (2007) illustrated 44% of injured players were injured; Hassan,(2008) figure out 25.5% of injured players in the study were injured with ankle injury.

Different researchers were explaining percentage of shoulder injury on male volleyball players based on their research findings. In this study there was 3.84% shoulder injury happened on players,

this was less than the studies of Bahr, (1997) indicate 8%; Bahr *et al*., (2003) 10%; Verhagen *et al*., (2004) figure out 9% of players were injured; Augstsson *et al*., (2006) showed 19.6% players injured; Agel *et al*., (2007) illustrated 5.2% of injured players were injured; Hassan, (2008) figure out 19.6% of players in their study were injured on shoulder.

In the current study finger injury was occurred on the volleyball players, it indicated relatively high related to the results of Hassan, (2008). In this study 11.54% players were injured with finger injury but his research result was indicated 9.8%.

Hassan, (2008) indicate from 88% of injured players 7.8% were injured by hand injury but in this study less players injured with this (3.84%). 15.4% of foot injury was occurred in this study so it is higher than the results of Hassan, (2008) 3.9%.

On the current study, additional volleyball injuries were occurred on the two male volleyball clubs players. It indicated other the past researcher was not assessing those injury types. Abrasion injury was occurred on volleyball players in the clubs with 15.4% and elbow injury also by 7.69% occurred on this clubs in the premiere season. Based on the respondent's knee, foot, hand fingers, abrasion and elbow were the highest injured parts of the body related to the other studies due to lack of fingers techniques, wrong landing and wrong contact with teammates at the time of blocking and spiking finally players were not using kneepad.

Factors related to volleyball injuries

In this study the research question presented in number three is answered. The third research question of the study was to identify the intrinsic and extrinsic factors associated with the injuries experienced among the Amhara region male volleyball players that participating Ethiopian premiere league. There are extrinsic factors which relate to volleyball injuries such as the nature of contact in volleyball, level of playing, participation in other sports and the players position. On the other hand age, height, gender and weight are intrinsic factors. Volleyball is a non-contact sport with a minor injury incidence than injuries in contact sports such as rugby, basketball, and soccer. The overall injury rate in volleyball is low compared to other sports Resser *et al*., (2006),

Extrinsic factors

The Majority of the injuries (37.5%) that occurred in the current study were due to contact with another player. It was less than the studies of Hassan (2008), 45.9%. Players in the left and right front row were significantly more prone to be injured during spiking & blocking. According to studies by Agel *et al*., (2007), volleyball players at the nearest to the net are more prone to injuries than players in any other position. In the results it was shown that more than 93.75% of injuries occurred in the three front positions, which were greater than of the findings of Augustsson *et al*., (2006) indicated 85% ; Hassan, (2008) showed 90%. This was due to the fact that players in these positions perform spiking and blocking, which are the most common actions leads for injuries in volleyball.

Another finding of the study was that 65% of the volleyball players also engaged in other sporting activities. It indicates greater than the studies of Hassan (2008), 35% of players engaged in other sport activities. According to Aagaard and Jorgensen, (1996), an increase of overuse injuries is related to participation in other sport activities due to an increase in the training hours but not injured with overuse injury. Participation in different kinds of activities also adds variation to training which can lead to a beneficial effect. Based on the study discussions, all injuries were happened due to extrinsic factors like, contact with another player, Playing in the left and right front row positions of court because of players wants to cover all spaces and repetitive actions and dual purposes on the front row players.

Among the players in this study, only 18.75% had injuries during the warm-up. It is the greater rate occurred during warm up in the study conducted by Augustsson *et al.,* (2006), 7.5% and Hassan, (2008) 12.25%. The current study showed that 6.25% of players had injuries that occurred gradually and they could not indicate whether it occurred during a match, training, or warm-up. This was lower than the rate of injuries occurred gradually in the study of Augustsson *et al.,* (2006), which indicated 41% and Hassan, (2008) indicates 33.3%.

Results show that the training schedule of the two selected volleyball club was limited with average four days per week with duration of 2.75 hours; relatively it was greater than the result reported by Hassan, (2008) 3 days per a week for less than 3 hours. In the study by Augustsson *et al*., (2006), more time was spent on training which enhances the players performing of exercises, leading to better physical performance and experience (Kraemer *et al*., 2002).

The study by Hassan (2008), injured players amount of absent from training as the results of volleyball injury was 73% but in this study was 37.50% so duration of absent from training was less than that of Hassan. In addition of this, injured players absent from match 62% in the study of Hassan (2008), but 43.75% was absent in this study so absent of duration on the game was less than his study because of more players were not injured with severe injury.

The past researcher was not seen in which set of the game players more injured, accessibility of

using kneepad, and supply of water. In this study 31.25% of the injured players were injured at the 3rd set of the game and 25% on the 4th set. The result of this study show that 35% of players were not using kneepad from those 78.75% was injured players, 40% of players were not access of supply of water but 30% of players were using some times during training and competition. From responses of the respondents such factors were high due to lack of awareness the benefits of kneepad, sport commission not emphasize to supply of water, players injured more 3rd and 4th set of the game it shows players starting too tired on those sets. During lack of accessing supply of water at the training and match, dehydration will be occurred on players, the results of dehydration lead not control the overall activity based on this players lose their performance and injury occurrences.

Augustsson *et al*., (2006), expressed their concern that an increase in the ratio of injury among volleyball players might be attributed to an increase in frequency, intensity and duration of the injury, which lead to a need to increase the prevalence of treatments. Early physiotherapy intervention helps in reducing and preventing the injury recurrence because physiotherapy provides treatment to achieve soft tissue damage rehabilitation.

The results of study by Hassan (2008), 30% of the volleyball players regularly access physiotherapy treatments and 27.8 % were not getting the treatments due to different reasons such as not being educated about the use of physiotherapy, financial reasons, and no availability of services, so it was greater than of the current study which was 18.75% of volleyball players regularly accessed, 56.25% have never accessed physiotherapy services due to different reasons such as lack of physiotherapist and financial problem to fulfill the treatment materials. It indicates compared with his study in this study less injured players getting access of physiotherapy treatment and higher percentage of injured players were not getting this access. The result of this study showed that the most common reason for not seeking physiotherapy treatments were that lack of physiotherapist (81.25%). Due to lack of physiotherapists the prevalence of injuries will be high, so the concerned body will be informed about the importance of physiotherapy management in injuries.

Intrinsic factors

On the other side there was no significant relationship between volleyball injury and intrinsic factors, like age, experience (total number of years playing volleyball), educational status, height, weight and marital status like the study of Bahr R, Bahr IA, (1997) because all players were young and the results of body max index was normal.

5.Conclusion

The aim of this study was to determine the prevalence of volleyball injuries experienced among the Amhara region male volleyball players that participate Ethiopian premier league and to identify the sites of injured body by the researcher. The study also set out to identify the intrinsic and extrinsic factors associated with the injuries experienced among the players in a volleyball season. There were different extrinsic factors recorded on injured players but intrinsic factors were not.

The study showed that 80% of the total players were injured and also 26 injuries recorded in the seasons. The injury prevalence was high (1.3 injuries per one player per season) compared to other studies in the same field. The most affected body parts during injuries were the knee, abrasion and the foot. The most common injury happened on players in volleyball court position was the left and right front row and setter. In addition, the study showed that the most relevant mechanism to injury in volleyball was spiking and blocking. This study shows that most players injured on the 3rd and 4th set during the game. It also indicated related to injury severity, due to moderate injuries volleyball players were not complete a match or their training. Most players were not getting supply of water at the time of training and competition. The study showed that most players did not have access to physiotherapy treatment due to the reason that they were not having physiotherapist. Thus, Kneepad and court surface is necessary to prevent the knee injury and abrasion, the physiotherapy is needed to treat and rehabilitate sport injuries.

Cross ponding author:
Abeje Kumilachew
Email: abejekumlachew@gmail.com
Phone: +251918316612

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