FACTORS PREDISPOSING STUDENT-ATHLETES TO SPORT INJURIES IN ADEKUNLE AJASIN UNIVERSITY, AKUNGBA-AKOKO ONDO STATE, NIGERIA

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Abstract
This study investigates factors predisposing student-athletes to sport injuries in Adekunle Ajasin University, Akungba-Akoko Ondo State, Nigeria. Three research questions were raised, and three hypotheses were formulated and tested in this study. Descriptive survey research was adopted for the study while the population comprised of student-athletes of Adekunle Ajasin University, Akungba-Akoko, Ondo State from which 210 respondents were randomly selected as sample which consisted of 136 male athlete and 74 female athlete, volunteer sampling technique was adopted for the recruitment of respondents. The research instrument used for data collection was a self-constructed questionnaire (FPSASI), the researcher administered the questionnaire which was done immediately. The retrieved questionnaire forms were coded into frequency tables while simple percentage (%) and Chi-square (x^2) statistics were applied for data analyses. The result reveals that inefficient warm-up activities, inadequate facilities/equipment, and coaches are significant factors that predisposed student-athlete of Adekunle Ajasin University, Akungba-Akoko, Ondo State to sport injuries. It is recommended that administrator and coaches of universities should implement evidence-based injuries prevention programs using warmup routines, coaching practices, efficient management of facilities and equipment's, warm-up intervention program should be reviewed and ensured to meet standard, be sport-specific, safe and modifiable, educating university coaches on evidence-based injury prevention and load management should be a priority, facilities and equipment be efficiently managed by a professional to ensure it meets the safety standard required and there should be provision to replace worn or defective equipment.

Keywords: *Equipment; injuries; Participation; Warm-up, Facilities*

Introduction

Participating in sport is one of the most encouraged activities on campus by the University management in Adekunle Ajasin University, Akungba-Akoko, as it is widely accepted to help improve student physical well-being, social interaction with other student on campus, promotes unity, improve mental well-being and contribute to overall academic success. Student actively engaged in sports like football, athletics, basketball, volleyball, tennis and many others on campus competing in several intra-mural competitions and inter-university games representing their department, faculties and the university respectively. While there is a rise in the level of sport participation

among student of the university so too does the number of injuries recorded rises. Common injuries recorded among student include strains, sprains, fractures and overuse injuries which are often associated with inefficient warmup, inadequate facilities and equipment and limited access to qualified coaches or sport science professionals.

Sport participation has significantly increase among university student over the last few years, due to this increase there as also been an increase in the number of injuries recorded among university students when compare to the previous years. All effort to prevent and reduce this occurrence has been put into place which includes the provision of protective equipment, improve facilities and implementation of various injury prevention programs include structure warmup and many others. Warmup activities including statics and dynamic stretches are among various activities that many sport adopted these days. However, static stretching has not been shown to decrease injuries when completed on its own, as a result it is increasingly recommended that warmup activities include "dynamic" components (Behm, Blazevich, Kay & McHugh, 2016). Dynamic warmup activities can be defined as neuromuscular training programs that incorporate general (e.g., fundamental movements) and specific (e.g., sport-specific movements) strength and conditioning activities such as resistance, dynamic stability, core strength, plyometric, and agility exercises (Granacher, Puta, Gabriel, Behm & Arampatzis, 2018) A growing body of evidence supports the effectiveness of dynamic warmup activities before play for protection against injury across a range of sports and player populations (Barengo, Meneses-Echavez, Ramirez-Velez, Cohen, Tovar & Bautista, 2014).

Football remains most played sport in Nigeria universities with male athlete dominating the sport though recently there has been more participation on the side of the female student. It is characterized as a contact sport that increases the risk of injury (Pfirrmann, Herbst, Ingelfinger, Simon, Tug, 2016). The FIFA 11+ injury prevention program was developed in 2006 to address this matter, under the leadership of the FIFA Medical Assessment and Research Centre and in collaboration with the Oslo Sports Trauma Research Centre and the Santa Monica Orthopaedic and Sports Medicine Centre (Silvers-Granelli, Bizzini, Arundale, Mandelbaum, Snyder-Mackler, 2017). Furthermore, more studies have examined the effectiveness of the FIFA 11+ for sports performance improvement with promising results (Bizzini, Impellizzeri, Dvorak, Bortolan, Schena, Modena, Junge, 2013).

Sports injuries can be associated with significant injury-related morbidity, and in the European Union, it has been estimated that 4.6% of all sports-related injuries result in temporary disabilities, with 0.5% of these being permanent (Kisser & Bauer, 2012). Considering the significant impacts of sports injury on healthcare delivery systems, and individual health and well-being, sports injury and its prevention is a major public health issue. Therefore, intervention programs aimed at preventing school sports injuries in children and adolescents are very important to reduce the personal and social costs associated with treatment and rehabilitation. Similarly, they help to maintain the positive outcomes of exercise participation, such as obesity reduction, cardiovascular health promotion, and skill development. Although there have been many randomized controlled trials of warm-up intervention programs for

the prevention of sports injuries among children and adolescents in recent years. Some of these studies concluded that warmup program was effective for the prevention of sports injuries. A study by Owoeye, Palacios-Derflingher and Emery (2018) showed that neuromuscular exercises significantly reduced the risk of ankle sprain in juvenile football and basketball players. Hornbeck & Peterson (2012) found that neuromuscular programs can reduce the knee joint injury of adolescent female football players, and the injury rate of the anterior cruciate ligament of the knee joint can be reduced by 64% (rate ratio 0.36, 95% CI: 0.15–0.85). Beaudouin and his colleagues (2019) also found evidence that an intervention program for children 11 years or older lasting 15–20 min could significantly prevent serious sports injury of children football players (hazard ratio 0.42, 95% CI 0.24 to 0.72)

From a sports performance perspective, injuries are a significant barrier to an athlete and/ or their team in achieving their performance related goals (Raysmith & Drew 2016). In many sports settings, injury is often viewed as an unpreventable and unfortunate consequence of participation. This is despite evidence showing that the injury risk associated with sports participation can be significantly reduced with the implementation of appropriate preventive strategies (Finch 2006). However, coach adoption of these strategies has been identified as a substantial barrier to successful injury prevention (Frank, Register-Mihalik & Padua 2015).

In particular, coach attitude and knowledge of injury prevention strategies, as well as availability of adequate resources are significant influences on adoption. Successful prevention of sports injuries relies on a multidisciplinary approach drawing from public health as well as sports and exercise science perspectives (Bizzini, Junge & Dvorak 2013). Strength and conditioning coaching is a specific discipline within sports and exercise science with the strength and conditioning coach playing an important role in the overall sports injury prevention process. In fact, according to the National Strength and Conditioning Association (2009) Strength and Conditioning Professional Standards and Guidelines, strength and conditioning coaches have a "duty to the participants they serve to take reasonable steps to prevent injury, and to act prudently when an injury occurs". The NSCA guidelines also state that a key role of the strength and conditioning professional is "to provide guidance for the athletes in the area of nutrition and injury prevention". Improving strength and conditioning coaches' understanding of why and how sports injuries are prevented may promote uptake of targeted strategies and help strength and conditioning coaches fulfil this responsibility within the profession.

The adoption of injury prevention behaviours is influenced by coaches' knowledge and attitudes toward preventive practices. (Sawyer, Hamdallah & White 2010). At one extreme, there are numerous examples of coaches instructing their players to harm or injure others (Winneker & Schultze 2016). An American university basketball coach is reported to have sent a player into the game with specific instructions that resulted in an opponent breaking their arm (Winneker & Schultze 2016). Conversely, coaches are also in the unique position of being able to teach safe playing techniques/strategies, promote injury prevention and guide appropriate attitude to injury management. The success of many injury prevention programs has been shown to be dependent on the compliance of the athletes (Steffen, Emery,

Romiti, Kang, Bizzini & Dvorak 2013) and the training of coaches improves adherence to these prevention programs (McKay, Steffen, Romiti, Finch & Emery 2014). In many sports, especially at junior level, the warm-up exercises and additional conditioning exercises undertaken by a team will largely be driven by the coach (White, Otago, Saunders, Romiti, Donaldson & Ullah 2014).

Thus a coach who has a positive attitude to injury prevention is more likely to deliver an injury prevention strategy and this is key to improving the compliance and ultimately the success of the program. It has been suggested that some responsibility lies with the athlete, however younger athletes may lack the cognitive development to take primary responsibility for their own safety and hence the critical role of coach behaviour (Emery, Roos, Verhagen, Finch, Bennell & Story 2015).

Sports facilities are the methodologies which are provide to the coaches to create a positive training environment and the main aim these facilities are to improve in sports performance and prevention from injuries in sports. From an open space for free play to a highly sophisticated gymnasium or a swimming pool, the physical education and sports infrastructure, generally known as facilities in common parlance, come a great variety outdoor play fields, indoor gymnasiums with play courts for such activities as badminton, basketball, and volleyball; arenas of gymnastics, wrestling, etc. used for instruction, participation and competition. Cases of injuries cannot be eliminated in sport so therefore protective equipment is needed to decrease the chance of injury. The effectiveness of equipment is greatly reduced if it is of poor quality, improperly fitted, or in a state of disrepair.. In certain sports, there is reluctance on the part of some coaches to require all protective equipment that is needed.

Sports facilities and equipment play a crucial role in preventing injuries among athletes. Various studies have been conducted to investigate how the design of sports facilities and equipment can help in injury prevention, and how sports psychologists can assist athletes in coping with injuries. Gray, Owen & Carlson (2015) examined how the design of sports facilities can impact injury rates among high school athletes. They found that facilities with better lighting, better surface conditions, and better equipment were associated with lower injury rates. Additionally, facilities with adequate space and proper maintenance were also found to be important factors in reducing injuries.

Ramsbottom and his colleagues found that indoor facilities can provide a more controlled and consistent environment for training, while outdoor facilities offer greater variability in conditions and can help athletes adapt to different weather and terrain conditions. (Ramsbottom, Brewer, & Williams, 2015). Karg and his colleagues also affirmed that natural surfaces, such as grass, may reduce the risk of certain types of injuries, but may also require greater maintenance and be less consistent in terms of surface conditions. Artificial surfaces, on the other hand, may offer more consistent playing conditions and require less maintenance, but may increase the risk of certain types of injuries. (Karg, Lohmander, Neuman, & Englund, 2017).

Ko, Brown & Kautz (2016) investigated the effectiveness of protective equipment in preventing head injuries in football players. They found that helmets with advanced impact-absorbing materials and improved face masks were associated with lower rates of head injuries among high school football players.

Statement of the Problem

Over the last few years, sport participation has reached a new peak among student-athlete across universities in Nigeria, including Adekunle Ajasin University, Akungba-Akoko, Ondo State. This new feat is as a result of student growing interest in partaking in physical activities, living healthy lifestyle, participation in intramural sport competitions as well as inter universities games. The sense of fulfilment and pride experienced by student representing their department, faculties and the university at large had a significant impact on this new surge. While the above assertion is a welcome development has it contribute largely to student physical and mental well-being as well as social integration on campus, it has also been accompanied with a surge in the number of sports-related injuries recorded, with sprains, strain, fracture and overuse injuries being the most commonly reported among student. This rapid increase in injuries has raise questions about if there are injury prevention program in place, as this may discourage sport participation, having an implication on student health, increase the hours student stay out of school, affect sport performance and also affect their overall academic performance. So, there is an urgent need to identify factors contributing to the sport-related injury surge and the development of special injury intervention program to safeguard student health, improve performance and fitness which will enable them participate in their various sport at the highest possible level.

Purpose of the Study

The purpose of this research is to identify factors predisposing student-athletes to sport injuries in Adekunle Ajasin University, Akungba-Akoko, Ondo State.

Research Questions

1. Will warm-up activities be a predisposing factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State?
2. Will facilities/equipment be a predisposing factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State?
3. Will coach be a predisposing factor of sports injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State?

Hypotheses

1. Warm-up activities will not be a significant factor of sport injuries among athletes at Adekunle Ajasin University, Akungba-Akoko, Ondo State.
2. Facilities/equipment will not be a significant factor of sport injuries among athletes at Adekunle Ajasin University, Akungba-Akoko, Ondo State.
3. Coach will not be a significant factor of sport injuries among athletes at Adekunle Ajasin University, Akungba-Akoko, Ondo State.

Sample and Sampling Techniques

The sample size for this study comprises of 210 participants, For the purpose of this study there are eight (8) faculties in Adekunle Ajasin University Akungba-Akoko which are;

- Faculty of Art
- Faculty of Agriculture
- Faculty of Education
- Faculty of Environmental design and management
- Faculty of Law
- Faculty of Management science
- Faculty of Science
- Faculty of Social science

Out of these eight (8) faculties, six (6) was randomly selected using simple random sampling techniques of fish bowl without replacement, which are faculty of Arts, Agriculture, Education, Law, Science and Management sciences (MASSA). The researcher with the help of two research assistant went to each faculty to select 35 student-athletes in each of the faculties using volunteer sampling technique (Selecting 35 student-athletes across each selected faculty that willingly submit themselves to fill the questionnaire) the resultant 210 respondents constitute the sample for the study.

Table showing data respondent faculties

FACULTY	FREQUENCY	PERCENT
Art	35	16.67
Agriculture	35	16.67
Education	35	16.67
Science	35	16.67
Law	35	16.67
Management Sciences	35	16.67
TOTAL	210	100.0

Table revealed that all faculties recruited for the research had a equal number of participant i.e. 35 (16.67) across each faculties.

Research Instrument

The instrument used for this study is a self-constructed structured questionnaire named Factors Predisposing Student-Athlete to Sport Injuries (*FPSASI*) designed by the researcher in order to obtain and ensure adequate, reliable and relevant information from the respondents. The questionnaire consists of two sections; Section A which consist of demographic data of the respondents such as gender, sports and faculty of the respondents. Section B contain questions aimed at answering

the research questions raised for the study. A modified four-point Likert scale of strongly agree (SA), agree (A), disagree (D), strongly disagree (SD) was used.

Data Analysis

Table 1 showing data on Gender

GENDER	FREQUENCY	PERCENT
Male	136	64.8
Female	74	35.2
Total	210	100.0

Table 1 showed that 136 (64.8%) of the respondents were males, while 74 (35.2%) were females.

Table 2 showing data on Sports

SPORTS	FREQUENCY	PERCENT
Football	83	39.5
Athletics	35	16.7
Tennis	29	13.8
Basketball	23	11.0
Other	40	19.0
Total	210	100.0

Table 2 revealed that 83 (39.5%) of the respondents were Football, 35 (16.7%) were Athletics, 29 (13.8%) were Tennis, 23 (11.0%) were Basketball, while 40 (19.0%) were others.

Table 3 showing data on respondent faculties

FACULTY	FREQUENCY	PERCENT
Art	35	16.67
Agriculture	35	16.67
Education	35	16.67
Science	35	16.67
Law	35	16.67
Management Sciences	35	16.67
TOTAL	210	100.0

Table 3 revealed that all faculties recruited for the research had an equal number of participant i.e. 35 (16.67) across each faculties.

Test of Hypotheses

Hypothesis 1. Warm up activities will not be a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State

Table 4: Influence of warm up on sport injuries

S/N	SA	A	SD	D	CT	Table value	Chi-square value	Df	Sig
4	102	81	15	12	210		151.324[c]	9	0.00
5	91	95	16	8	210	19.01			
6	122	61	15	12	210				
7	109	59	27	15	210				
RT	424	296	73	47	840				

Table 4 revealed that calculated Chi-square (X^2) value of 151.324 was greater than the critical x^2 value of 19.01 at significant level of 0.00 and degree of freedom of 9, the null hypothesis which stated that Warm up activities was not a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State, was rejected. Warm up activities will be a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State, was accepted.

Hypothesis 2: Facilities/Equipment will not be a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State.

Table 5: influence of Facilities/Equipment on athlete's sport injuries

S/N	SA	A	SD	D	CT	Table value	Chi-square value	Df	Sig
8	24	74	55	57	210		56.286[b]	9	0.00
9	44	80	35	51	210	19.01			
10	20	54	64	72	210				
11	19	52	75	64	210				
RT	107	260	229	244	840				

Table 5 revealed that calculated Chi-square (X^2) value of 56.286 was greater than the critical x^2 value of 19.01 at significant level of 0.00 and degree of freedom of 9, the null hypothesis which stated that Facilities/Equipment was not a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State, was rejected. Facilities/Equipment will be a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State, was accepted.

Hypothesis 3: Coach will not be a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State.

Table 6: Influence of coach on athlete's sport injuries

S/N	SA	A	SD	D	CT	Table value	Chi-square value	Df	Sig
12	83	89	12	26	210		102.371	9	0.00
13	61	75	32	42	210	19.01			
14	42	47	53	68	210				
15	78	88	17	27	210				
RT	264	299	114	163	840				

Table 6 revealed that calculated Chi-square (X^2) value of 102.371 was greater than the critical x^2 value of 19.01 at significant level of 0.00 and degree of freedom of 9, the null hypothesis which stated that Coach was not a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State, was rejected. Coaches will be a significant factor of sport injuries among athletes in Adekunle Ajasin University, Akungba-Akoko, Ondo State, was accepted.

Discussion of Findings

The result of the investigation into the factors predisposing student-athletes to sport injuries in Adekunle Ajasin University, Akungba-Akoko, Ondo State. The socio-demographic characteristics of the respondents revealed that the large proportion of the respondent were male athlete, with football being the most played sport amongst the respondent. The findings of the research further revealed that warmup activities, facilities and equipment and coaches are factors that predispose student-athlete of the aforementioned institution to sport injuries. These findings suggest that there is need for the implementation of evidence-based sport injury prevention strategies.

The first test of hypotheses reveal that warmup activities is a significant factors that predispose student-athlete to sport injuries, the aforementioned findings are in agreement with the conclusion drawn by Hornbeck & Peterson (2012), which posited that neuromuscular warmup programs when properly executed can reduce the knee joint injury of adolescent female football players, and the injury rate of the anterior cruciate ligament of the knee joint can be reduced by 64% (rate ratio 0.36, 95% CI: 0.15–0.85). and in contrast when not properly executed can lead to injuries. Beaudouin and his colleagues (2019) also found evidence that warm up intervention program for children 11 years or older lasting 15–20 min could significantly prevent serious sports injury of children football players (hazard ratio 0.42, 95% CI 0.24 to 0.72).

The second test of hypotheses reveal that facilities and equipment are a significant factor that predispose student-athlete to sport injuries. The result of this finding also corresponds with the conclusion by Gray, Owen & Carlson (2015) when they examined how the design of sports facilities can impact injury rates among high school athletes. They found that facilities with better lighting, better surface conditions, and better equipment were associated with lower injury rates.

Additionally, facilities with adequate space and proper maintenance were also found to be important factors in reducing injuries.

Ramsbottom and his colleagues also found that indoor facilities can provide a more controlled and consistent environment for training, while outdoor facilities offer greater variability in conditions and can help athletes adapt to different weather and terrain conditions. (Ramsbottom, Brewer, & Williams, 2015). Karg and his colleagues also affirmed that natural surfaces, such as grass, may reduce the risk of certain types of injuries, but may also require greater maintenance and be less consistent in terms of surface conditions. Artificial surfaces, on the other hand, may offer more consistent playing conditions and require less maintenance, but may increase the risk of certain types of injuries. (Karg, Lohmander, Neuman, & Englund, 2017).

And lastly the third test of hypotheses reveal that coaches are also a significant factor that predispose student-athlete to sport injuries. The aforementioned finding is supported by the assertion made by Bizzini and colleagues which assert that coach attitude and knowledge of injury prevention strategies, as well as availability of adequate resources are significant influences on adoption. Successful prevention of sports injuries relies on a multidisciplinary approach drawing from public health as well as sports and exercise science perspectives (Bizzini, Junge & Dvorak 2013). Strength and conditioning coaching is a specific discipline within sports and exercise science with the strength and conditioning coach playing an important role in the overall sports injury prevention process. In fact, according to the National Strength and Conditioning Association (2009) Strength and Conditioning Professional Standards and Guidelines, strength and conditioning coaches have a "duty to the participants they serve to take reasonable steps to prevent injury, and to act prudently when an injury occurs". The NSCA guidelines also state that a key role of the strength and conditioning professional is "to provide guidance for the athletes in the area of nutrition and injury prevention". Improving strength and conditioning coaches' understanding of why and how sports injuries are prevented may promote uptake of targeted strategies and help strength and conditioning coaches fulfil this responsibility within the profession. Conversely, coaches are also in the unique position of being able to teach safe playing techniques/strategies, promote injury prevention and guide appropriate attitude to injury management. The success of many injury prevention programs has been shown to be dependent on the compliance of the athletes (Steffen, Emery, Romiti, Kang, Bizzini & Dvorak 2013) and the training of coaches improves adherence to these prevention programs (McKay, Steffen, Romiti, Finch & Emery 2014). In many sports, especially at junior level, the warm-up exercises and additional conditioning exercises undertaken by a team will largely be driven by the coach (White, Otago, Saunders, Romiti, Donaldson & Ullah 2014).

Conclusion

Based on the data analysis the following conclusions were made.

1. Warm up activities is a significant factor that predispose undergraduate student-athletes to sport injuries in Adekunle Ajasin University, Akungba-Akoko, Ondo State.

2. Facilities / Equipment are significant factors that predispose student-athletes to sport injuries in Adekunle Ajasin University, Akungba-Akoko, Ondo State.
3. Coaches are significant factors that predispose student-athletes to sport injuries in Adekunle Ajasin University, Akungba-Akoko, Ondo State.

Recommendations.

Consequently, upon findings, the following recommendations were made.

1. Sport Administrators and coaches of universities should ensure to implement evidence-based injuries prevention programs using warmup routines, coaching practices and the efficient management of facilities and equipment's.
2. Warm-up intervention program should be reviewed and ensured to meet standard and be sport-specific, safe and modifiable.
3. Educating university coaches on evidence-based training on injury prevention and load management should be a priority.
4. Facilities and equipment be efficiently manager by a professional to ensure it meet the safety standard required and there should be provision to replace worn or defective equipment.

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