

ORIGINAL SCIENTIFIC PAPER

Socio-Demographic Characteristics in Relation to the Knowledge and Attitudes of Physical Education Teachers about Sports Injuries Management in Enugu State, Nigeria

Gift Chinyere Uzoigwe¹, Fabian Chibunine Ugwueze¹, Tochi Emmanuel Iwuagwu¹, Okechukwu Kingsley Oforka¹, Chinwe Stella Odo¹, Donatus Udochukwu Chukwudo¹, John Ezebuilo Ogugua¹, Chukwuebuka Nnagozie Bosah¹

¹University of Nigeria, Department of Human Kinetics and Health Education, Nsukka, Nigeria

Abstract

The study assessed the relationship between socio-demographic characteristics and knowledge and attitudes of sports injuries' management among physical education teachers (PETs) in secondary schools in Enugu State, Nigeria. An institutional-based cross-sectional study was conducted on 294 PETs between December 2023 and January 2024 across the six education zones in Enugu State. Knowledge of sports injuries management was measured using Knowledge Test Scale, while Attitude about sports injuries management was measured using Attitude Scale. Frequency, percentage, and binary logistic regression were used for data analyses. The Statistical Package for Social Sciences (SPSS) version 25 was used for the data analysis. The findings revealed that more than two-thirds (71.0%) of PETs had good knowledge of sports injuries management, while 29.0 per cent had poor knowledge. More than two-thirds (71.7%) of PETs expressed positive attitudes toward sports injuries' management. Only years of job experience (OR=2.263, 95% CI [1.100-4.658], $p=0.027$) was significantly associated with knowledge about sports injuries' management. Gender, educational qualification, and years of job experience ($p>0.05$) were not significantly associated with attitudes toward sports injuries' management among PETs. This research proves that good knowledge and positive attitudes can help in proper management of common sports injuries in secondary schools. However, there should be establishment of collaborations with healthcare professionals, such as athletic trainers or sports medicine physicians, who can provide expert guidance and support to PETs in managing sports injuries. This collaboration can involve workshops, consultations, and referrals when necessary.

Keywords: *knowledge, attitude, sports, sports injury management, physical education teachers, secondary schools*

Introduction

Injury is unavoidable in sports and has threatened the health of athletes participating in sports programmes and competition. Sports injury is one of the key problems facing sports. Chandra et al. (2008) revealed that 30 per cent of those who have played in high school sports teams had sports injury experience. About 8.6 million sports and recreation-related injuries in the United States occur each year, where males account for more than half (Centers for Disease Control and Prevention [CDC], 2016).

In Africa, adolescents appear to sustain one form or degree of sports injury from time to time. The percentage of individuals sustaining at least one serious sports injury ranged from 13.5 per cent through 38.1 per cent for males and 5.2 per cent through 20.2 per cent for females in most African country's (Drake et al., 2018). In Nigeria, sports injury of many form and degree have been reported by both male and female sportsmen, including: muscle strain, sprain, injuries to the lower limbs particularly the thigh, the knee, and injuries from Track and field events



Correspondence:

Fabian Chibunine Ugwueze

University of Nigeria, Department of Human Kinetics and Health Education, University of Nigeria Campus, 410001 Nsukka, Nigeria

E-mail: fabian.ugwueze@unn.edu.ng

(Owoeye et al., 2008).

Sports generally involve some form of physical activity. Joseph and Oladipo (2016) described sports as all form of usually competitive physical activity which, through casual or organized participation, aims to use, maintain or improve physical ability and skills while providing entertainment to participants, and in some cases, spectators. These competitive physical activities can lead to sports injuries.

Sports injuries occur during athletic activities, and are common muscle bone or soft tissue injuries that occur during physical activities, including sprains, strains, and fractures. Sports injury is any impairment of the musculoskeletal system with signs and symptoms stemming from the practice of sport in either training or competition phase that compromised normal training in terms of form, duration, intensity or frequency (Prashant et al., 2017).

Sports injuries are classified into various forms. The National Institutes of Health (NIH, 2017) classified sports injuries as acute or traumatic and chronic/overuse regardless of the affected structure. The NIH stated that acute or traumatic injuries have a sudden onset and heal relatively quickly while chronic injuries are a result of overusing one area of the body while playing sport. Sports injuries can occur due to several factors. Risk factors of sports injuries are commonly classified as intrinsic and extrinsic risk factors (Caine & Goodwin, 2016). Intrinsic or personal factors that could put an athlete at risk for injury could be gender, age, weight/body composition and height (Rössler et al., 2017). Extrinsic factors include environmental factors that affect how a sporting activity is done (NIH, 2017). Examples of extrinsic factors are the sports specific protective equipment and conditions of the sports setting, such as rain, snow, and maintenance of the floor/field of playing surface (Wang et al., 2017).

The symptoms of sports injuries vary depending on the type of injury sustained. Symptoms of a sports injury include: weakness, instability, stiffness, swelling, numbness and tingling, pain, and redness (Jonathan, 2020). These symptoms of injuries may lead to complications or severe damage if not properly managed. Paul (2020) stated that injury always causes pain, which can range from mild to severe pain. Knowledge of the concept, risk factors and symptoms of injuries by physical education teachers (PETs) or coaches will assist in the management of sports injuries.

Sports injuries management (SIM) is a vital aspect of sports organization and administration in the schools which involves careful planning, organizing, controlling and coordinating of sports events to ensure the safety of athletes that take part in various activities for a successful competition and goal achievement (Nji & Chukwurah, 2015). Typically, most of the common sports injuries are mild to moderate and can be managed effectively depending on the severity of the injuries, with techniques such as the PRICE therapy method (Protect from injury, Restrict activity, Ice the injured area, Compression and Elevation). It is important to educate PETs on effective SIM (Babarinde et al., 2017). Knowledge of SIM is essential for PETs in secondary schools (SS).

A sound knowledge of SIM is very essential for a sports person, for a coach and an individual who are attached to the field of sports directly or indirectly (Parveen & Sharma, 2017). Knowledge in this study refers to the level of information and ideas PETs in SS have regarding SIM. Knowledge of sports injury management can motivate or influence PETs to develop positive attitude towards the way they handle and respond to sports

injuries in SS in Enugu State.

Attitude is an individual's predisposed state of mind regarding a value and it is precipitated through a responsive positive or negative expression towards a person, place, thing, or event (the attitude object) which in turn influences the individual's thought and action (Richard, 2016).

There are socio-demographic variables that are capable of influencing the knowledge and attitude about SIM among PETs. These include: gender, educational qualification, and years of job experience. Kuo-Ming and Yi-Ching (2006) found that female students were evidently better than male students in terms of knowledge of SIM. Alomair et al. (2020) disclosed that the chance of poor knowledge and attitude for those participants with a bachelor's degree or higher is lower than that of those with a diploma or below. Prashant et al. (2017) revealed that the knowledge of SIM in coaches was based on experience gained. However, PETs are expected to possess good knowledge; and develop positive attitudes in order to be able to successfully manage sports injuries that come with PE and sports activities in SS.

Students in SS are actively involved in sporting activities which predisposes them to a lot of injury during sports and physical activities. It is likely that, PETs in Enugu State do not possess adequate knowledge of SIM. Also, PETs that may have the knowledge may not display positive attitudes toward SIM. Evidence regarding the knowledge and attitudes of SIM among PETs in the study area do not seem to exist. Therefore, this study becomes necessary. This problem needs to be addressed by assessing the level of knowledge and attitudes of PETs about SIM. The study findings would assist in planning workshops, seminars and training programmes that will enhance PETs' knowledge and attitudes about SIM.

Methods

Study design and setting

An institutional-based cross-sectional study was conducted between December 2023 and January, 2024 at the SS in the six education zones (Agbani, Awgu, Enugu, Nsukka, Obollo-Afor and Udi) across the three Senatorial Districts (Enugu North, Enugu East, and Enugu West).

Participants and Sampling procedures

The study participants consisted of PETs in SS in Enugu State, Nigeria. The total number of PETs in Enugu State is 294 as at the time of the study. Only PETs in public SS who are in good health and had no terminal health challenges were included in the study population. Hence, PETs in private SS were excluded from the study.

The sample size was 294 PETs. The total population of subjects is relatively small and manageable. Therefore, all the PETs were used for the study.

Measures

Data collection was done using a self-structured Knowledge Test Scale and Attitude Scale on SIM. The Test Scales consists of three parts: Part I consists of three socio-demographic characteristics (gender, educational qualification, and years of job experience) of the respondents. Gender was dichotomized into male and female. Educational qualification was categorized into three groups (Nigeria Certificate in Education (NCE), B.sc/B. Ed, and M.sc/M.Ed/Ph.D). Years of job experience was categorized into three groups (<5 years, 5-10 years, and 11 years +). Part II consists of 16 multiple choice questions covering knowl-

edge about SIM, while Part III consists of nine (9) questions with non-dichotomous response options covering attitudes toward SIM. The respondents were required to place a thick (✓) against the correct answer options lettered (A – D) for the knowledge assessment. The nine (9) attitudinal item statements used a four-point likert-type scale that indicates degrees of agreement or disagreement (strongly agrees, agree / disagree and strongly disagree).

In order to examine the face and content validity, the scales were given to a professional board of five experts on the subject (medical and public health sciences, human kinetics and sports studies) and an expert in methodology. After collecting the opinions of these experts, possible modifications were made. To assess the reliability (internal consistency), a trial test was performed on 50 PETs, and the Cronbach's alpha value was calculated, which yielded .81 for the Attitudes scale, while split half (Spearman-Brown Coefficient) yielded an index of 0.79, for the knowledge scale. The cut-off point for the calculations was 0.70.

Data collection procedure

This research was developed in accordance with the Ethical Principles of the World Medical Association Declaration of Helsinki for medical research involving human subjects (World Medical Association, 2013), and the research was approved by the Research Ethics Committee of the Faculty of Education, University of Nigeria, Nsukka (Ethical Clearance Code: UNN/FE/REC23/097).

Data were collected by administering the questionnaires to the 294 PETs. In order to obtain the participation of the respondents, the research team met with the Principal of the various SS drawn for the study, requesting their permission to study their subjects. After agreement with the Principals, informed consent (verbal) was obtained from the PETs, and it was explained to them how and when the data would be taken. Also, the research team explained the objectives of research for the participants and the latter were assured about the privacy of their personal data. After their consent was gotten, the researchers through the aid of the Principals administered 294 copies of the questionnaire to the respondents for completion. Participants filled out the questionnaires individually and it was only done once. The questionnaires were collected back immediately after filling out

in order to ensure maximum return rate. Out of the 294 copies of the questionnaire administered, 269 copies were returned, which gave 91.5 per cent return rate. All the returned copies of the questionnaire were duly filled out, and used for the study analyses.

Data analysis

Afterwards, the returned questionnaires were sorted and cleaned. The analyses were performed using the IBM Statistical Package for Social Sciences (SPSS) software package, version 25. The standard descriptive statistics of frequency and percentage were applied to describe the data patterns.

Knowledge score was determined based on responses from 16 knowledge-based items. Each correct response attracted one point, while a wrong response attracted no point. Therefore, the knowledge scores were interpreted as follows: poor (0-8) and good (9-16). By this, the level of knowledge was determined by the highest percentage score for either of the two levels (poor and good). This procedure was followed by Upashe et al. (2015) to interpret level of knowledge in their study.

Attitudes toward sports injury management was interpreted as Positive (scores from 50% and above) and Negative (scores from 49% and below). This was achieved by dichotomizing the four Point Likert-type scales of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Thus, responses indicating 'SA and A' were categorized as 'Agree' while responses indicating 'D and SD' were categorized as 'Disagree'.

In the multivariate logistic regression, knowledge and attitudes of sports injuries' management were used as response variables. Socio-demographic and economic variables or covariates (gender, educational qualification, and years of job experience) were considered as predictors. All tests were 2-tailed, and probability values less than or equal to 0.05 ($p \leq 0.05$) were considered significant.

Results

The final sample was 269; comprising 67 (24.9%) male and 202 (75.1%) female PETs in SS in Enugu State, Nigeria (Table 1). The vast majority of the respondents 241 (89.6%) had B.Sc/B.Ed as their highest qualification. The majority of the respondents 117 (43.5%) had taught/worked for 5-10 years.

Table 1. Frequency Table of Demographic Characteristics of Physical Education Teachers

Variable	n (%)
Gender	
Male	67 (24.9)
Female	202 (75.1)
Total	269 (100.0)
Educational Qualification	
Nigeria Certificate in Education (NCE)	2 (0.7)
B.Sc/B.Ed	241 (89.6)
M. Sc/M.Ed/Ph.D	26 (9.7)
Total	269 (100.0)
Years of Job Experience	
<5 years	59 (21.9)
5–10 years	117 (43.5)
11+ years	93 (34.6)
Total	269 (100.0)

Overall, more than two-thirds (71.0%) of PETs had good knowledge of SIM, while 29.0 per cent had poor knowledge (Table 2).

Only years of job experience ($p < 0.05$) was significantly

associated with knowledge about SIM among PETs in SS in Enugu State, Nigeria (Table 3). In a multivariate analysis, PETs s who had 11 years + job experience (OR=2.263, 95% CI [1.100-4.658], $p = .027$) were 2 times more likely knowledgeable about

Table 2. Knowledge overall about Sports Injury in Secondary Schools in Enugu State, Nigeria

Variable	n (%)
Knowledge (summary index)	
Good knowledge	191 (71.0)
Poor knowledge	78 (29.0)

Table 3. Multivariate Logistic Regression of Covariates Adjusted for Knowledge about Sports Injury Management among Physical Education Teachers

Characteristics	Knowledge		Crude OR OR (CI)	Adjusted OR OR (CI)
	Good (%)	Poor (%)		
Gender				
Male	43 (64.2)	24 (35.8)	-	-
Female	148 (73.3)	54 (26.7)	1.530 (.849–2.756)	1.434 (.786–2.618)
Educational Qualification				
Nigeria Certificate in Education (NCE)	1 (50.0)	1 (50.0)	-	-
B.Sc/B.Ed	167 (69.3)	74 (30.7)	2.257 (.139–86.57)	1.853 (.111–30.984)
M. Sc/M.Ed/Ph.D	23 (88.5)	3 (11.5)	7.667 (.374–157.4)	5.123 (.241–108.9)
Years of Job Experience				
<5 years	34 (57.6)	25 (42.4)	-	-
5–10 years	85 (72.6)	32 (27.4)	1.963 (1.012–3.768)*	1.872 (.964–3.636)
11+ years	72 (77.4)	21 (22.6)	2.521 (1.240–5.123)	2.263 (1.100–4.658)*

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ OR = Odd ratios; CI = Confidence Interval. Ref Groups: Gender = Male^a; Educational Qualification = NCE^b; Years of Job Experience = < 5 years^c

SIM than those who had < 5 years job experience. Gender and educational qualification were not significantly associated with knowledge about SIM among PETs in SS.

Overall, more than two-thirds (71.7%) of PETs expressed

positive attitudes towards SIM (Table 4).

Gender, educational qualification, and years of job experience ($p > 0.05$) were not significantly associated with attitudes toward SIM among PETs in SS (Table 5).

Table 4. Physical Education Teachers' Attitudes toward Sports Injury Management

Items	Agree n (%)	Disagree n (%)	Decision
I believe that the purpose of managing sports injury is to reduce further damage	239 (88.8)	30 (1.2)	P
I am confident that rest can help limit the forces acting on the injured part of the body	261 (97.0)	8 (3.0)	P
I feel ice is not helpful at controlling inflammation	122 (45.4)	147 (54.6)	N
I believe that too-tight constriction cannot worsen the injured part	78 (29.0)	191 (71.0)	N
I am confident that supporting splint should be long enough to extend beyond the nearest joints of the injured site	93 (34.6)	176 (65.4)	N
If the athlete can move, I believe it is important to move an injured athlete to a safe area using a stretcher or a crutch	200 (74.3)	69 (25.7)	P
I feel ice and cold packs should not be applied directly to the skin	164 (61.0)	105 (39.0)	P
I believe that wrapping the injured part with an elastic bandage compresses the injured tissue and limits internal bleeding and swelling	150 (55.8)	119 (44.2)	P
I feel elevation of the injured part above the level of the heart does not reduce the volume and pressure of blood flow to the injured area	156 (58.0)	113 (42.0)	P
Overall %	71.7	28.3	P

Key: Positive attitude = 50% and above, Negative attitude = <50%

Table 5. Multivariate Logistic Regression of Covariates Adjusted for Attitudes toward Sports Injury Management among Physical Education Teachers

Characteristics	Attitudes		Crude OR OR (CI)	Adjusted OR OR (CI)
	+ve (%)	-ve (%)		
Gender				
Male	46 (68.7)	21 (31.3)	-	-
Female	147 (72.8)	55 (27.2)	1.220 (.668–2.228)	1.078 (.583–1.995)
Educational Qualification				
Nigeria Certificate in Education (NCE)	1 (50.0)	1 (50.0)	-	-
B.Sc/B.Ed	166 (68.9)	75 (31.1)	2.213 (.137–35.86)	1.806 (.110–29.75)
M.Sc/M.Ed/Ph.D	26 (100.0)	0 (0.0)	1615 (.000–.000)	1.299 (.000–.000)
Years of Job Experience				
<5 years	37 (62.7)	22 (37.3)	-	-
5–10 years	88 (75.2)	29 (24.8)	1.804 (.919–3.641)	1.711 (.863–3.393)
11+ years	68 (73.1)	25 (26.9)	1.617 (.804–3.254)	1.304 (.637–2.669)

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ OR = Odd ratios; CI = Confidence Interval; +ve = Positive, -ve = Negative. Ref Groups: Gender = Male^a; Educational Qualification = NCE^b; Years of Job Experience = < 5 years^c

Discussion

The study findings have shown that overall, PETs had good knowledge of SIM (Table 2). This finding was anticipated and therefore not surprising. This is because PETs in SS might have been attending seminars, workshops and conferences where issues of SIM is being discussed. However, the finding of this study is not in line with Praveen and Sharma (2017) who found that, majority of their study respondents lacked knowledge of SIM. The disagreement between the finding of the earlier study and this study may be due to lack of seminars/workshops on SIM, given to the study participants of the earlier study. The findings have implication for school authorities in sensitizing PETs about SIM. The outcome of this study is likely to increase the knowledge of SIM among PETs.

The findings that only years of job experience was significantly associated with knowledge about SIM among PETs, and that PETs who had 11 years + job experience were 2 times more likely knowledgeable about SIM than those who had <5 years job experience (Table 3) were not surprising and expected. This is because the more one stays in the job; the more one is exposed to situations that can improve his or her knowledge. This finding is in line with Gharsan and Alarfaj (2019) who reported that knowledge grades differed significantly according to their experience in teaching, with better knowledge among more experienced participants. However, the findings on gender and educational qualification being not significantly associated with knowledge about SIM among PETs were surprising and therefore unexpected. This is because both male and female PETs are exposed to the same experience which might influence their knowledge, and female PETs are expected to have more knowledge because male PETs sometimes think that they are better than females. Kuo-Ming et al. (2012) reported that knowledge of SIM was better in females than in males. This finding is in consonance with Bahrani et al. (2015) and Drake et al. (2018) who found that both male and female genders had significant knowledge of SIM. The findings have implication for ministry of education in organizing programmes aimed at creating awareness on SIM. It is expected that those with M.Ed/Ph.D should have very high knowledge. It is believe that the more level of education one attains, the

more knowledge he or she acquires. This finding is not consistent with Alomair et al. (2020) who found that low sports injury knowledge was associated with having low educational qualification. With the findings, ministry of education would understand how to plan their programmes to cover SIM at every level of education.

The findings revealed that overall; more than two-thirds of PETs expressed positive attitudes toward SIM (Table 4). This finding was anticipated and thus not a surprise. This is because awareness and good knowledge of SIM makes PETs to have positive attitudes toward SIM, thus improving their responsiveness towards SIM. This finding is not in line with Veeresh et al. (2020) who found that attitude was moderately positive among respondents. The findings suggest major implication for school authorities. Given that attitude is strongly linked to behaviour, school authorities are expected to encourage PETs on SIM, which will help ignite their interest in the practice.

The findings on gender, educational qualification, and years of job experience not being significantly associated with attitudes toward SIM among PETs in SS (Table 5) are however, surprising and unexpected. This is because years of job experience is expected to influence PETs' SIM. However, this may be a result of lack of interest resulting from insufficient motivation and encouragement from educational authorities and government. This is not in line with Mortellaro (2020) who reported that respondents with higher level of job experience had positive attitude. The finding on gender was unexpected and therefore not surprising, and has implication for ministry of education on how to address non-chalant attitude of PETs towards SIM irrespective of their gender. The finding on educational qualification was not anticipated because educational level (higher) of any given group of individuals is expected to influence their attitude. This is consistent with the assertion of Mala et al. (2015) that respondents with higher qualification had positive attitude.

Strengths of this study include using both male and female PETs as participants. While the study examined knowledge and attitudes it did not explore the impact of these factors on student outcomes. Excluding private schools could affect generalization of the results, though delimiting to public schools

was extensively handled. The use of a questionnaire alone to collect data is subject to recall and reporting bias, which may result in some degree of misclassification. Future research could investigate the relationship between teacher knowledge/practice and the severity of sports injuries among students.

Conclusion

A study of Enugu State, Nigeria secondary school PETs found that while the majority demonstrated good knowledge and positive attitudes about SIM, only years of experience (11+ years) greatly has importance with knowledge. Gender and educational qualification are not very important factors considered in SIM knowledge or attitude. However, negative

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Conflict of interest

The authors have declared no competing or conflicting of interests.

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