FACTORS CONTRIBUTING TO PHYSICAL ACTIVITY PARTICIPATION AMONGST HEALTH SCIENCES STUDENTS AT THE UNIVERSITY OF VENDA

By

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A mini-dissertation submitted in partial fulfilment of the requirements for the degree of Master of Public Health at the School of Health Sciences, University of Venda.

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DECLARATION

I, Muxe Owen Mathebula, hereby declare that the mini-dissertation on **'Factors contributing to physical activity participation amongst health sciences students at the University of Venda'** for the Master of Public Health (MPH) degree at the University of Venda, hereby submitted by me, has not been submitted previously for a degree at this or any other university, that it is my work in design and execution, and that all reference material contained therein has been duly acknowledged.

Mathebula MO ..... 26 February 2021 .....

Signature **Date**

DEDICATION

I would like to dedicate this dissertation to Almighty God for bringing me this far and to all my friends and family members for their moral support. Thank you for being there for me. God bless you abundantly. I love you all.

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The completion of this research project is the result of the effort and contributions of various individuals. I wish to acknowledge some of those who have had an impact on this work.

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LIST OF ACRONYMS

BMD	Bone Mineral Density
BMI	Body Mass Index
CMY	Centre for Multicultural Youth
DoHSA	Department of Health South Africa
HBM	Health Belief Model
HEAIDS	Higher Education HIV and AIDS
NCDs	Non-Communicable Diseases
SADHS	South African Demographic and Health Survey
SES	Socio Economic Status
UK	United Kingdom
Univen	University of Venda
WHO	World Health Organization
YRBS	Youth Risk Behaviour Survey

Table of Contents

Declaration ii
Dedication iii
Acknowledgement iv
List of acronyms v
Abstract ix
CHAPTER 1: INTRODUCTION AND BACKGROUND 1
1.1 Background of the study 1
1.2 Problem statement 5
1.3 Rational of the study 5
1.4 Conceptual frame work 6
1.5 Significance of the study 6
1.6 Aim of the study 6
1.7 Objectives of the study 7
1.8 Definition of concepts 7
CHAPTER 2: LITERATURE REVIEW 8
2.1 Overview 8
2.2 Importance of physical activity 8
2.3 Popularity of physical activity in universities and colleges Error! Bookmark not defined. 9
2.4 Importance of reducing obesity 10
2.5 Use of health believe model and results 10
2.6 Interpretations of bmi results 11
2.7 Motives for physical activities participation 11
2.8 Health benefits of physical activity 12
2.9 Factors to physical activity participation 15
2.10 Constraints to physical activity participation 18
2.11 Conclusion 20
CHAPTER 3: RESEARCH METHODOLOGY 21
3.1 Introduction 21
3.2 Research design 21
3.3 Study setting and Population 21
3.4. Inclusion and Exclusionn creteria 23
3.5 Recruitment of participants 23

3.6 Pretesting the instrument……23
3.7 Validity and Reliability of the study ……24
3.8 Data collection ……24
3.9 Data analysis ……25
3.10 Ethical considerations ……25
3.11 Dissemination of research results ……25
3.12 Conclusion……26
CHAPTER 4: RESULTS OF THE STUDY……27
4.1 Introduction ……27
4.2 Demographic information of the participants ……27
4.3 Anthropometric status of participants ……28
4.4 BMI categories for the total participants ……29
4.5 Physical activity participation ……29
4.6 Physical activity health benefit knowledge ……36
4.7 Factors contributing to physical activity participtionn……37
4.8 Barriers to physical activity participation ……38
CHAPTER 5: DISCUSSION OF RESULTS……40
5.1 Introduction ……40
5.2 Demographic information……40
5.3 BMI results of participants ……41
5.4 Health benefit knowledge of participating in physical activity …… Error! Bookmark not defined.**41**
5.5 Physical activity participation ……42
5.6 Factors contributing to physical activity participation….. Error! Bookmark not defined.**42**
5.7 Barriers to physical activity participation ……45
CHAPTER 6: RECOMMENDATIONS AND CONCLUSSION……47
6.1 Conclusion ……47
6.2 Recommendations……47
7. REFERENCES ……50
APPENDIX 1: Questionnaire ……60
APPENDIX 2: Permission request letters……67
APPENDIX 3 : Ethical issues ……69

List of Tables

Table 3.1 Number of registered first-year students **22**
Table 4.1 Demographic characteristics of the participants **28**
Table 4.2 Anthropometric status of participants **29**
Table 4.3 BMI interpretation of the participants **29**
Table 4.4 Engagement frequency on moderate physical activities **30**
Table 4.5 Engagement frequency on vigorous physical activities **30**
Table 4.6 Reasons for participating in physical activity **31**
Table 4.7 Access to physical activity facilities **32**
Table 4.8 Frequency of participating in physical activities per day **33**
Table 4.9 Frequency of participating in physical activities weeks/month **33**
Table 4.10 Physical activity health benefit knowledge **35**
Table 4.11 Factors contributing to physical activity participation **36**
Tabel 4.12 Barriers to physical activity participation **37**

List of Figures

Figure 4.1 Rate of participating in physical activity **32**
Figure 4.2 Time spent per physical activity session **34**
Figure 4.3 Physical activity pattern of the participants **35**

ABSTRACT

Physical activity has the potential to enhance the quality of student life. People who engage in physical activities tend to show improvement cognitively, socially, psychologically, physically and in overall health. The purpose of this study was to determine factors that contribute to physical activity participation as reported by students at the University of Venda. The study design was a cross-sectional survey using quantitative methods. The research was descriptive and exploratory. Two hundred and fourteen first-year students in the School of Health Sciences, University of Venda participated in the study. The sampling strategy used was the consensus. Data was collected using a self-administered questionnaire, a portable calibrated scale and a stadiometer for weight and height measurements respectively. Factors contributing to physical activity participation and barriers were therefore collected with the Likert Scale. Data were analyzed using version 25.0 of Statistical Package for Social Sciences (SPSS). Descriptive statistics were calculated to determine frequency distributions, mean and standard deviations. Informed consent forms were signed by the participants. Confidentiality and anonymity were assured throughout the study. Physical fitness and improved self-image were the most indicated factors that contribute to physical activity participation in the study. Few students regarded skills development as an opportunity provided by physical activity engagement. There was also an indication in the study that friends and family play a role in students' participation in physical activities. Most participants (70%) were neither engaging in moderate nor vigorous physical activities. Only less than a quarter of students participated in different physical activities and were from various disciplines. Jogging and running seemed the most popular physical activities amongst participants. The majority (94%) of the participants pointed out that psychological well-being and stress relief were the health benefits of participating in physical activities. Participants (86%) also indicated Physical activity engagement as a skills development opportunity. Most of the participants (60%) indicated that their engagement in physical activities is limited due to the bad conditions of the facilities. This study recommends the need for the introduction of awareness programmes on physical activity as well as well-structured programmes of physical activity by qualified personnel geared towards the improvement of the general well-being of students.

Key words: Contributing factors to physical activity participation, Health Sciences students, Non-communicable disease, Obesity, Overweight, Physical activity participation, Physical inactivity, University Students.

CHAPTER 1: INTRODUCTION

1.1 Background of the study

Students participating in physical activity benefit from improved cognition and become masters of academic activities and task orientations (Peters, Scholtz and Weilbach, 2014). Participation in physical activity also enables students to have a higher ability to focus on academics and sporting activities. Physical activity participation generally contributes to overall health resulting in a decreased risk of several chronic medical conditions and diseases, such as hypertension, stroke, cancer, and type 2 diabetes mellitus. However, physical inactivity is a global public health concern affecting all people in different walks of life, including students (World Health Organization) [WHO], 2013]. Such a concern is driven by an association of physical inactivity with the increasing prevalence of cardiovascular diseases. Most recent estimates suggest approximately 2 million deaths per year worldwide attributed to physical inactivity (WHO, 2013) thereby presenting as one of the current significant health-threatening factors. There is evidence that a larger proportion of basic education learners transiting to university engage in low levels of physical activity, with about one-third of previously active ones becoming inactive (LaCaille, Dauner, Krambeer and Pedersen, 2011). Consequently, as obesity is increasing in all age groups, it further includes university students throughout the world (Kopelman, 2011).

An international study on physical activity in twenty low and middle-income countries conducted by the Centre for Multicultural Youth (CMY) (2007) found a low physical activity prevalence ranging from 7% to 43% among men and from 6% to 49% among women. Low physical inactivity was also reported by a recent study conducted by Sigmundova, Chmelik, Sigmund, Feltova and Fromelk (2013) amongst students of Czech University. Their study results showed that only 9% of students met the criterion of 10,000 steps every day. Another study that showed the sedentary behaviour of university students was done in the United Kingdom (UK) by Keating, Guan, Pinero and Bridges (2005). It revealed that university students spent eight hours per day on sedentary activities such as studying, watching television, gaming, computer activities, sitting and talking, shopping and hanging out. A study conducted among first-year university students in New Zealand (aged 18 years and above) showed a significant decline of (56%) in males and (65%) in

females in weekly reported minutes of physical activity for time spent doing vigorous physical activity (Deliens, Clarys, De Bourdeaudhuij and Deforche, 2014).

Improved standards of living in low and middle-income countries could be the major contributing cause of physical inactivity (Omolayo, Benjamin, Olowa, Dominic and Olajumoke, 2013). More technological advancement saw the industrial revolution changing the level of physical activity amongst nations from active to inactive. Machines replaced people in labour-intensive jobs and currently, there is an increase in sedentary jobs in African countries. Moreover, increased use of "passive" modes of transportation in Africa also contributes to insufficient physical activity (Omolayo et al., 2013). In Nigeria, around (23%) of adults aged 18 years and over were found to be inactive and likely to be overweight (Emiola, Talabi and Ogunsakin, 2002). Taofeek (2014) conducted a study among young Nigerian university undergraduates and physical inactivity was reported to be 49.1%. These results gave a caution of a possible high risk of youth obesity in the country.

The drop in physical activity in low-income countries is partly due to increased inaction during leisure time, sedentary behaviour on the job and at home (WHO, 2011). Therefore, physical inactivity has been reported across various spectrums including gender and amongst employees. With regards to gender, Emolia et al. (2002) reported that women were more inactive (27%) than men (20%). These results also showed that females were more likely to be overweight than their male counterparts, with a median prevalence of 42%, compared with a median prevalence of 22% for males. Thangavhuelo, Monyeki, Strydom, Amusa, and Temane (2013) indicated that in selected African countries (Nigeria, Kenya and Botswana), the low levels of leisure-time physical activity amongst top executive employees was 71.6% and for middle employees was 62.9%. There were very few top-level managers (3%) and middle-level managers (10.1%) in the high physical activity category.

In South Africa, Mohlala, Monyeki, Strydom, and Amusa (2012) also studied top level and middle managers. They reported that top and middle managers had low levels of physical activity and increased the potential of developing coronary heart diseases. Muluvhu, Monyeki, Strydom and Mohlala (2015) conducted a study in Limpopo province among local government employees of

Vhembe district. Again, results showed a high prevalence (78.2%) of physical inactivity with both women (84%) and men (72%). The prevalence of hypertension in the latter study was found mostly among women than men. At the University of Venda (Univen), Mugwedi and Mulibana (2014) found that academic workload, lack of exercise equipment, transport issues and facilities not being in suitable conditions exacerbated non-participation in campus sport and recreation.

According to the Department of Health South Africa (DoHSA) (2015), South Africa has the highest rates of inactivity in the world. Just below half of the South African adults (47%) live a sedentary lifestyle (WHO, 2013). This report, therefore, implies that the country has more than double the global average of inactivity 23%, raising an alarming health hazard. South African Demographic and Health Survey (SADHS) determined the health status of the South African population in 2007. The survey indicated a high prevalence of physical inactivity with 48% of men and 63% of women suggesting an increase when compared to results reported by WHO in 2013. Who (2014) reported 44% and 49% inactive men and women, respectively. The World Obesity Federation estimates an increase to 60% of South African adults classified as overweight or obese by 2025.

The South African Youth Risk Behavior Survey (YRBS) (2008) also found that 19.7% of learners were overweight, with significantly more female 27.8% than their male counterparts. With regards to obesity, the prevalence was 5.3% again with more females (7.2%) than male learners (3.3%). According to the Heart and Stroke Foundation, half of South Africans aged 15 years and older are classified as being overweight, while 12% of men and 40% of women are classed as obese. Furthermore, (38%) of all school children participated in less than the recommended levels of physical activity with more than a third of the boys and 43% of the girls being sedentary. In the North West Province, Engelbrecht (2011) found that (74.5%) of the participants were inactive. Similarly, Phillips (2013) conducted a cross-sectional study using a one-year Physical Activity Recall Questionnaire for learners and found that (64.8%) of the participants were insufficiently active in the Western Cape urban high schools. These results give caution of a possible high risk of youth obesity in the country.

Black South African children aged 5 to12 years were found to engage in a variety of physical activities with distinct gender differences (Peltzer, Phaswana and Promtussananon, 2009). Boys

preferred football and karate and girls enjoyed skipping rope, watering gardens, *Molentse* (making a circle with stockings and jumping in and out of it), football and netball. The most common physical activity in rural schools among children was walking. The everyday activities in which children participate, including travelling to and from school, can contribute to their daily quantum of physical activity, which in turn, should lead to healthier lives (Peltzer et al., 2009). A National Household Travel Survey, conducted by Statistics South Africa in 2003, found that over 560,000 children in South Africa spent more than 2 hours a day walking to and from school. The Western Cape Education Department only provides transport for children travelling 10km and more to the nearest school. Walking distance to school is part of the daily physical activity patterns of most children in the Overberg/Caledon region of the Western Cape. A substantial number of them walk between 5 km to 6 km to and from school.

Factors influencing physical activity include personal factors such as age, gender (Amstrong et al., 2014; Hussey, 2010) and socioeconomic status (Bailey et al., 2010). Socio-economic status is often linked with parental support. More family support is reported for children from upper and middle status compared to those from low-income families (Kay, 2004). On the contrary, personal factors can be barriers to physical activity. Other barriers include perceived lack of time and poor accessibility of facilities or equipment (Martin, 2006). Motivation includes enjoyment, body outlook and weight management (Peltzer, 2009) and a variety of available types of activities (MacPhail, 2011). Learning new skills, increased self-esteem, improved fitness and developed new social networks were reported motivating factors of very active girls in a study conducted by Flinton and Scraton (2001).

Benefits to physical activity are associated with improved brain function and high energy. Physical activity also plays a role in concentration, cardio-vascular health and increased self-esteem, resultantly having a positive effect on a child's behaviour and educational/academic performance (Department of Health, Education and Welfare, 2012). Brain function may indirectly benefit from physical activity due to increased energy generation as well as from time to time outside of the classroom/away from studying. The increased energy levels and time outside the classroom may give relief from boredom resulting in higher attention levels during classroom instruction (Singh, 2012). Fontaine (2011) further mentioned that regular physical activity in students improves strength and endurance, builds healthy bones and muscles, helps control weight, reduces anxiety

and stress, increases self-esteem and may improve blood pressure and cholesterol levels. Hence, this study sought to determine factors contributing to physical activity participation as reported by health sciences students at Univen.

1.2 Problem Statement

The researcher, as a graduate student from the Centre for Biokinetics, Recreation and Sport Science at Univen, observed low student participation in physical activity. This observation was also confirmed by Biokinetics interns who also indicated a low level of regular participation in exercise programmes by students. From the Biokinetics interns report (2017), student participation in exercise programmes were 26% (2015), 31% (2016) and 39% (2017). This observation is concerning because physical activity participation provides a range of health, cognitive and social benefits, especially for university students. The other daily observation of concern that could be linked to physical inactivity is that of obese students. Obesity is one of the major causes of the development of non-communicable diseases including stroke, colon cancer, breast cancer, type 2 diabetes mellitus and osteoporotic fractures. The WHO report estimates that the annual health care cost attributable to physical inactivity in an upper-middle-income country like South Africa is more than R150million to R1billion for population-based intervention and R125billion for individual-based measures.

1.3 The rationale of the study

Several studies focusing on factors affecting participation in sport and recreation have been conducted in South Africa, none looked specifically at the health science students in a rural-based University. For example, Muluvhu et al. (2015) carried out a study on ‘Physical activity and selected health risk factors among local government employees in Vhembe District, Limpopo Province’. Warren (2015) researched on ‘an investigation into the social factors that influence sport participation: A case of Gymnastics in the Western Cape’. Mthethwa (2017) looked at factors affecting participation in sport and recreation of students staying in residences at the University of Kwazulu-Natal. According to the researcher’s knowledge, although there is a reported sedentary to a low active lifestyle in South African schools and governmental departments, no studies are investigating the practice amongst first-year students at the School of Health Sciences, University of Venda. The Universities including the University of Venda provide an opportunity for an active lifestyle. The University of Venda offers a wide range of indoor and

outdoor sporting facilities that accommodate both the recreational and competitive needs of the university community.

1.4 Conceptual framework

The Health Belief Model (HBM) is a conceptual framework used to understand health behaviour and possible reasons for non-compliance with recommended health action (Becker and Rosenstock, 1984). The HBM is by far the most commonly used theory in health education and health promotion (Glanz, Rimer and Lewis, 1998). The health belief model stipulates that a person's health-related behaviour depends on the perception of four critical areas: the severity of a potential illness, the person's susceptibility to that illness, and the benefits of taking preventive action and the barriers to taking that action (Hochbaum, 1958; Rosenstock, 1960, 1966).

1.5 Significance of the study

This study aimed at determining factors contributing to physical activity participation amongst health sciences students at the University of Venda. The study findings will assist in informing the stakeholders such as the University Sport and Recreation Unit, Campus Health Centre, Department of Sport and Recreation Thulamela Municipality, Department of Education and Health Vhembe district about the factors contributing to physical activity participation amongst students at the University of Venda so that proper intervention can be done in increasing the student participation. Internal systems, funding and human resources may be improved to promote continued participation, as well as to promote the benefits of physical activity participation, thus creating a community of active and healthy students, mentally and physically, resulting in increased participation in physical activity and enabling students to develop sport-specific life skills. In turn, an increase in participation in physical activity may create a decrease in negative social activity and behaviour taking place within the University community.

1.6 Aim of the study

The study aimed to determine the factors that contribute to physical activity participation amongst students at the University of Venda.

1.7 The objectives of the study

The objectives of the study were to:

1.7.1 Determine the prevalence of first-year student participation in physical activity.
1.7.2 Assess the body mass index (BMI) of first-year students.
1.7.3 Assess the knowledge possessed by the first-year student on the benefit of physical activity on health.
1.7.4 Determine contributory factors to student's physical activity participation.
1.7.5 Determine the barriers that hinder student's participation in physical activity.

1.8 Definition of concepts

Contributing factors to physical activity participation refer to drivers towards physical activity engagement (Gerald, 2018). In this study, the contributing factors will refer to drivers that will be reported by the participants.

Non-communicable disease (NCD) refers to a medical condition or disease that is not caused by infectious agents. They are diseases that are not transmitted through contact with an infected or afflicted person. NCDs can refer to chronic diseases which last for long periods and progress slowly (WHO, 2002).

Obesity refers to an excessive accumulation of fat beyond what is considered normal for one's age, sex and body type. Obesity is having more than 20% fat for men or more than 30% fat for women (Bell, 2011).

Overweight refers to increased body weight in relation to height beyond the accepted standard. The standard has been defined by the medical profession based on a variety of reference percentiles based on BMI in various populations (Bell, 2011).

Physical activity refers to any bodily movement produced by skeletal muscles that require energy expenditure (WHO, 2002). In this study, physical activity is defined by achieving more than 30 minutes of moderate-intensity physical activity per day.

Physical inactivity refers to not getting the recommended level of regular energy expenditure (WHO, 2002). In this study, physical inactivity is defined as achieving less than 30 minutes of moderate-intensity physical activity per week.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

This chapter presents reviewed literature concerning the factors that contribute to physical activity participation. It provides a discussion of the importance of physical activity, popularity of physical activity in universities and colleges, the importance of reducing obesity, use of Health Believe Model and results, Interpretations of BMI results, motives for physical activity participation, health benefits of physical activity, social factors for participation in physical activity and constraints to physical activity participation.

2.2 Importance of physical activity

Physical activity is any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity encompasses all activities, at any intensity, performed during any time of day or night. It includes exercise and incidental activity integrated into daily activity. The physical health benefits of regular physical activity are well established (Foster, Wendy and Rowley, 2014). Regular participation in physical activity is associated with a longer and better life, reduced risks of a variety of diseases and many psychological and emotional benefits. There is also a large body of literature (Foster et al, 2014) showing that inactivity is one of the most significant causes of death, disability and reduced quality of life worldwide. Physical activity may influence the physical health of young people in two ways, first, it can be a cause of disease during childhood and adolescence. Secondly, physical activity could reduce the risk of chronic diseases in later life. Many adult conditions, such as cancer, diabetes and coronary heart diseases, have their origins in childhood and can be aided, in part, by regular physical activity in the early years. Also, regular physical activity beginning in childhood helps to improve bone health, thus preventing osteoporosis (Gill, Gross and Huddleston, 2010).

Obesity deserves special mention. According to the Heart and Stroke Foundation, half of South Africans aged 15 years and older are classified as being overweight, while 12% of men and 40% of women are classed as obese. There seems to be a general trend towards increased childhood obesity in a large number of countries. This increase seems to be particularly in young people from highly urbanized areas, some ethnic minorities and the disabled. Obesity in childhood was known to have a significant impact on both physical and mental health, including hyperlipidemia,

hypertension and abnormal glucose tolerance. Physical activity can be an important feature of a weight control programme for young people, increasing calorific expenditure and promoting fat reduction. Indeed, recent systematic reviews on both the prevention and treatment of childhood obesity recommend strategies for increasing physical activity (Edington and Schlatter, 2011).

In recent years, there has been evidence of disturbingly high rates of mental ill-health among adolescents and even younger children, ranging from low self-esteem, anxiety and depression to eating disorders, substance abuse and suicide. Adolescent girls are particularly vulnerable to anxiety and depression disorders: at the age of 15 years, girls are significantly more likely than boys to have seriously considered suicide (Edington et al., 2011). Besides promoting vigour and fitness, physical activity contributes to improvement in agility, speed, coordination, and skill. A primary objective of collegiate physical education programs is the acquisition of skills that lead to enjoyable recreational sporting performance not only during collegiate years but also through life (Blair, Kohl and Gordon et al., 2009). Biologically, human beings are created to be active creatures. Although changes in civilization have resulted in a decrease in the amount of activity needed to accomplish the tasks associated with living, the human body has not changed. Therefore, one must be aware of the requirements of good health and recognize the importance of vigorous physical activity in life. Physical activity contributes to improved posture and appearance through the development of proper muscle tone, greater joint flexibility and a feeling of well-being. Physical activity generates more energy and thus contributes to greater individual productivity for both physical and mental tasks (Blair et al., 2009).

Individuals unwilling to acquire or maintain the physical fitness necessary to participate in vigorous activity deny themselves the social outlets, companionship, and feelings inherent in such activities. Participating in physical activity provides an opportunity for socialization. Students who maintain ongoing fitness programs may be better able to cope with the intellectual demands of college (Peters et al., 2014). Too often students concentrate on developing only their minds and forget to develop as total persons. Physical fitness affects the entire person, and rich dividends accrue to the person who concentrates on the development of the body as well as the mind (Blair et al., 2009).

2.3 The popularity of physical activity in universities and colleges

The National College Health Assessment (2001) has found that the level of participating in vigorous physical activity was found to be significantly lower among non-Caucasians students. Mack and Shaddox (2004) found that 49.9% of male college students were classified as vigorous exercisers and 12.1% as inactive while 30.7% of female college students were classified as vigorous exercisers and 21.5% as inactive. According to Multiethnic studies, African Americans and Asian Americans had the lowest amount of physical activity participation while Caucasian students were the most physically active group (Kenya, Brodsky, Devile, Allegrante, and Fullilove, 2003; Suminski, Petose, Utter and Zhang, 2002).

2.4 The importance of reducing obesity

Fayh, Krause and Rodriguese (2013) enrolled obese participants in either dietary counselling or dietary counselling and exercise. It was found that weight loss of 5 % of body weight resulted in significant reductions in cardiovascular risk factors. A study conducted at the University of Pittsburgh from 2007 to 2010 examined the impact of weight loss on cardiometabolic risk factors among the severely obese. Through a combination of diet and physical activity, participants lost on average 8 to 10% of their body weight, resulting in average decreases in systolic blood pressure of 11 % and decreases in diastolic blood pressure of 7% (Goodpaster, Delany and Otto, 2010).

Dattilo and Kris-Etherton (2012) found that for every kilogram of weight loss, total cholesterol, low-density lipoprotein cholesterol, and triglycerides decreased 0.05 millimoles per litre (mmol/L), 0.02 mmol/L, and 0.015 mmol/L, respectively. Tuomilehto et al. (2013) found that a 9 % loss of body weight among mildly to moderately obese patients with Obstructive Sleep Apnea was associated with a 47 % decrease in apnea episodes during non-Rapid Eye Movement sleep and a 34 % decrease during REM sleep. Weight loss was also responsible for significant improvement in sleep patterns and oxygenation among study participants.

2.5 Use of Health Belief Model and results

The health belief model by Janz and Becker (1984) stated that an individual engages in health-promoting behaviour, such as physical activity, due to perceived severity of a potential illness and perception of susceptibility to disease and the perception of a benefit from participating in physical

activity. A study by Tergerson and King (2002) found some perceived benefits indicated by high school students relating to staying in shape, losing weight and increasing the energy levels for females. From the European Union, a national representative sample revealed that males perceived the benefits of physical activity as, to have fun (Zunft et al., 1999). Participation in physical activity in childhood and adolescence has a positive effect on the continuation of such activity in adulthood (Telama et al., 1997). In contrast, Dollman et al. (1999) found that perceived benefits (pleasure, tiredness, keeping or getting in shape) are not associated with physical activity. Brown and Lawton (1986) stated that adolescent girls engaging in regular physical activity experience less illness provoking the effects of stress than less active girls. Physical activity protects an individual's emotional well-being from the effects of stress (Kobasa et al., 1982).

2.6 Interpretations of BMI results

Generally, if one is at a healthy weight, one's BMI should fall between 18.5 and 24.9 (The National Heart, Lung and Blood Institute, 2011). If BMI is below 18.5, one can be classified as underweight. On other hand, a BMI greater than 25.0 is categorized as overweight, while a score above 30 is considered obese. A BMI in the low range signals that one could be malnourished. A malnourished person is not properly absorbing nutrients or maybe not getting enough energy to support his or her activity level. Having a BMI on the higher end alerts that one is at risk of heart disease, diabetes and certain cancers.

2.7 Motives for physical activities participation

Participating in physical activities produces massive benefits to students, even after one has graduated from university (Henchy, 2011). Engaging in physical activities enables a participant to improve their physiological, social and psychological functioning which is crucial in the development of our future leaders (WHO, 2014; DoHSA, 2015). According to Hoe (2007), the motives for participation in physical activities vary and are individual-specific. In his study, Hoe et al. (2007) found that skills development and friendship were the main reasons for physical activity engagement. Participants reported a sense of enjoyment as the key motive to engage in physical activities (Hoe et al., 2007). Ebben and Brudzynski (2008) found that the leading reason for participation in physical activities in the American student community is health. Lovell, Ansari and Parker (2010), in the United Kingdom, place greater emphasis on participating in physical activities for physical fitness. Peters et al. (2014) reported that the motives for participation in

physical activities among university students are recognition/achievement, energy/stress relief, social interaction, challenge/enjoyment, health and physical wellness.

The work of Peters et al. (2014) is further supported by Kubayi and Surujal (2014) who report that South African students experienced lower levels of anxiety, depression and stress following engagement in physical activities. In the work of Henchy's et al. (2011) students reported that physical activities engagement improved their quality of life. Students reported that their ability to manage stress had significantly or moderately improved as a result of participating in campus-based recreation activities (Henchy et al., 2011). Noting the works of Henchy et al. (2011), Peters et al. (2014), Kubayi and Surujal (2014), one can state that participation in physical activities is an achievement on its own, considering the current landscape of higher education, where high dropout rates and unhealthy lifestyles have been prevalent (Letseka and Maile, 2008; HEAIDS, 2010; Venugopala and Taylor, 2013). Jensen's work in 2011 reaffirms the earlier findings of Allender, Cowburn and Foster (2006), in which the population stated that they experienced a sense of achievement by participating in physical activities as their psychological functioning improved. Henchy et al. (2011), Hassmen, Koivula and Uutela (2000) found that individuals who engage in regular physical activities experienced significantly less depression, anger, distrust and stress than those who do not participate.

2.8 Health benefits of physical activity

Physical activity can improve the quality of life in many ways for people of all ages. Regular physical activity provides young people with important physical, mental, and social health benefits (WHO, online). Research has clearly shown that people who are physically active live longer than those who are sedentary (Kaplan, 2000). In addition to living longer, those who engage in regular physical activity tend to perform activities of daily living better and enjoy many aspects of life. Regular physical activity reduces the risk of premature mortality, coronary heart disease, hypertension, colon, breast, prostate and lung cancers as well as decreasing chances of obesity and diabetes mellitus. Physical activity further helps to build and maintain healthy bones, muscles and joints. Physical activity also promotes psychological wellbeing (Bahr and Loald, 2001). According to Summerfield (2000), physical activity can prevent or delay the development of hypertension in children and adolescents. It promotes weight control through caloric expenditure. King (2002) reported perceived benefits among female high school students as to stay in shape,

lose weight and increase energy levels while for males were to become strong, stay in shape and be competitive. Physical activity benefits are not limited to young people only, it promotes independence, improves muscle strength and endurance prevents osteoarthritis as well as falls and injuries in older people (Bailey, 2001). Below is the discussion on muscular-skeletal, cardiovascular and cardio-respiratory, psychological and social benefits of physical activity.

2.8.1 Muscular-skeletal benefits

Regular physical activity is important for maintaining muscle strength, joint structures, joint functioning and bone health. Weight-bearing physical activity is essential for normal skeletal development during childhood and adolescence, and for achieving and maintaining peak bone mass in young adults (US Department of Health and Human Services, 2002). Physical activity can also greatly help prevent and manage osteoarthritis. Physical activity is a means to control joint swelling and joint pain in arthritis, thus reducing the consequences of disease for everyday wellbeing (WHO, 2005). In the study done by Yannakoulia, Keramopoulos and Matalas (2004) evaluating the combined effect of several environmental factors on bone mineral density (BMD) in a group of highly active young women dancers, the results showed that long-term and intensive physical activity is beneficial to BMD. Regular physical activity also has been found to improve muscle function, prevent soft tissue injuries and improve physical performance (Healthy People, 2010, Bahr and Loald, 2001).

2.8.2 Cardiovascular and Cardio-Respiratory Benefits

Physical inactivity is recognized as a risk factor for coronary artery disease. Regular aerobic physical activity increases exercise capacity and plays a big role in both primary and secondary prevention of cardiovascular disease (Fletcher, Balady, Blair, Blumententhal, Gaspersen, Caitman, Epstein, Froelicher, Pain and Pollock, 1996). Physical activity and exercise as part of cardiac rehabilitation after an acute coronary event improve exercise capacity and quality of life in most patients. It has been proved in several studies over the years that elderly patients benefit from cardiac rehabilitation programmes to the same extent as younger patients when exercise capacity and quality of life are measured (Hage, Mattsson and Stahle, 2003). Cross-sectional studies showed lower blood pressure in active and fit persons, compared to their unfit and sedentary peers. The magnitude of differences in blood pressure across activity or fitness groups

is modest, typically less than 10mmhg for systolic pressure and 5 mm Hg for diastolic pressure (Blair, Kohl and Gordon, 1992). The study done by Sobngwi, Mbanya, Unwin, Aspray and Alberti (2002), to evaluate and compare physical activity patterns and their relationship with obesity, diabetes and hypertension in urban and rural dwellers in Cameroon, found that the prevalence of obesity, diabetes and hypertension was higher in urban compare to rural dwellers and this was significantly associated with the low level of physical activity among urban dwellers.

2.8.3 Psychological and Mental Benefits

There is growing research evidence of links between physical activity and mental health benefits, including mood elevation, better cognitive functioning, improved self-perception, self-esteem and self-efficacy. Physical activity has also been shown to enhance the effectiveness of psychological therapies and to have a role in improving quality of life and symptoms management for people with a wide range of mental health problems (Jones, Martin, O'Beney and Caro, 2004). It has been documented that taking regular exercise was a frequent means of coping with work stress by 30% of employees (Sale, Guppy and Sayed 2000). Research at Duke University on people suffering from depression found that 60% of participants who exercised for 30 minutes three times a week overcame their depression without using anti-depressant medication. This is the same percentage rate as those who only used medication in their treatment for depression (Jennifer, 2000).

2.8.4 Social Benefits

Research has clearly shown that the significance of physical activity for society is not only limited to health. By providing opportunities for social interaction, physical activity can help enhance a community to identify and promote community integration (WHO, 2005). During sports and recreation activities, individuals learn and share community values and attitudes and gain a better understanding of other groups in society. Participation in physical activity can also have a deterrent effect on anti-social behaviour, including vandalism and petty crime. Physical activity reduces the sense of isolation and loneliness, encourages community networks, prolongs independence in old people and helps build social skills in children (WHO, 2005). The study by Savage and Michael (1998) reported that the common reasons that encourage university students to participate in physical activity were having fun with their friends and establishing interpersonal relationships.

2.9 Factors contributing to physical activity participation

Factors contributing to physical activity participation are family, facilities and equipment, and economic status.

2.9.1 Family

Parents are said to have quite a significant role to play in influencing their child's sport and physical activity participation due to the influence of modelling. The parent in a household provides a space for support on a financial and psychological level. It has been reported that disinterested parents affect a child negatively, especially if the child is in pursuit of physical activity and sport participation (Bailey et al., 2010). Neglectful parents are neither responsive nor demanding and there is little to no encouragement and supervision of the child's progress, attitude and behaviour. It is reported that young adults that come from negligent families deploy maladaptive task-avoidant strategies (Titus, Rose and Roman, 2015). According to Titus et al. (2015), parents who met this profile did not provide structure or monitor their children's behaviour and ultimately neglected the children's needs and well-being. In social and psychological research, family members are reported to be the first social agency that the child comes into contact with as he/she develops (Kay, 2003). Therefore, the first point of socialization starts with the family of the child contributing to socialization, growth and development. The family influences the child's interest in the sport thus, plays a role in the socialization of a child into the sport, and society as well. It can be said that the family largely influences the entire sports experience of adolescents and children (Bailey et al., 2010). The research of Kirk and MacPhail (2003) highlights how the roles of social positions are undertaken by members of the family, and in particular, this research reports that the roles assumed by parents as these social positions, do have an effect upon the involvement and participation of their child in sport and do impact directly upon the continued participation of their children, or not. It is said that a traditional structure of the family has a more positive influence on the sport and recreation participation of children than a non-traditional family. Bailey et al. (2010) explain that a traditional family comprises two adults and that a non-traditional family is a variation of a two-adult family meaning, a single-parent family or guardians looking after children.

The traditional family setting is seen to have a positive influence on sport participation because between the two adults, there is more time and financial resources available to support the sport

participation of their children, as well as manage daily activities regarding family life. The family also has a major influence on the coaching process within sport and recreation. It is reported that the influence of the family on the process of coaching can affect participant development because the role of a parent largely influences the relationship between each stakeholder regarding the participants continued participation in sport (Jowett and Timson-Katchis, 2005). In essence, research shows that the family influences sport participation. It is said that children from a traditional-type family have more access to opportunities for participation than those from non-traditional families. It can also be said that those from a higher socioeconomic background can access opportunities for participation easier than those from lower socioeconomic backgrounds; therefore, a link exists between a parent's socioeconomic status and a child's level of participation in sport and recreational activities (Kay et al., 2003).

2.9.2 Facilities and Equipment

A sports facility encompasses the equipment and buildings utilized for playing sports or for participating in sport (Barghchi and Omar, 2014). In the work of Eime, Casey, Harvrey, Sawyer, Symons and Payne (2014), it is reported that socio-ecological models have been applied to qualitative studies to determine the multiple influences on participation in physical activity and sport among adolescents and children. These studies have found that environmental and social factors were important and should be considered as influences affecting low socioeconomic areas concerning the proximity of sports facilities, and accessibility of equipment for sports participants to make use of, whilst participating. Furthermore, intrapersonal (perceived skill and competence), interpersonal (support of peers and family), and organizational factors (i.e. school and community sports club environment) were also considered to be important factors influencing sport participation and physical activity. Studies have investigated the relative importance of proximity to sports facilities and participation which impact a combination of actual travel times/distances to facilities or subjective perceptions regarding the supply of sporting infrastructure (Higgs, Langford and Norman, 2015).

2.9.3 Economic Status

The socioeconomic position is defined as "an aggregate concept that includes both resource-based and prestige-based measures, as linked to both childhood and adult social class position"

(Stockie, 2009). Socioeconomic status is one non-modifiable factor of interest that may influence physical activity. It is reported by Bailey et al. (2010) that the socio-economic status of a child is the socio-economic status of his/her parents and is said to have quite a significant effect on physical activity participation due to costs of membership of a sports club, apparel, transport and equipment. These costs are absorbed by the parents of the sport participant if the sport participant is a minor, and socio-economic status determines the affordability of parents, thus affecting their child's physical activity participation.

Children from a middle socio-economic status who participate in physical activity have more support from their families than can be seen with children from low-income families (Kay et al., 2003). Children from low-income families struggle to continue participation due to the exorbitant costs involved, and a high dropout rate in sport and physical activity can be witnessed (Rowley and Graham, 1999). Socio-economic status variables include personal demographic area, as well as an individual's broader environment, though the most important measurable variables to determine socio-economic status are an individual's income, education and occupation. Youth SES is categorized based on parent SES indicators of income, wealth, occupation and education (Stockie et al., 2009). An adolescent's physical activity participation can be positively or negatively influenced by socio-economic status. Socio-economic status is identified as an environmental and social factor that may potentially influence sport and physical activity participation (Green, Smith and Roberts, 2005).

Socio-economic status is also used as a determinant of social class. The social class creates a divide within society based on income, occupation, education level, and housing (Green et al., 2005). "Physical activity is among several health behaviours, known to be less favourable among people with low socioeconomic status (SES) compared with higher status counterparts" (Kamphuis, Lenthe, Giskes, Huisman, Brug and Mackenbach, 2007). Therefore, it can be reported that children from high SES backgrounds have access to participate in more sports than those from low SES backgrounds. Interestingly, a link between negative social behaviour and physical activity participation has been found to exist with children and is often more prevalent among those from lower SES backgrounds. (Wichstrom and Wichstrom, 2009). Socio-economic status plays a role in the fluctuation of participation of children in physical activity and sport, though the field is wide enough for more research to be conducted to clearly understand the relationship

between socioeconomic status and physical activity participation of adolescents and children (Stockie et al., 2009).

2.10 The constraints to physical activity participation

The Hierarchical Model of constraints proposed by Crawford (1991) posits that there are three factors causing non-participation in physical activities, which are experienced hierarchically. The three factors are classified as intrapersonal, interpersonal and structural constraints (Crawford et al., 1991). According to the Hierarchical model, one encounters intrapersonal constraints first, followed by interpersonal and then structural constraints (Crawford et al., 1991; Masmanidis, Tsigilis and Kosta, 2009).

2.10.1 Intrapersonal constraints to physical activity participation

According to Amusa, Toriola, Onyewadume and Dhaliwal (2008), intrapersonal constraints are internal psychological states of the person. Examples of intrapersonal constraints include stress, depression, anxiety, attitude, skills, perceived self-skill, religious beliefs, personal motivation, self-esteem, subjective evaluation of activities (Amusa et al., 2008). Yetgin (2014) found that feeling tired and fear of being injured lead to non-participation in sport and recreation among Turkish university students. In the same country earlier in the new millennium, Daskapan, Tuzun and Eker (2006) concluded that students lack the energy to participate in sport and recreation activities on campus after attending academic classes. In their work, (Kubayi and Surujal, 2014) highlighted students being very self-conscious about how they would be judged by their peers and therefore choosing not to engage in physical activities.

Peters et al. (2014) reported that students do not participate in physical activities at the North-West University because they lack knowledge about activities available on their campus. In his investigation, Hashim et al. (2012) rank information (lack of knowledge) about available activities as one of the key factors likely to influence one's decision about participating in physical activities on campus. Yetgin et al. (2014) conducted a study on students, pursuing physical education studies. They concluded that fatigue, fear of getting injured and not knowing what activities were available served as constraints to participation in sport and recreation activities. Intrapersonal

constraints have a 'knock-on effect' as they can lead to challenges when one attempts to build and sustain a social life in the community in which one lives. This is reflected in publications that highlight social challenges emerging as interpersonal constraints causing students not to participate in campus-based activities (Hashim et al., 2012).

2.10.2 Interpersonal constraints to physical activity participation

Interpersonal barriers are those factors that affect sport and recreation preferences, for example, lack of partners (Amusa et al., 2008). Although previous research on the constraints found that interpersonal constraints appear to be less of a challenge when compared to intrapersonal and structural constraints, these should not be overlooked because student interactions are the driving force to developing social cohesion in the university community (Daskapan et al., 2006; Mugwedi and Mulibana, 2014). Hoe et al. (2007) found that female students attempting to partake in physical activities are more constrained by a lack of partners in comparison to their male counterparts. Hashim et al. (2012) reported that students are more constrained by having few or no partners to participate in physical activity. Forde, Lee, Mills and Frisby (2014) state that social inclusion is an ongoing relational process in which institutions and the greater communities are active and collaborative agents. Policies and practices of institutions set the scene for the success or lack thereof of subsequent interactions between students and the institution itself (Forde et al., 2014).

2.10.3 Structural constraints to physical activity participation

Structural constraints are external factors that intervene between sport, physical activity and recreation activity preference in an environment (Amusa et al., 2008; Shifman et al., 2011). Structural constraints include finances, season, time, resources and access to or a lack of facilities (Amusa et al., 2008; Masmanidis, Gargalianos and Kosta, 2009; Lovell et al., 2010; Hashim et al., 2012). Financial circumstances and access to facilities are cited as the leading causes of non-participation in physical activities globally (Daskapan et al., 2006; Mchunu and Le Roux, 2008; Gomez-Lopez, Gallegos and Extremera, 2010; Lovell et al., 2010; Hashim et al., 2012). A lack of time, finances, and facilities being inaccessible are cited as the leading reasons why university students do not participate in physical activities at universities on the African continent (Asihel, Jones and Malcolm, 2005; Lovell et al., 2010; Mugwedi and Mulibana, 2014).

At the University of Venda, Mugwedi and Mulibana (2014) found that academic workload, lack of equipment, transport issues and facilities not being in suitable conditions exacerbated non-participation in campus physical activity. Amusa et al. (2008) reported that financial constraints, too much academic work and transport issues are the barriers to sport and recreation participation in Botswana. In their study on adolescence in KwaZulu-Natal, Mchunu and Le Roux (2008) established that economic factors serve as the leading cause of non-participation. In Gauteng, Pule et al. (2014) described a limited number of coaches and qualified managers, a lack of variety of programmes being offered, an inadequate number of facilities, equipment being too old, lack of finances and lack of financial support from parents as obstacles to participation.

2.11 Conclusion

In this chapter, the factors contributing to physical activity participation were presented. Physical activity assessment studies done in universities and colleges showed that race and gender played a role. Physical activity was low amongst non-Caucasians students and females were more active than males. Physical fitness and improved self-image were the most reported factors that contribute to physical activity participation. In terms of influence for physical activity engagement, there is an indication in the literature that family, available facility and equipment as well as economic status play a role. The literature further establishes that regular participation in physical activity can be an important feature of a weight control programme for young people. Literature indicates that regular physical activity participation improves muscle function, prevent soft tissue injuries and improve physical performance. Again, the literature indicates that fear of injury, tiredness and bad weather lead to non-participation in physical activities amongst students. It was important to conduct this study at the University of Venda to establish factors that contribute to or discourage physical activity participation amongst first entering first-year students so that proper programmes and promotion of physical activity can be planned early in their university lives.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Teddlie and Tashakkori (2015) define research methodology as a theory of how an inquiry should proceed. It involves analysis of the assumptions, principles and procedures in a particular approach to enquiry. This chapter presents research methods used in the study, including research design, study setting, study population, sampling and data collection processes. Validity and reliability of data are also included. The chapter further highlights the ethical considerations.

3.2 Research Design

Silverman (2013) defines research design as a plan for selecting subjects, research sites, and data collection procedures to answer the research questions. The research approach was quantitative using a cross-sectional survey. The research type is descriptive seeking to describe the physical activity of students and the factors that contribute to their level of participation.

3.3 Study Setting and population

The research study was carried out in the School of Health Sciences at the University of Venda. The University of Venda has eight schools, namely, Health Sciences Agriculture, Mathematical and Natural Sciences, Environmental Sciences, Human and Social Sciences, Management Sciences, Law and Education. The School of Health Sciences has a Centre for Biokinetics, Recreation and Sport Science and four departments, which are, Advance Nursing, Nutrition, Psychology and Public Health. Department of Public Health only offers postgraduate programmes. First-year students registered for 2019 at the School of Health Sciences were 214.

The University of Venda offers a wide range of indoor and outdoor sporting facilities that accommodate both the recreational and competitive needs of the university community. Indoor facilities include badminton, volleyball, table tennis, board games and a weight training room. Outdoor facilities include tennis courts, basketball courts, soccer pitches and a stadium that accommodates track and field athletics, soccer and Rugby. The University also has a gymnasium where different fitness and rehabilitative exercises are performed. All students are freely allowed to use these facilities for recreational purposes. Additional to what the university offers, there is a gymnasium (Gym for you) in a complex nearby where different fitness and rehabilitative exercises are performed. The target population for this study was first-year students at the University of Venda. The accessible population was first entering first-year students from the School of Health Sciences. The School of Health Sciences was purposively sampled because health and wellness are emphasized in its programmes more than in any other school. Moreover, most of the physical activity facilities offered at the university are housed at the School of Health Sciences. Sampling was consensus because all willing first entering first-year students were targeted for participation in the study.

Table 3.1 Distribution of first-year students registered for 2019 in the School of Health Sciences

Centre/Departments	**Number of registered first-year students**
Psychology	10
Nutrition	25
Advance Nursing	71
Biokinetics	35
Sport Sciences	27
Recreation and Leisure Studies	46
Total	**214**

Inclusion and exclusion criteria

3.4.1 Inclusion criteria

All first-year, first entering, students from the School of Health Sciences were included in the study. All targeted students who gave consent were considered for inclusion in the study.

3.4.2 Exclusion criteria

Students who are repeating the first-year level were not considered in the study as they were familiar with the University environment just like the students in upper academic levels.

3.5 Recruitment of participants

The researcher visited the Heads of the Departments (HODs) upon getting permission from the Dean of the School of Health Sciences to conduct the study. The study was explained to the HOD's and permission to meet with the students was granted. All students were invited by their respective departments to meet with the researcher on an agreed-upon day. The researcher then met with students to explain the intention of the study and obtained their consent to participate in the study.

3.6 Pretesting the instrument

The researcher pre-tested the questionnaire to make corrections where deemed necessary guided by the comments of the participants and the researcher's observations. School of Human and Social Sciences was purposively sampled because health and wellness are also emphasized in the programmes offered there. Eleven first-year students (~5% of the study sample size) were sampled conveniently from the School of Human and Social Sciences. The instrument was modified accordingly.

3.7 Validity and reliability of the study

3.7.1 Validity

Validity can be defined as how well a test measures what it is purported to measure (Cohen, Manion and Marrison, 2011). For validity, the instrument was developed based on study

objectives and literature. Content validity was verified by two experts from the school of Health Sciences. Pretesting of the instrument was done to ensure that it measured what was intended by the study. The English language was used to ensure ease of understanding of the questionnaire items.

3.7.2 Reliability

Reliability is concerned with the consistency of a measurement method (Grove et al., 2014). The instrument is considered reliable when similar study findings are reproduced under similar techniques (Maree, 2016). For reliability, the test-retest was used to ensure the consistency of the instrument. The questionnaire was inclusive of all possible physical activities offered at the University of Venda. Weight and height measurements were taken twice, and the average reading was used. The weight scale was zeroed in each session before measurements were taken.

3.8 Data collection

Data collection involves the selection of participants and gathering data from them (Kobus, 2016). Data were collected by the researcher. The researcher was assisted by the Biokinetics interns when taking anthropometric measurements. Data were collected with a questionnaire (Appendix 1), portable calibrated scale and stadiometer. The questionnaire was administered in a classroom environment in the presence of the researcher and the Biokinetics interns to provide prompt support and clarity when needed. The researcher and Biokinetics interns then collected the questionnaires after they had been completed. Weight was measured using a portable calibrated scale and recorded to the nearest 0.1kg. Standing height was measured to the nearest 0.1cm, using a stadiometer. BMI was calculated using a formula, weight (kg) divided by height (m) squared (kg/m^2). The interpretation of BMI was guided by the classification, underweight, normal weight, overweight and obese with their cut-off points. The development of the questionnaire was guided by the study objectives and literature. The Questionnaire had five sections, namely, Section A: demographic information, Section B: Physical activity participation, Section C: Health benefit knowledge, Section D: Barriers to physical activity participation and section E: Anthropometric measurement record sheet. The questionnaire was developed and administered in English. English was used because it was a medium of instruction at the University of Venda. Close-ended questions were also used.

3.9 Data analysis

Marshall and Rossman (2016) define data analysis as the process of bringing order, structure and meaning of mass of collected data. Data was collected by the researcher assisted by two biokinetics interns working at the lab. The researcher administered the questionnaire and took anthropometric measurements from the participants. The two assistants helped during anthropometric measurements. The researcher captured the completed questionnaires onto Microsoft Excel 2019. Thereafter, data captured was exported, cleaned and analyzed using Statistical Package for Social Sciences (SPSS), version 25.0 by a statistician in the presence of the researcher. Data were cleaned logically and statistically where errors and inconsistencies were either corrected or eliminated based on the individual cases. Descriptive analysis was calculated including frequency distributions, mean and standard deviations.

3.10 Ethical Considerations

The research proposal was presented at the Department of Public Health. It was further presented at the School of Health Sciences Higher Degrees Committee and was later submitted to the University of Venda Higher Degrees Committee for approval. Thereafter, it was sent to the Research Ethics Committee for ethical clearance. The researcher then submitted a letter of request for permission to conduct the study (Appendix 2) to the Dean of the School of Health Sciences and the HODs of the Centre for Biokinetics, Recreation and Sport Science, Nutrition, Psychology and Advanced Nursing. Once identified, the willing participants were then invited to be part of the study. They were briefed about the study according to the participant information letter (Appendix 3a). After agreeing to participate, they were invited to sign a consent form (Appendix 3b).

3.11 Dissemination of research results

Findings and recommendations made will be kept at the University of Venda library for referencing by other researchers. The findings from the study will be published in peer-reviewed and accredited national and international journals. The findings will be presented at seminars and conferences. The study findings will also be presented to the student affairs directorate, School of Health Sciences, Univen Sport Unit, Univen Campus Health Centre, Department of Sport and

Recreation Thulamela Municipality, Department of Education and Health Vhembe district with respect to the support needed by the stakeholders.

3.12 Conclusion

This chapter presented the methodology used in the study. The study approach was quantitative using a cross-sectional survey. The research study was carried out in the school of Health Sciences at the University of Venda. The target population for this study was all first entering first-year students from the school of Health Sciences. Data were collected by the researcher assisted by two Biokinetics interns. Analysis of data was done with assistance from a statistician. All ethical issues were considered. The next chapter is a presentation of results, narration accompanied by tables, graphs and pie charts.

CHAPTER 4: RESULTS OF THE STUDY

4.1 Introduction

This chapter presents the findings of the study. The response rate was 96%. Two hundred and fourteen questionnaires were distributed to first-year first entering health sciences students and not all were filled. The findings present participants' demographic information, the anthropometric status of participants, physical activity participation, physical activity health benefit knowledge, factors contributing to physical activity participation, barriers that limit physical activity participation and association between demographic characteristics of participants and their physical activity participation.

4.2 Demographic information of the participants

Table 4.1 presents the demographic characteristics of the participants. The majority of the participants (74%) were between the ages of 19 to 21 years. The participants were mostly females (60%) and single (99%). They were sourced from three departments and the Centre in the School of Health Sciences. The numbers, therefore, were influenced by the enrollment in the respective departments. The Centre for Biokinetics, Recreation and Sport Science had the most number of participants (50%) including participants from Biokinetics (16%), Recreation and Leisure Studies (21%) as well as the Sport and Exercise Science (12%). Advanced Nursing Science had 33%, Nutrition (11%) and Psychology (4%). Most of the participants (82%) stayed off-campus with (56%) from afar from the campus. Very few participants (2%) were living with some form of disability.

Table 4.1 Demographic characteristics of the participants (n=214)

Variable		n = 214	Percentage (%)
Age (years)	18	28	13.5
	19	65	30.2
	20	49	22.9
	21	45	21.0
	22	20	9.3
	23	7	3.1
Gender	Male	84	39.3
	Female	130	60.7
¥Marital Status (n=210)	Single	209	99.5
	Married	1	0.5
Degree Enrolled	Advanced Nursing	71	33.2
	Biokinetics	35	16.4
	Nutrition	25	11.7
	Psychology	10	4.7
	Recreation and leisure studies	46	21.4
	Sport sciences	27	12.6
Residents	On-campus	38	17.8
	Off-campus	176	82.2
off campus proximity n=176	#Close	59	33.6
	*Far	117	66.4
€Physical challenges n=211	Yes	5	2.3
	No	209	97.7

¥Marital status, n=210 due to missing responses; #Close refers to the distance less than 2km radius from the institution (Univen); *Far refers to the distance 2km radius away from the institution (Univen); €Physical challenges-n=211 due to missing responses.

4.3 Anthropometric measurements of participants

Table 4.2 indicates the descriptive data (mean, standard deviation, minimum and maximum values) of the anthropometric variables, age (years), weight (kg) and height (m). The mean age of the participants in the study was 19 years, with a mean weight of 62 kg and a mean height of 1.6 meters.

Table 4.2 Anthropometric variables of participants (n=214)

Variable	Mean	Std. Deviation	Minimum	Maximum
Age (years)	19.9	1.274	18	23
Weight (kg)	62.34	4.873	50	78
Height (m)	1.689	0.0606	1.6	1.8

4.4 BMI categories for the participants (n=214)

Table 4.3 presents the BMI interpretation of participants. The participants had normal weight (97%) with very few overweight (2.0%) and underweight (0.9%) cases.

Table 4.3 BMI interpretation of the participants (n=214)

Variable	n = 214	Percentage (%)
Under weight	2	0.9
Normal weight	208	97.1
Overweight	4	2.0
Obese	0	0.0

4.5 Physical activity participation

This section reports on the intensity of the physical engagement of the participants. It provides the moderate and vigorous physical activities that the participants engaged in.

4.5.1 Moderate physical activities

Table 4.4 shows the engagement frequency of participants in moderate physical activities. Over 80% of participants indicated not engaging at all in the tested moderate physical activities except for residential tasks with only 42% participants. 13% and 5% reported that they usually and often engaged in Indigenous games respectively.

Table 4.4 Engagement frequency on moderate physical activities (n=214)

Variable	Not at all n (%)	Usual* n (%)	Often# n (%)	Seldom€ n (%)
Dancing	175 (81.8)	26 (12.1)	12 (5.6)	1 (0.5)
Indigenous games	173 (81.0)	28 (13.0)	11 (5.0)	2 (1.0)
Martial arts	193 (90.2%)	13 (6.1)	7 (3.2%)	1 (0.5)
Residential tasks	90 (42.0)	98 (46.0)	13 (6.0)	13 (6.0)
Stair climbing	172 (80.4)	24 (11.2)	11 (5.1)	7 (3.3)

*Usual means 3 to 7 times/week; #Often means 1 to 2 times/week; €Seldom mean less than 4 times/month.

4.5.2 Vigorous physical activities

Table 4.5 shows the engagement frequency of participants on vigorous physical activities. Similar to the moderate physical activities, the majority of the participants (79%) did not engage in most of the vigorous activities. The only popular vigorous activity done was jogging or running, usually done by 76% of the participants and 18% often reported engagement.

Table 4.5 Engagement frequency on vigorous physical activities (n=214)

Variable¥	Not at all n (%)	Usual* n (%)	Often# n (%)	Seldom€ n (%)
Aerobics	170 (79.4)	18 (8.4)	20 (9.3)	6 (2.9)
How often have you engaged in badminton	191 (89.3)	8 (3.7)	14 (6.5)	1 (0.5)
How often have you engaged in baseball **(n=210)**	193 (91,9)	4 (1.9)	11 (5.2%)	2 (1.0)
How often have you engaged in basketball	196 (91.6)	5 (2.3)	12 (5.6)	1 (0.5)
How often have you engaged in boxing	201 (93.9)	4 (1.9)	2 (0.9)	7 (3.3)
How often do you engage in cycling	195 (91.1)	10 (4.7)	7 (3.3)	2 (0.9)
How often do you engage in cricket **(n=208)**	194 (93.3)	9 (4.3)	4 (2.0)	1 (0.4)
How often do you engage in handball **(n=201)**	171 (85.1)	22 (10.9)	6 (3.0)	2 (1.0)
How often do you engage in jogging or running **(n=213)**	65 (30.5)	98 (46.0)	38 (17.9)	12 (5.6)

Table 4.5 continues Engagement frequency on vigorous physical activities (n=214)

Variable[¥]	Not at all n (%)	Usual* n (%)	Often[#] n (%)	Seldom[€] n (%)
How often have you engaged in netball	181 (84.6)	18 (8.4)	12 (5.6)	3 (1.4)
How often have you engaged in rugby	199 (93.0)	6 (2.8)	5 (2.3)	4 (1.9)
How often have you engaged in soccer **(n=212)**	166 (78.3)	26 (12.3)	10 (4.7)	10 (4.7)
How often have you engage in swimming	191 (89.3)	14 (6.6)	7 (3.2)	2 (0.9)
How often have you engage in tennis	197 (92.1)	9 (4.2)	7 (3.2)	1 (0.5)
How often have you engaged in track and field athletics	164 (76.6)	30 (14.0)	19 (8.9.)	1 (0.5)
How often have you engage in volleyball	197 (92.1)	10 (4.7)	5 (2.3)	2 (0.9)
How often you engaged in weight training **(n=213)**	193 (90.6)	10 (4,7)	9 (4.2)	1 (0.5)
How often have you engaged in wheelchair tennis or basketball	209 (97.7)	3 (1.4)	2 (0.9)	0 (0.0)

[¥]n was not always summing to 214 due to missing responses;
*****Usual means to 3 to 7 times/week; [#]Often means 1 to 2 times/week; [€]Seldom mean less than 4 times/month.

4.5.3 Reasons for participating in physical activity

Table 4.6 shows reasons given by the participants why they engaged in physical activities. Fifty percent of the participants mentioned that they participated in physical activity because they regard it as part of their academic programme, followed by 32% who indicated weight management as a reason for their participation. While 1% indicated that it kept them busy.

Table 4.6 Reasons for participating in physical activity (n=214)

Variables	n = 214	(%)
To be physically and mentally fit	22	10.2
Academic module	107	50
Keeps me busy, away from drug abuse	2	1.0
For enjoyment	7	3.1
Weight management	7	3.1
To relieve stress	2	1.0
To boost energy	2	1.0
Boost stamina	2	1.0

4.5.4 Access of physical activity facilities

Table 4.7 indicates the access of the participants to physical activity facilities. The Majority of the participants (70%) indicated that they accessed physical activity facilities at the university stadium, followed by 23% who indicated use of the sports hall. Only 0.5% indicated that they accessed the facilities in their communities.

Table 4.7 Access to physical activity facilities (n=214)

Physical activity facility access	n = 214	(%)
Univen stadium	151	70.6
Univen sports hall	50	23.4
In the community	1	0.5
Participant's home	10	4.7
Participant's room	2	0.8

4.5.5 Rate of participating in physical activity

Participants were asked to rate their physical activity. Figure 4.1 shows that 64% of participants indicated having minimal participation while 27% stated average and 7% maximal participation.

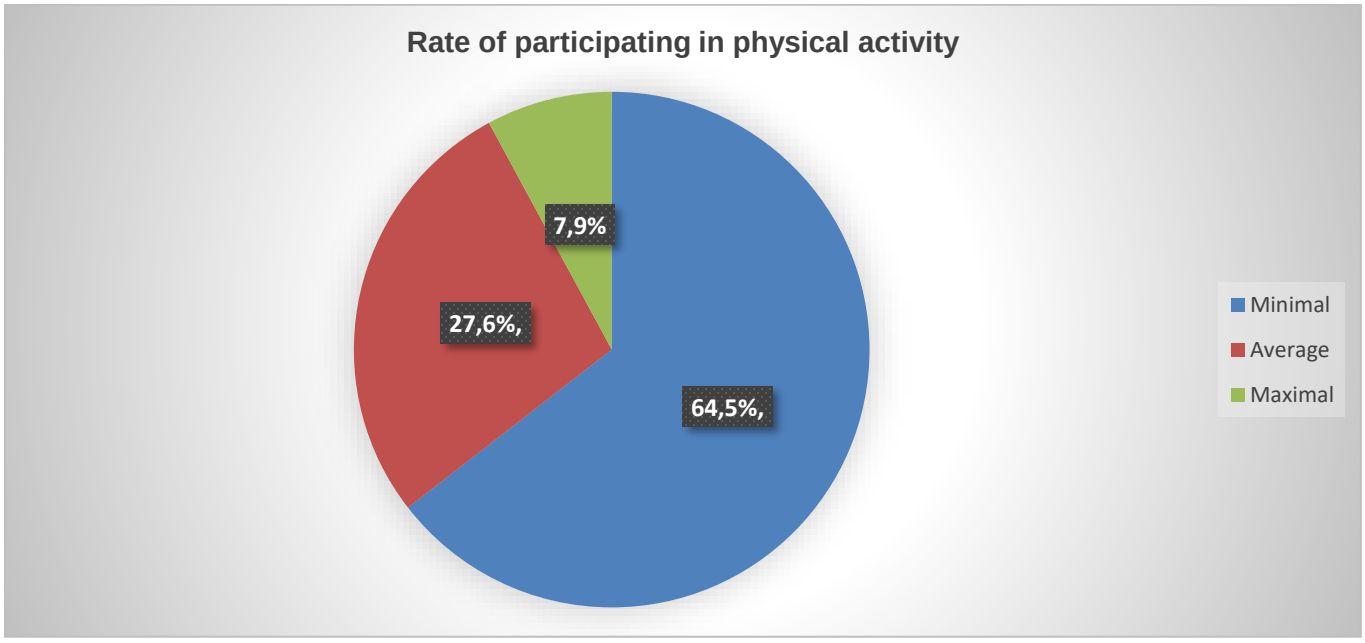

Figure 4.1 Rate of participating in physical activity (n=214)

Table 4.8 shows the frequency at which participants performed physical activities. Half of the participants (50%) engaged once a week in physical activities. The results revealed that 8% engaged in physical activity less than three times a day.

Table 4.8 Frequency of participating in physical activities per day (n=214)

Frequency of participating in physical activities per day	**n = 214**	**% (%)**
Once per day	109	50.9
Twice per day	62	29
Three times per day	26	12.1
>Three times per day	17	8

Table 4.9 shows the frequency at which participants performed physical activities. The majority of the participants (25%) engaged rarely in physical activities. The results also revealed that 17% engaged daily in physical activity while 1% engaged two times a week/month in physical activity.

Table 4.9 Frequency of participating in physical activities per week/month (n=204)

Frequency of participating in physical activities per week/month	***n = 204**	**(%)**
Irregular	51	25.0
Daily	35	17,2
Rarely	52	25.4
Once to two times a week	19	9.3
Three to four times a week	3	1.4
Five to six times a week	6	3.0
Weekly	17	8.3
Once a week/month	14	7.0
Three weeks/month	5	2.4
Two weeks/month	2	1.0

*n=204 due to missing responses.

4.5.9 Time spent per physical activity session

Figure 4.2 shows how much time on average that the participants spent in their physical session. The majority of the participants (54%) reported irregular time spent on physical activity, followed by (15%) who spent 60 to 120 minutes. Finally, the results show that 2% of the participants spent between 60 to120 minutes.

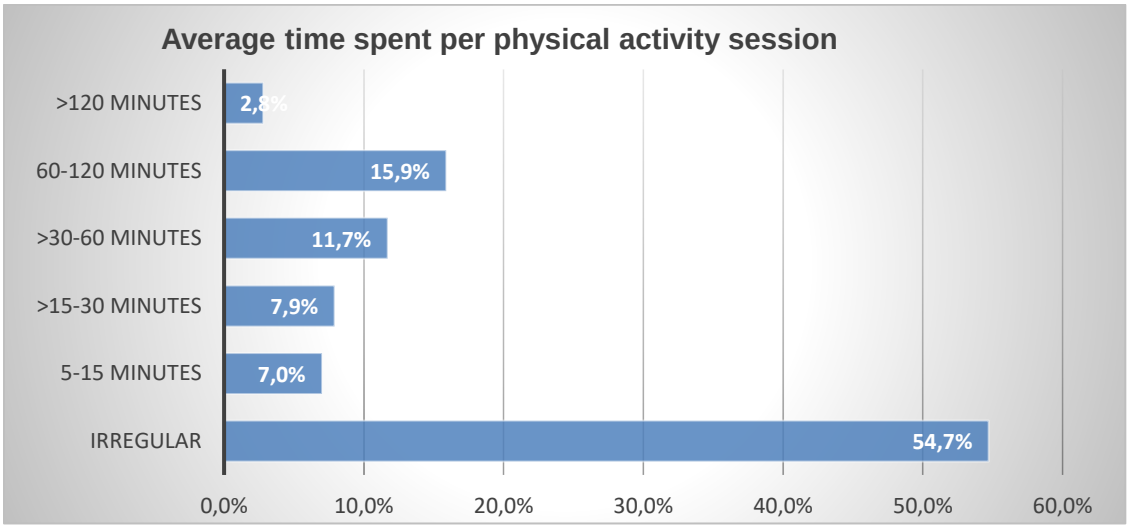

Figure 4.2 Average time spent per physical activity session (n=214)

4.5.10 Physical activity pattern

Figure 4.3 shows that the majority of the participants (64%) had no participation pattern, followed by 18% who indicated that they participate in physical activity after attending classes. Only 0.5% indicated that they usually engaged in physical activity during winter.

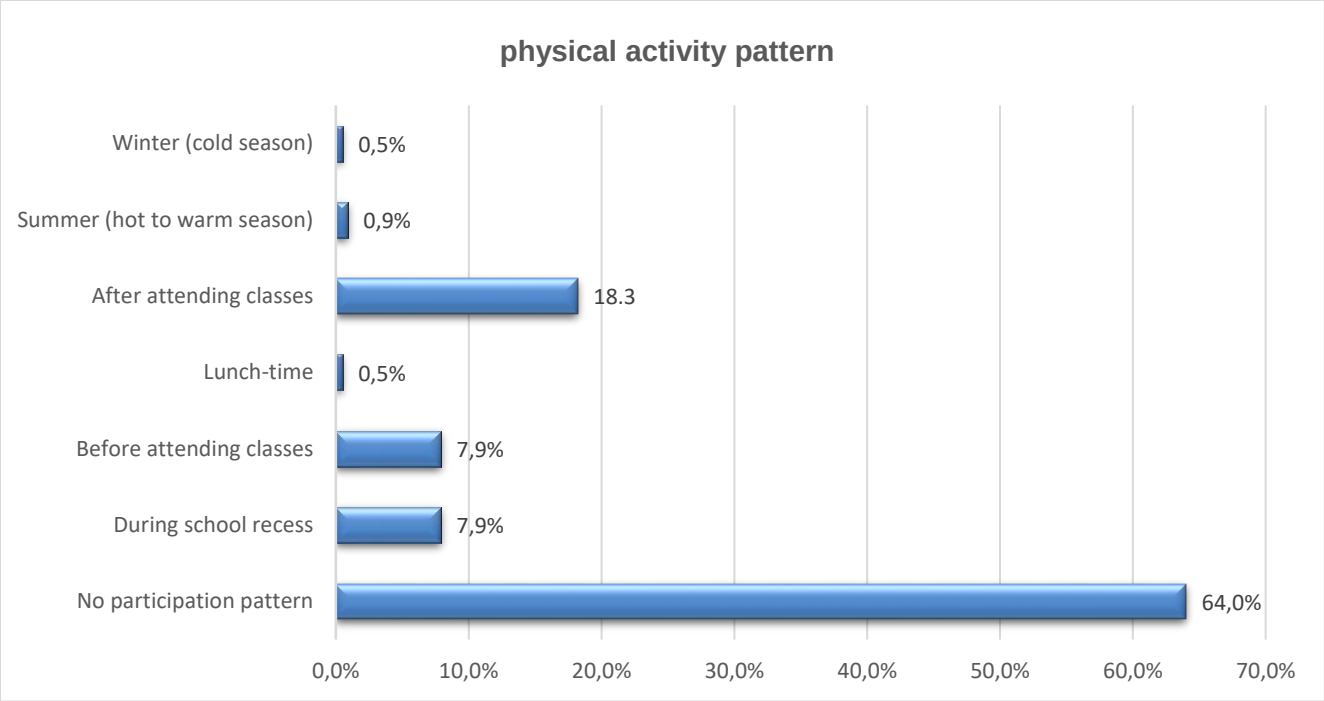

Figure 4.3 Physical activity pattern of the participants (n=214)

4.6 Physical activity health benefit knowledge

Table 4.10 shows that half of the participants (48%) believed that becoming physically fit is one of the benefits of engaging in physical activity, followed by 32% who indicated that physical activity helps in weight loss. The study also revealed that 0.5% knew that physical activity provides enjoyment and allow social interaction. Also, 0.5% knew that physical activity increased energy.

Table 4.10 Physical activity health benefit knowledge (n=214)

Variable	n=214	(%)
To become physically fit	104	48.6
To resist sickness	20	9.3
Enjoyment and social interaction	1	0.5
Weight management	70	32.7
Improve digestion system	3	1.4
Increased energy and mood	1	0.5
Psychological well-being	15	7.0

4.7 Factors contributing to physical activity participation

Table 4.11 reveals that 90% of the participants believed that engaging in physical activities makes one physically fit, while 51% of participants indicated that physical activities were part of their academic program. The study revealed that physical activities engagement is regarded as a skills development opportunity by 86% while 43% were influenced by either friends or their parents to engage in physical activities.

Table 4.11 Factors contributing to physical activity participation (n=214)

Variables	Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)
Part of academic programme	96(44.9%)	14(6.5%)	6 (2.8%)	8 (3.7%)	90 (42.1%)
Part of leisure time	42 (19.6%)	74 (34.6%)	27 (12.6%)	53 (24.8%)	18 (8.4%)
Enjoyment	73 (34.1%)	104 (48.6%)	12 (5.7%)	20 (9.3%)	5 (2.3%)
Become physical fit	107(50.0%)	86 (40.2%)	15 (7.0%)	4 (1.9%)	2 (0.9%)
Relieve stress	76 (35.6%)	101 (47.2%)	21 (9.8%)	11 (5.1%)	5 (2.3%)
Social interaction	70 (32.8%)	103 (48.1%)	25 (11.7%)	11(5.1%)	5 (2.3%)
Better self-image	107 (50.0%)	86 (40.2%)	15 (7.0%)	4 (1.9%)	2 (0.9%)
Skills development	63 (29.4%)	121 (56.6%)	20 (9.3%)	9 (4.2%)	1 (0.5%)
Parents or friends want me to play	19 (8.9%)	74 (34.6%)	24 (11.2%)	58 (27.1%)	39 (18.2%)
Like to use the equipment	55 (25.7%)	78 (36.4%)	22 (10.3%)	45 (21.0%)	14 (6.6%)

4.8 Barriers to physical activity participation

Table 4.12 shows that almost 77% of the participants found a limited variety of physical activities as a limiting factor to physical activity participation. With 59% of the participants, bad conditions of the facilities were the limiting factors. More than half of the participants (53%), reported laziness as a limiting factor for physical activity participation.

Table 4.12 Barriers to physical activity participation (n=214)

Variables	Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)
Social background	134 (62.7%)	34 (15.9%)	16 (7.4%)	19 (8.9%)	11 (5.1%)
Lack of interest	48 (22.4%)	64 (29.9%)	12 (5.6%)	68 (31.8%)	22 (10.3%)
Lack of time	65 (30.4%)	66 (30.8%)	16 (7.5%)	52 (24.3%)	15 (7.0%)
School work	76 (35.5%)	86 (40.2%)	16 (7.5%)	23 (10.7%)	13 (6.1%)
TV programmes	50 (23.4%)	64 (29.9%)	30 (14.0%)	45 (21.0%)	25 (11.7%)
Laziness	55 (25.7%)	60 (28.0%)	15 (7.0%)	50 (23.4%)	34 (15.9%)
I am not the sporty type	56 (26.1%)	65 (30.4%)	13 (6.1%)	39 (18.2%)	41 (19.2%)
Friends do not like to do physical activity	56 (26.2%)	40 (18.7%)	23 (10.7%)	56 (26.2%)	39 (18.2%)
Absence of facilities	66 (30.8%)	66 (30.8%)	12 (5.6%)	53 (24.8%)	17 (8.0%)
Limited variety of physical activity	85 (39.8%)	79 (36.9%)	12 (5.6%)	27 (12.6%)	11 (5.1%)
Facilities are not in good conditions	60 (28.0%)	68 (31.8%)	22 (10.3%)	51 (23.8%)	13 (6.1%)
Bad weather	122 (57.0%)	39 (18.2%)	17 (7.9%)	29 (13.6)	7 (3.3%)
Fear of getting injury	35 (16.4%)	56 (26.2) %	27 (12.6%)	72 (33.6%)	24 (11.2%)
Weight	18 (8.5%)	15 (7.0%)	20 (9.3%)	116 (54.2%)	45 (21.0%)

CHAPTER 5: DISCUSSION OF RESULTS

5.1 Introduction

This chapter presents a discussion of the findings of the study. It provides a discussion of participants' demographic information, physical activity participation and BMI results of participants. It also discusses health benefit knowledge of participating in physical activity, factors contributing to physical activity participation and barriers to physical activity participation.

5.2 Demographic information

The participants were black first-year students enrolled in the School of Health Sciences at the University of Venda. Most of them were pursuing sport-related Bachelor of Science degrees in Sport and Exercise Sciences, Biokinetics and Recreation and Leisure studies. Others were in Advanced Nursing, Nutrition and Psychology. Factors such as age and gender were reported by Amstrong et al. (2014) and Hussey in 2010 to be influencing physical activity. However, Taofeek et al. (2014) in their undergraduate university students study done in Nigeria found no association between age and physical activity participation (p=0.800). Nevertheless, WHO (2010) indicated many benefits for young people who engage in sport and organized physical activity. The participants in this study were young people (dominantly between 19 to 21 years), well at the age where they could develop their identity through sport and organized physical activity engagement. These young people could also benefit in terms of self-expression, relief of tension, achievement, social interaction and integration as well as encouraging the adoption of other healthy behaviours like avoidance of tobacco, alcohol and drugs (WHO 2010).

Physical activity also presents an opportunity for them to learn important social skills and values such as working in teams, learning to win and lose, fair play, leadership, decision-making, trust and honesty. The Department of Health, Education and Welfare (2012) asserted the association between physical activity and improved brain function as well as high energy. Therefore, physical activity participation for the participants in this study as first-year university students would ensure timely academic success. Most of the participants in this study were unmarried females. While Taofeek et al. (2014) in their study also found no association between gender and physical participation (p=0.808) but marital status showed an association (p=0.2). Peltzer et al. (2009), in the study they conducted amongst children aged 5 to 12 years, showed sport preference as to

gender differences where boys preferred certain types of sports different from those chosen by girls.

5.3 BMI results of participants

Body Mass Index measurements were taken to determine if the participants were underweight, normal weight, overweight or obese. Although the study findings show low physical activity participation, it is found that almost all participants in this study had normal weight. The reason for having low physical activity participation and a high percentage of normal weight could be explained by their diet, genetics and other forms of physical activities such as walking that were not tested in this study. The findings show however that most students reside off-campus meaning they could have been walking sufficiently.

It is critically important that healthy body weight be maintained to avoid risks for heart disease, type 2 diabetes, hypertension and several types of cancer. Different from what this study found, a study conducted by Goon, Libalela and Amusa (2013) found a concerning prevalence of overweight (21.4%) and obesity (11.1%) amongst University of Venda students. Overweight results were comparable to those of the University of Limpopo students at 24% (Bodiba et al., 1999). Similarly, Van den Berg (2002) studied Fort Hare Nursing students and found an even higher prevalence of overweight and obesity. Steyn et al. as early as 2002 reported the concern of overweight and obesity among black students while Clliers et al. (2005) reported quite a relatively lower prevalence of 10% and 0,8% respectively amongst white students. Additionally, an investigation conducted among 154 South African medical students estimated the rates of 8.9% overweight and 2,5% obesity for Indians and 19,7% and 4,6% for black students (Morar et al., 1998) meaning the black students have always maintained this risk of having non-communicable diseases.

5.4 Health benefit knowledge of participating in physical activity

Students who participated in this study seemed to be knowledgeable about the health benefits of participation in physical activity. Therefore, it would be expected that they would make good decisions when it comes to physical activity participation, but the findings of this study showed the opposite. The reason for not participating could be the lack of knowledge about the availability

of physical activity services on campus but most of the students were from sport-related disciplines. Peters et al. (2014) reported that students do not participate in physical activities at the North-West University because they lacked knowledge about activities available on their campus. In their investigation, Hashim et al. (2012) ranked information (lack of knowledge) about available activities as one of the key factors likely to influence one's decision about participating in physical activities on campus. In Yetgin et al. (2014) study, students pursuing physical education studies reported a lack of knowledge of available physical activities as one of the constraints besides fatigue, fear of getting injured.

The comparison showed that there were highly significant differences in the knowledge results, actual participation and arthrometric results. The reason for these differences could be that first-year students in the School of Health Sciences were knowledgeable about the health benefits of participation in physical activity, however, it appears that they were not applying this knowledge in their day-to-day activities. Another reason for the differences could be that students were ignorant and lacked interest in physical activity participation. The results from this study showed that knowledge of exercise benefits did have a significant effect on physical activity participation among the sample population used in this study. This finding was consistent with the studies of (Dishman, Sallis and Orestein, 2002; Trost, Owen, and Bauman, 2006). Most of these studies showed that ignorance and lack of interest were strong motives for continued nonparticipation in physical activity.

5.5 Physical activity participation

Although there is much evidence that physical activity can make a significant contribution to the prevention of depression, reducing stress and anxiety and improving moods (Bull et al. 2004, Sustrans 2010), these students still do not participate even in moderate activities. Very few students from various disciplines participated in sporting codes including baseball, basketball, boxing, cycling, cricket, handball, netball, rugby, soccer, swimming, tennis, volleyball, wheelchair tennis or wheelchair basketball. These results are surprising because half of the participants were enrolled in sport-related programmes (Biokinetics, Recreation and Leisure and Sport Sciences). In Taofeek et al. (2014) study, students enrolled on Biokinetics, Sport Science and Recreation had more physical activity participation compared to students in other disciplines (p=0.003). Furthermore, a better response to physical activity participation was expected in this

study as in rural communities, sport and physical activity participation are the primary sources of social interaction and support (Townsend, Moore and Mahoney 2002).

A similar study to this one done in New Zealand by Deliens that looked at first-year university students, aged 18 years and above showed a significant decline in weekly reported minutes of physical activity for time spent doing vigorous physical activity. The reviewed literature suggests that participation in physical activity by university students is generally low. LaCaille et al. (2011) further revealed that a third of previously active students become inactive during the school transition from basic to higher education. The CMY study (2007) done in twenty low and middle-income countries also presented the same picture of low physical activity prevalence but the study was not done with students particularly but amongst men and women in general. Sigmundova et al (2013) also showed low physical inactivity amongst students of Czech University with only 9% of students who met the criterion of 10,000 steps every day. Keating et al. (2005) further indicated that university students spent eight hours per day on sedentary activities such as studying, watching television, gaming, computer activities, sitting and talking, shopping and hanging out.

WHO (2010) had warned that physical inactivity levels were rising in many countries. The major implication of such a rise is the increasing prevalence of non-communicable diseases and consequently the general health of the population worldwide. It is reported that Physical inactivity is now identified as the fourth leading risk factor for global mortality. The resultant lack of sport participation, usually known to benefit an individual's health, has inadvertently increased obesity (Foster and Hillsdon, 2004). Mohlala and Ramalivhana, (2014) revealed that male students were overweight 23,30% as compared to their female counterparts 21,70% at the University of Venda. However, the study also found that females were more obese 23,30% compared to the males 6,70%. In contrast, Goon et al. (2013) found a high prevalence of overweight 21,4% and obesity 11,1% of students at the University of Venda. Obesity can profoundly affect student's physical health, social and emotional well-being as well as self-esteem. Obesity is also associated with poor academic performance and a lower quality of life experienced by the students. The impact of obesity on student's emotional states creates feelings of sadness, loneliness and anxiety.

5.6 Factors contributing to physical activity participation

Physical fitness and improved self-image were the most indicated factors that contribute to physical activity participation in this study. Physical fitness as a contributing factor to participating in physical activities was also reported with greater emphasis by Lovell et al (2010) in the United Kingdom and by Ebben and Brudzynski (2008) in the American student community. Being physically fit makes students active, spirited and energetic all the time thus, making them more competent and prompt in their academic work and results. Physical fitness also makes students physically smart and helps them better their interpersonal relationships making them stress-free. Energy/stress relief and social interaction together with recognition/achievement, challenge/enjoyment as well as health and physical wellness were also mentioned by Peters et al. (2014) as motives for participation in physical activities among university students. Although other students in this study were mandated by the modules they had to participate in physical activities, around a three-quarter of the students indicated stress relief, enjoyment and social interaction as the motivators to engage in physical activities. Furthermore, the work of Peters et al. (2014) which was further supported by Kubayi and Surujal (2014) reports that South African students experienced lower levels of anxiety, depression and stress following engagement in physical activities.

Few students regarded skills development as an opportunity provided by physical activity engagement. These findings are contrary to the findings of a study conducted by Hoe et al. (2007) that skills development and friendship were the main reasons for engaging in physical activities amongst students. Hoe et al. (2007) reported that students who play in groups develop their team-building skills. Allowing students to be physically active gives them a chance to develop the social skills they will need as adults. Team building is one of the best ways to facilitate the skills needed to achieve goals. As a team, students master challenges successfully and their self-confidence grows. Other advantages for students from team sports are problem-solving skills, leadership skills and self-esteem.

In terms of influence for physical activity engagement, there was an indication in this study that friends and parents play a role. These findings concur with the study conducted by Bailey et al. (2010). Bailey et al. (2010) explain that parental encouragement on its own makes a difference in the amount of a child's physical activity. If parents encourage their children to take part in regular

physical activity earlier in life when in tertiary they would be expected to make good decisions when it comes to physical activity participation to improve their general well-being.

5.7 Barriers to physical activity participation

School workload and deteriorated facilities were reported as major barriers to physical participation in this study. School workload as a barrier to physical activity was also reported by Amusa et al. (2008) in a study that was conducted in a Botswana university. Limited programmes for physical activities, an inadequate number of facilities, equipment being too old, lack of finances and lack of financial support from parents were also reported by most participants as obstacles to participation in physical activities. A study conducted In Gauteng by Pule et al. (2014) also mentioned the lack of variety of programmes being offered as a challenge, including a limited number of coaches and qualified managers. It seems the Gauteng government is failing to employ skilled personnel to facilitate sport and recreation programmes in the province. Therefore, it is also recommended that well-structured programmes in physical activity be implemented by those qualified to do so.

In another focus group study done in the US, students reported that they felt like they lacked time to participate in physical activities. Students tend to spend a lot of time on study-related sedentary activities, such as sitting in class, studying, or sitting in front of their computer for academic purposes, which makes it difficult for them to be physically active. The implication, therefore, is that university students rather choose to focus more on academic work than on physical activities. It is not only academic-related activities that keep students away from physical activity participation. Spending much time watching TV programmes steals time from physical activity participation, this study revealed. Different personal habits can keep youth especially away from physical activity participation. The habits that make up a sedentary lifestyle can be hard to break. A study conducted by Anderson (2013) found that past habits can also be a barrier to adopting a new physical activity program. People develop inactive inertia when they spend too much of their leisure time engaged in sedentary activities. Too much time spent looking at the television, surfing the Internet, watching movies, or reading (perhaps while eating extra calories) creates huge barriers to starting an exercise program that takes time and effort and may not initially feel as good as your sedentary options.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The purpose of the study was to determine factors that contribute to physical activity participation amongst students at the University of Venda. The study found the prevalence of physical activity participation low amongst the first-year student in the School of Health Sciences in both moderate and vigorous activities. Participation in physical activities was found to be high on students enrolling for Sport Science, Biokinetics and Recreation degrees possibly because they had modules that forced them to engage in physical activity. Most of the students in the study had normal body weight which is good for general health and well-being. First-year students in the School of Health Sciences were found to be knowledgeable about the benefits of participating in physical activity. The study also found a range of factors that influence either participation or non-participation in physical activity. lack of equipment and academic workload. These results suggest the need to emphasize work-life balance to promote both greater opportunities for physical activity participation and potential academic benefits. To ensure that the value of sport, physical activity and recreation participation is appreciated by students, health promoters and sports staff will need to annually deliver unique programmes which are centred on time management, stress management and social cohesion in accessible facilities.

6.2 Recommendations

Below is the presentation of the recommendations for the university managers responsible for sport and recreation and future research.

6.2.1 Recommendations for university managers responsible for sport and recreation

Based on the findings of the study, the following recommendations were made to increase students' participation in physical activity for general well-being.

- According to the researcher, first-year university students could be informed during the university's open house days, or guided campus tours during the first week of the university about recreational and sports activities offered by the university. The researcher also suggests promoting all activities using media tools students are familiar with, such as Facebook.

- The results of this study revealed that first-year students under the School of Health Sciences are knowledgeable about the benefit of participating in physical activity. It is therefore recommended that programs aimed at educating students about the health benefits of participating in physical activity be made available all the time.
- The results of this study show that students participate less in moderate and vigorous physical activities. To increase the participation frequencies of students, marketing and communication of the University Sports Unit need to be done for all codes with equal effort. In terms of equal effort, the researcher means that human capital and physical resources need to be in place to ensure that there are no challenges for students to perform at their best or enjoy a meaningful activity during their leisure time.
- From the results of this study, facilities were reported as not in good conditions such a limitation of facilities together with a limited variety of physical activities were seen as barriers to physical activity participation. It is therefore recommended that facilities that will cater for physical activity participation be made available in the University so that students could participate fully in physical activity to improve their general well-being. It is also recommended that well-structured programmes in physical activity be implemented by those qualified to do so.

6.2.2 Recommendations for future research

- Studies on sport and recreation facilities must be conducted in universities to establish the accessibility and the quality of these environments. The studies should focus on accessibility to campus sports facilities based on the collective views of able-bodied and differently able-bodied students**.** The state and maintenance of such facilities should be considered as well.
- To create greater understanding and advance the current knowledge of physical activity participation in higher education institutions, a comparative study on the factors contributing to student participation in physical activity in South Africa's Technical Vocational Education and Training colleges needs to be undertaken. Such studies would enable policymakers to understand the trends and constraints of participation at a national level when designing student development programmes in public institutions of higher learning.

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APPENDIX 1: Questionnaire

University of Venda

Factors contributing to physical activity participation amongst health sciences students at the University of Venda

Instructions:

- There are five sections. Please consider each question carefully before answering. **Note that there is no right or wrong answer.**
- Please fill in or tick (√) in the provided space where requested to indicate your answer.
- Make sure that you do not omit a question unless it is not applicable to you.
- Return the questionnaire to the researcher after completion.

CODE: ☐☐☐☐

SECTION A: DEMOGRAPHIC INFORMATION

1. Age (years) ……
2. Gender

Female	1
Male	2

3. Marital status

Single	1
Married	2
Separated	3
Widowed	4
Other Please specify……....	5

4. Degree enrolled for

Advanced Nursing	1
Biokinetics	2
Nutrition	3
Psychology	4
Recreation and Leisure Studies	5
Sport Science	6

5. Do you stay at the University of Venda campus?

Yes	1
No	2

If your answer is yes in question 5 above skip to question 7.

6. Do you consider yourself staying close or far from the university campus?

Close	1
Far	2

7. Do you have any physical challenges (disability)?

Yes	1
No	2

If your answer is no in question 5 above skip to question 9.

8. Please specify the physical challenge (disability) you live with……

SECTION B: PHYSICAL ACTIVITY PARTICIPATION

9. How often have you engaged in the following moderate physical activities this year (2018)?

Activity	**Not at all** (1)	**Usual** **3-7x/week** (2)	**Often** **1-2x/week** (3)	**Seldom** **<4x/month** (4)
a. Dance				
b. Indigenous games				
c. Martial arts				
d. Residential tasks				
e. Stair climbing				

10. How often have you engaged in the following vigorous physical activities this year (2018)?

Activity	**Not at all** (1)	**Usual** **3-7x/week** (2)	**Often** **1-2x/week** (3)	**Seldom** **<4x/month** (4)
a. Aerobics				
b. Badminton				
c. Baseball				
d. Basketball				
e. Boxing				
f. Cycling				
g. Cricket				
h. Handball				
i. Jogging/running				
j. Netball				
k. Rugby				
l. Soccer				
m. Swimming				
n. Tennis				
o. Track and field athletics				
p. Volleyball				
q. Weight training				
r. Wheelchair tennis/basketball				

11. Do you engage in any physical activity provided by the University or elsewhere?

Yes	1
No	2

If your answer is no in question 11 above, skip to section C.

12. Is the physical activity you engage in voluntary (your choice)?

Yes	1
No	2

If your answer is no in question 12 above skip to question 14.

13. Indicate what makes you engage in physical activity provided by the University or elsewhere.

……

……

14. Where do you access physical activity facilities?

……

15. How do you rate your physical activity?

Minimal	1
Average	2
Maximal	3
Other Please specify……	4

16. How often do you engage in physical activities per day?

Number of times/day	
Irregular	1
Once	2
Twice	3
Three times	4
>Three times	5

17. How often do you engage in physical activities per week?

Number of days/weeks	
Irregular	1
Daily	2
Five to six times a week	3
Three to four times a week	4
Once to two times a week	5

18. How often do you engage in physical activities per month?

Number of weeks/month	
Irregular	1
Weekly	2
Three weeks/month	3
Two weeks/month	4
One week/month	5

19. How much time do you usually spend per physical activity session?

Irregular	1
5-15 minutes	2
>15-30 minutes	3
>30-60 minutes	4
60-120 minutes	5
>120minutes	6

20. When do you usually engage in physical activity? You can tick more than one answer.

No particular pattern	1
During school recess	2
Before attending classes	3
Lunch-time	4
After attending classes	5
Summer (hot to warm season)	6
Winter (cold season)	7

SECTION C: PHYSICAL ACTIVITY HEALTH BENEFIT KNOWLEDGE

21. Mention five health benefits of participating in physical activity.

a. ……..
b. ……...
c. ……..
d. ……..
e. ……..

SECTION D: FACTORS CONTRIBUTING TO PHYSICAL ACTIVITY PARTICIPATION

22. Indicate the reason you participate in physical activity by ticking the most relevant answers below.

Motive	**strongly agree (1)**	**Agree (2)**	**Neutral (3)**	**Disagree (4)**	**strongly disagree (5)**
a. Is part of my academic programme					
b. Is part of leisure-time					
c. Enjoyment					
d. To become physically fit					
e. To relieve stress					
f. To have social interaction					
g. To have a better self-image					
h. Skills development					
i. My parents or close friends want me to play					
j. I like to use the equipment or facilities					
k. I like to get exercise					
l. I want to be with my friends					
m. I like to have fun					

SECTION E: BARRIERS TO PHYSICAL ACTIVITY PARTICIPATION

23 Indicate whether you have limited participation in physical activity by ticking the most relevant answers below.

Barrier	strongly agree (1)	Agree (2)	Neutral (3)	Disagree (4)	strongly disagree (5)
a. Societal background (not used to physical activity)					
b. Lack of affordability					
c. Lack of interest					
d. Lack of time					
e. Schoolwork					
f. TV programmes					
g. Laziness					
h. I'm not the sporty type					
i. Friends do not like to do physical activity					
j. Absence of facilities for physical activities					
k. Limited variety of physical activities					
l. Facilities are not in good conditions					
m. Bad weather (too hot or cold)					
n. Fear of getting injured					
o. Weight (e.g. obesity)					
p. Other Please specify…….					

SECTION E: ANTHROPOMETRIC MEASUREMENTSRECORD SHEET

24 Weight (Kg): 1st reading …… 2nd reading…….. Average ……

25 Height (cm): 1st reading …… 2nd reading …….. Average ……

APPENDIX 2: Permission request letter to the Dean School of Health Sciences and the HODs of relevant Departments from the school

P.O. BOX 680

Vuwani

0952

The applicable office of authority

University of Venda

Private Bag X5050

Thohoyandou

0950

Date

Dear Sir/ Madam

RE: Request for permission to conduct a research study

I am Mathebula MO, a registered Master of Public Health student (11610637) at the University of Venda. For the fulfilment of the requirements for this degree, I am expected to conduct a research study. My research topic is entitled “Factors contributing to physical activity participation amongst health sciences students at the University of Venda”. The primary purpose is to determine factors contributing to physical activity participation amongst health sciences students at the University of Venda.

A self-administered questionnaire will be used to collect information from the students in the study. Research ethics applied when dealing with human subjects will be fully considered. Ethical clearance will be obtained from the University of Venda Research Ethics Committee.

Your favourable response will be highly appreciated.

If you need more information or you have any questions regarding this research, please feel free to contact the research supervisors as follows:

Dr. CN Nesamvuni at 015 962 8653 and/or Mr. BS Manganye at 015 962 8424

Yours sincerely,

……

Mathebula MO (Student Researcher)

APPENDIX 3: Ethical issues

Appendix 3a: Participant information letter

Greetings: Hello! My name is Mathebula Muxe Owen (BSc. in Recreation and Leisure Studies and Postgraduate Diploma in Primary Health Care and District Health Management). I am a master's student from the Department of Public Health at the University of Venda. I am doing are research study entitled **"Factors contributing to physical activity participation amongst health sciences students at the University of Venda"**. Thank you for taking the time to come and listen to my presentation.

Research Supervisors: Dr. C.N Nesamvuni (PhD in Nutrition) and Mr. B.S Manganye (MPH)

The outline of the study: The study seeks to determine the prevalence of first-year student participation in physical activity, assessed the body mass index (BMI) of first-year students, assessed the knowledge possessed by the first-year student on the benefit of physical activity on health and explore contributory factors and barriers that hinder student's participation in physical activity.

What will the participants be required to do in the study: The participants were required to answer a questionnaire which has five sections namely, demographic information, physical activity participation, health benefits knowledge on physical activity, factors and barriers for physical activity participation. Completion of the questionnaire lasted for approximately 40 minutes. The researcher and Biokinetics interns also taken weight and height measurements.

Risks or Discomforts to the Participant: There were no foreseen risks and discomforts in this study.

Benefits: There were no direct benefits to individual participants of this study. However, results may assist in improving the rate of physical activity amongst University of Venda students which will have health benefits. The researchers will be able to publish the results.

Rights as a participant in the study: Student participation in this study was entirely voluntary. The student had the right to withdraw at any stage without any penalty or future disadvantage whatsoever. They did not even have to provide the reason/s for their decision. Note that you are not waiving any legal claims, rights or remedies because you are participating in this research study.

Remuneration: There was no remuneration for participating in this study. Participation was voluntary. There were no expected payments from the participants either.

The extent of confidentiality and anonymity in this study: All information obtained during this study was treated as strictly confidential. The study data was coded and not linked to the name of the student. Student identity was not revealed in any stage of the research process.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher (072 165 9755), my supervisor, Dr Nesamvuni (015 962 8653), Mr Manganye (015 962 8424) or the

University Research Ethics Committee Secretary at on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof GE Ekosse on 015 962 8504 or GeorgesIvo.Ekosse©univen.ac.za

General: Participation was voluntary, and the study got 249 participants.

Appendix 3b: Consent form

I hereby confirm that I have been given detailed information by the researcher about the nature, conduct, benefits and risks of this study (Research ethics clearance number will be added upon receipt). I have also received, read and understood the participant information letter regarding the study. I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report. In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher. I may, at any stage, without prejudice, withdraw my consent and participation in the study. I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study. I understand that significant new findings developed during the course of this research that may relate to my participation will be made available to me.

Full Name of Participant……..…Date……Time:……..Signature:…….....

Mathebula Muxe Owen, herewith, confirms that the above participant has been fully Informed about the nature, conduct and risks of the above study.

Full Name of Researcher…….Date…… Signature:…….....