

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND
TECHNOLOGY, KUMASI GHANA**

**THE IMPACT OF REGULAR PHYSICAL ACTIVITY ON THE GENERAL
WELL-BEING OF PHYSICALLY DISABLED ADULTS IN THE
KUMASI METROPOLIS**

BY

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STUDENT**

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DECLARATION

I declare that this thesis with the exception of quotations and references contained in published works which have been identified and acknowledged, is entirely my own original work and it has not been submitted, either in part or whole, for another degree else-where.

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DEDICATION

“This Thesis is dedicated to my Dad, the Late Joseph Cudjoe for his unconditional love, support, and guidance throughout my life.

You have always been and will be my hero

. Thank you for the family that means more to me than anything in this world.”

ABSTRACT

This study was to investigate the impact of regular physical activity on the general life of persons with physical disability in the Kumasi Metropolis. It was a descriptive survey using both qualitative and quantitative research approaches in analyzing data. The main problem of the study was that persons with disabilities, especially those who are physically disabled appear to face numerous barriers to becoming physically active. Five research questions and two hypotheses were raised to guide the study. The significance of the study was that the results of the study will expose the vulnerability of persons with physical disability to physical inactivity and the consequences to their health. The population of the study was 520 registered members of the Association of Physically Challenged Persons in the Kumasi Metropolis of Ghana. The purposive sampling technique was used in selecting 50 physically disabled individuals to participate in the study.

A close-ended questionnaire in the form of Likert scale was used to collect data. The statistical techniques used to analyze data collected were frequencies and percentages. An independent sample t-test was also used to test the hypotheses. The results showed among others that, lack of fitness centres and training equipments contributed to physical inactivity. The results also revealed that, lack of regular physical exercise caused stress and unhealthy conditions among persons with physical disability. It was concluded that, lack of facilities for training influenced the sedentary lifestyle of persons with physical disability. Also, lack of regular physical activity caused stress and unhealthy conditions for the physically disabled. The recommendation therefore was that, sports and fitness clubs are to be provided to make persons with physical disability have easy access to facilities that would augment regular physical activity.

ACKNOWLEDGEMENT

When we set goals for ourselves, there are always obstacles in the way that may deter us from accomplishing those goals. There are also people in our lives that are aware of those goals, and encourage us and support us to continue regardless of the obstacles. It is now that I can formally thank those people for doing just that for me. Before thanking anyone on this earth, I must first thank Jehovah God for being at my side during this challenging time of my life. I needed God to continue, as often, the desire was sometimes there to quit. The spiritual support has helped to keep me focused.

I would like to express my deep and sincere gratitude to my supervisor Professor Tsiri Agbenyaga for his inspiring guidance, constant encouragement and constructive criticism. His guidance at different stages of the research enabled me to complete this study. To all my lecturers of University of Education, Winneba especially Professor Armmah and Dr. Mrs. Amui. Of Health Physical Education Recreation and Sports Department (HPERS) for believing in me, providing all the necessary support and suggestions. I owe this work to you. Mr. Joseph Cudjoe Junior who, I know, had more faith in me than I had in myself. You were always ready for questions and, of course, always had the answers. Your demeanor always had a calming effect on me and helped me to be realistic in setting my own goals and expectations. Your high level of expectations made me work harder than I have ever worked in my life ---thanks for your knowledge, expertise, and encouragement during this process.

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study, willingly responded to the questions and generously provided useful information.

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It is those persons that I want to be a role model for, and to tell them that you “can do” if you really want “to do.

Thanks again to everyone in my life!

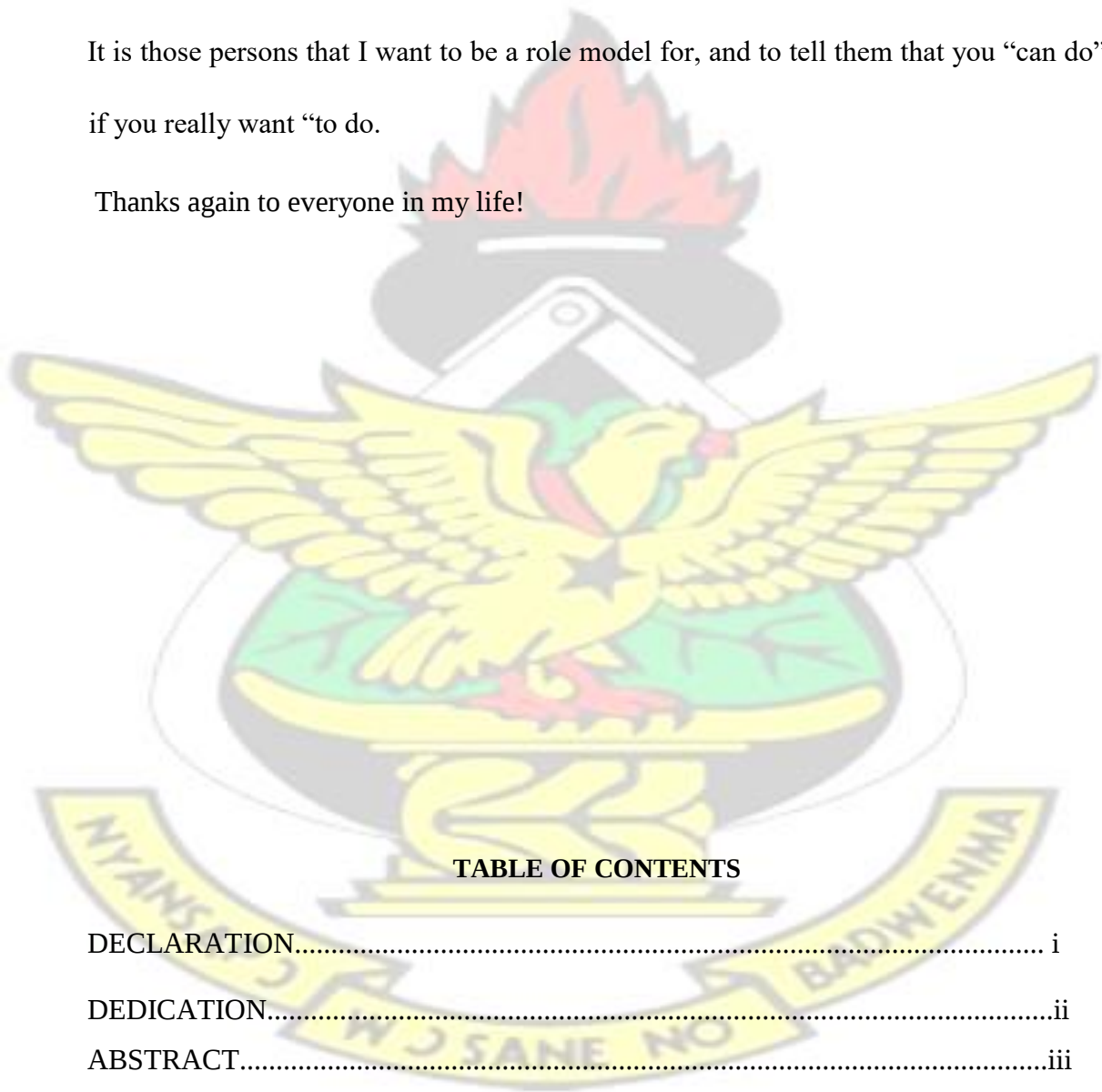


TABLE OF CONTENTS

DECLARATION.....	i
DEDICATION.....	ii
ABSTRACT.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENT.....	vi
LIST OF TABLES	ix
LIST OF FIGURES	x

DEFINITION OF TERMS.....	xi
--------------------------	----

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study.....	1
1.2 Statement of the Problem	4
1.3 Aim of the Study.....	5
1.4 Objectives of the Study.....	5
1.5 Research Questions and Hypotheses.....	5
1.6 Significance of the Study.....	6
1.7 Delimitation	7
1.8 Description of the Study Area	7
1.9 Organisation of study.....	8

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction.....	9
2.2 Theoretical framework.....	9
2.3 Forms of physical activity.....	17
2.4 Factors contributing to physical inactivity.....	18
2.5 Health implications of physical inactivity.....	29
2.6 Benefits of physical activity.....	23
2.7 Barriers that hinder the performance of physical activity.....	24
2.8 Related empirical studies.....	26

CHAPTER THREE: METHODOLOGY

3.1 Introduction.....	30
3.2 Research design.....	30
3.3 Population.....	30
3.4 Sample	30
3.5 Sampling technique.....	32
3.6 Instrumentation.....	32

3.7	Validity and reliability considerations.....	33
3.8	Ethical consideration.....	34
3.9	Procedures for data collection	34
3.10	Data analysis.....	35

CHAPTER FOUR: RESULTS AND DISCUSSION OF FINDINGS

4.1	Introduction.....	37
4.2	Analysis of Data.....	37
4.2.1	Research question 1.....	37
4.2.2	Research question 2.....	38
4.2.3	Research question 3.....	40
4.2.4	Research question 4.....	43
4.2.5	Research question 5.....	44
4.2.6	Summary of discussed items.....	46
4.2.7	Hypotheses testing.....	47

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1	Introduction.....	50
5.2	Forms of physical activity.....	50
5.3	Benefits of regular physical activity.....	51
5.4	Factors contributing to physical inactivity.....	53
5.5	Health implications of physical inactivity.....	54
5.6	The extent of physical activity among male and female persons with	

Physical disability.....	55
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CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction.....	57
6.2 Summary of findings.....	57
6.3 Conclusion.....	59
6.4 Recommendations.....	60
6.5 Suggestions for further research	60

REFERENCES.....	62
-----------------	----

APPENDICES

A. Survey Question.....	77
B. Letter of Introduction	82
C. Letter Ethical Clearance.....	83

LIST OF TABLES

Table	Page
1. Sample distribution.....	31
2. Forms of physical activity.....	37
3. Benefits of regular physical activity.....	39
4. Factors contributing to physical inactivity.....	41

5.	Health	implications	of	physical	
	inactivity.....				43
6.	Extent	of	regular	physical	
	activity.....				44
7.	Total			observed	
					46
8.	Mean				
	values.....				47
9.	Independent	sample	t-test	for	equality
	mean.....				of
					48
10.	Significant		value		of
	variance.....				49

LIST OF FIGURES

Figure 1: Theory of Reasoned Action	10
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Figure 2: Theory of Planned Behaviour.....	10
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DEFINITION OF TERMS

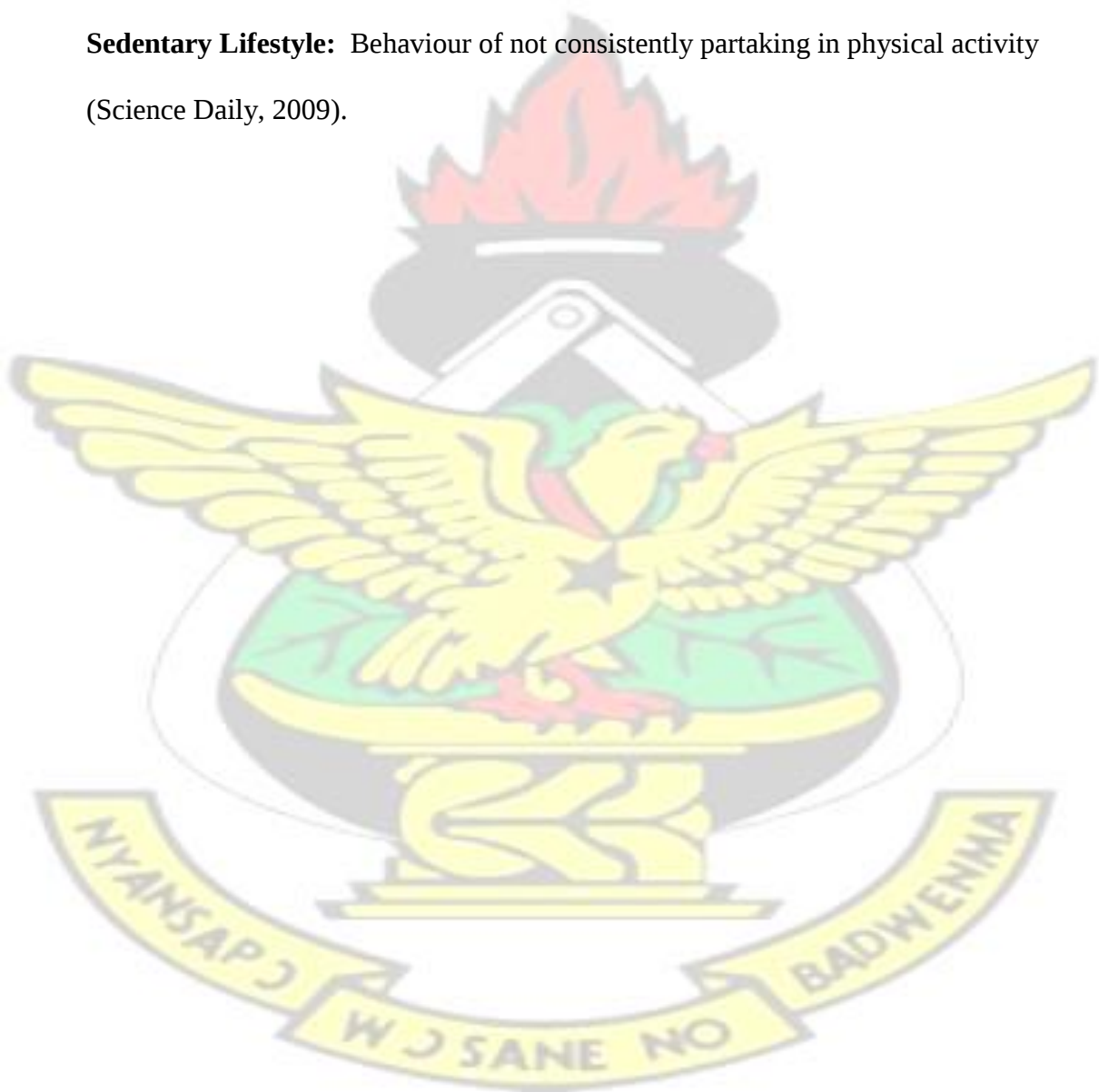
Physical activity: It is generally defined as any bodily movement produced by skeletal muscles that result in energy expenditure above resting level (Hill & Wyatt, 2005). The terms exercise and physical fitness are closely related to, but distinct from, physical activity.

Exercise: It is a subset of physical activity, defined as planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness (Hill & Wyatt, 2005).

Physical fitness: It is a set of attributes that people have or achieve that relates to the ability to perform physical activity (Hill & Wyatt, 2005).

Health-enhancing physical activity (HEPA): It is frequently used in relation to the health benefits gained from physical activity. It should be understood as any form of physical activity that benefits health and functional capacity without undue harm or risk (WHO, 2005). When the concept of physical activity is used in this document, it is synonymous with health-enhancing physical activity.

Sedentary Lifestyle: Behaviour of not consistently partaking in physical activity (Science Daily, 2009).



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In recent years, physical activity has become a primary focus of public health worldwide. Physical activity or regular exercise has also been commended and recognized as one of the effective tools in maintaining a healthy body globally (Jewson, Spittle & Casey, 2008). With this realisation, considerable knowledge has accumulated concerning the significance of regular physical activity or exercise. Engagement in regular physical activity therefore is seen as an important part of a healthy lifestyle.

Regular physical activity, fitness and exercise are critically important for the health and well being of people of all ages, gender, and more importantly persons with disabilities. Research has demonstrated that virtually all individuals can benefit from regular physical activity, whether by participating in vigorous exercises or some type of moderate health-enhancing physical activities (Bauman, 2004). Physical inactivity therefore is highly expensive in both human and economic terms, and has been cited among the most important and contributory factors for many chronic diseases (Buckworth & Dishman, 2002). When the ability to be physically active and mobile is compromised, independence is lost and emotional well-being is reduced. Improvement in physical fitness through increased physical activity has therefore been shown to be important.

For economic reasons, it is important that there is some level of physical fitness of the working population of both developed and developing nations in order to increase productivity. It is general knowledge that the prevalence of inactivity and its negative health consequences are rapidly increasing globally (World Health Organization, 2009).

As shown in various researches (Warburton, Nicol & Bredin, 2006; Welch, Hulley, Ferguson & Beauchamp, 2007; Wilson, Rogers, Loitz & Scime, 2006), regular exercise is linked to the prevention and treatment of diseases such as metabolic syndrome related disorders (insulin resistance, type 2 diabetes, dyslipidemia, hypertension, obesity), heart and pulmonary diseases (chronic obstructive pulmonary disease, coronary heart disease, chronic heart failure, intermittent claudication), muscle, bone and joint diseases (osteoarthritis, rheumatoid arthritis, osteoporosis, fibromyalgia, chronic fatigue syndrome) and cancer, depression, asthma, and type 1 diabetes, all of which negatively affect productivity.

The benefits of regular exercise include lower blood pressure and cholesterol and maintenance of a healthy weight, improved mental health and wellbeing, social engagement, enhanced sleep and reduced risk of fractures (Jewson, Spittle & Casey, 2008). Further, improved physical activity is likely to contribute directly to improved community locomotion and community integration and to improved ability to participate in a variety of recreational activities. Perhaps more relevant to health, is the fact that physical inactivity is an independent risk factor for chronic diseases, and overall is estimated to cause 1.9 million deaths globally each year (WHO, 2009).

Despite the accumulating evidence about the benefits of physical activity, the past two decades' rates of inactivity and sedentary behaviour have remained high with the World Health Organization stating that up to 60% of the world's population do not meet minimum guidelines for regular physical activity (WHO, 2009).

In the United States for instance, lack of physical activity is a health issue in all segments of the population (Lampinen, Heikkinen & Ruoppila, 2000). In the year 2000 alone, Blair, Haskell, Ho, Paffenbarger, Vranizan, and Farquhar (2000) reported that 75% of adults of the US population who were 65 years of age failed to meet the minimum recommendation for

maintaining health (30 minutes per day, five days per week). Half of the adults studied reported so little physical activity that they fell into the sedentary category (less than 20 minutes of activity three times per week). As revealed in the study, 23% of the adults reported no leisure time physical activity. A sedentary lifestyle, as practiced by such a large proportion has clearly been shown to be associated with more medical problems than are seen in more physically active individuals (Lampinen et al., 2000).

In Ghana, research has clearly revealed that people of all ages can enhance their health by simply incorporating moderate levels of physical activity into their daily routine (Dake, Tawiah & Badasu, 2010). Encouraging results from numerous scientific studies (WHO, 2005) demonstrate that even a moderate amount of physical activity significantly reduces the risk of morbidity and mortality. It is important to also note that, the prevalence of obesity in Ghana is increasing (WHO, 2005). The phenomenon is worrying because studies have consistently shown an increased risk of physical inability among people (World Health Organization, 2009). As indicated by the World Health Organization Survey, physical inactivity is a construct of great importance for a proper understanding of the relationships between behaviour and risks for a number of diseases. Indeed, a sedentary lifestyle, which is dominated by physical inactivity, has been recognized as a major risk factor. The other important concept, level of physical activity, reflects the variation in activity from a small amount of light exercise performed occasionally to a large amount executed every day.

In view of the above disposition, this study sought to investigate the impact of regular physical activity on the general life of persons with physical disability in the Kumasi Metropolis. The study of regular physical activity provides a powerful opportunity to support the well-being of persons with disabilities in general and those with physical disabilities in particular. This is the starting point for the development of a richer understanding of the links

between physical activity and the health and well-being of such individuals. In this regard therefore, this study seeks to investigate the impact of regular physical activity on the general life of persons with physical disability in the Kumasi Metropolis.

1.2 Statement of the Problem

The beneficial effects of regular physical activity or exercise on health, performance and longevity are well known. Although there is clear scientific evidence that regular physical activity or exercise has powerful positive effects on both psychological and physical well being of people, majority of Ghana's population appear not to have been engaging in regular and sustained physical activity needed to maintain their health (Amoah, 2003). The consequence of physical inactivity is very detrimental to healthy life and productivity, as shown in various literatures. Worst of all, lack of physical activity most certainly contributes to premature deaths and needless infirmity among the Ghanaian population. Just as individuals without disabilities, persons with disabilities, especially those who are physically disabled appear to face numerous barriers to becoming physically active. Such barriers are varied, and may include lack of facilities, social exclusion, and support. Additionally, lack of motivation, lack of access to facilities, and lack of recognition are some of the problems facing the physically disabled in Ghana. These challenges affect every aspect of their lives, including the type and quality of health care they receive, opportunities for gainful employment and careers, and, importantly, their ability to participate in a meaningful way in their community and society at large. For persons with physical disabilities, regular physical activity or exercise can impact on their ability to function effectively in society, hence the need for this study.

1.3 Aim of the Study

The study aimed at investigating the impact of regular physical activity on the general life of persons with physical disability in the Kumasi Metropolis.

1.4 Objectives of the Study

The study specifically sought to:

1. Identify the forms of physical activity undertaken by persons with physical disabilities.
2. Find out the benefits of regular physical exercise to persons with physical disabilities.
3. Identify the factors that contribute to physical inactivity among persons with physical disabilities.
4. Examine the health implications of physical inactivity of persons with physical disabilities.
5. Examine and compare the extent of regular physical activity among male and female persons with physical disabilities.

1.5 Research Questions and Hypotheses

1. What forms of physical activity do persons with physical disabilities undertake?
2. What are the benefits of regular physical exercise to persons with physical disabilities?
3. What factors contribute to physical inactivity among persons with physical disabilities?
4. What are the health implications of physical inactivity of persons with physical disabilities?
5. To what extent do male and female persons with physical disabilities perform regular physical activity?

Hypotheses

Two hypotheses were found necessary to test the extent of regular physical activity among male and female persons with physical disabilities. It was therefore hypothesized that:

H₀ There is a significant difference in the extent to which male and female persons with physical disability perform regular physical activity.

H₁ There is no significant difference in the extent to which male and female persons with physical disability perform regular physical activity.

1.6 Significance of the Study

The findings of the study will reiterate the usefulness of regular physical activity to all persons, including the disabled. The study will expose the vulnerability of persons with physical disabilities to physical inactivity and the consequences to their health. In as much as nations need their human resource for increased productivity, there is also the need to improve the health status of the working population. The findings will inform government on planning efficient health policies, implementation and monitoring strategies to improve the health needs of the working population. Moreover, it will add up to existing literature.

1.7 Delimitation

Even though there are many persons with disabilities in the Kumasi Metropolis, the study focused on those who are physically disabled. Considering both the number of membership of the category of persons with physical disabilities and the time frame of the study, it was necessary to limit the study to a group of 120 physically disabled

individuals who participate in planned weekend sporting activities in the Kumasi sports stadium.

1.8 Description of the Study Area

The city of Kumasi was founded in the 1680's by King Osei Tutu I to serve as the capital of the Asante State (Flynn, 1972). Given its strategic location and political dominance, Kumasi as a matter of course, developed into a major commercial centre with all major trade routes converging on it. However, it came under the influence of the British rule in 1890 (Amoah, citing Adu Boahen, 1965). With time the city began to expand and grow thereby making it second only to Accra in terms of land area, population size, social life and economic activity.

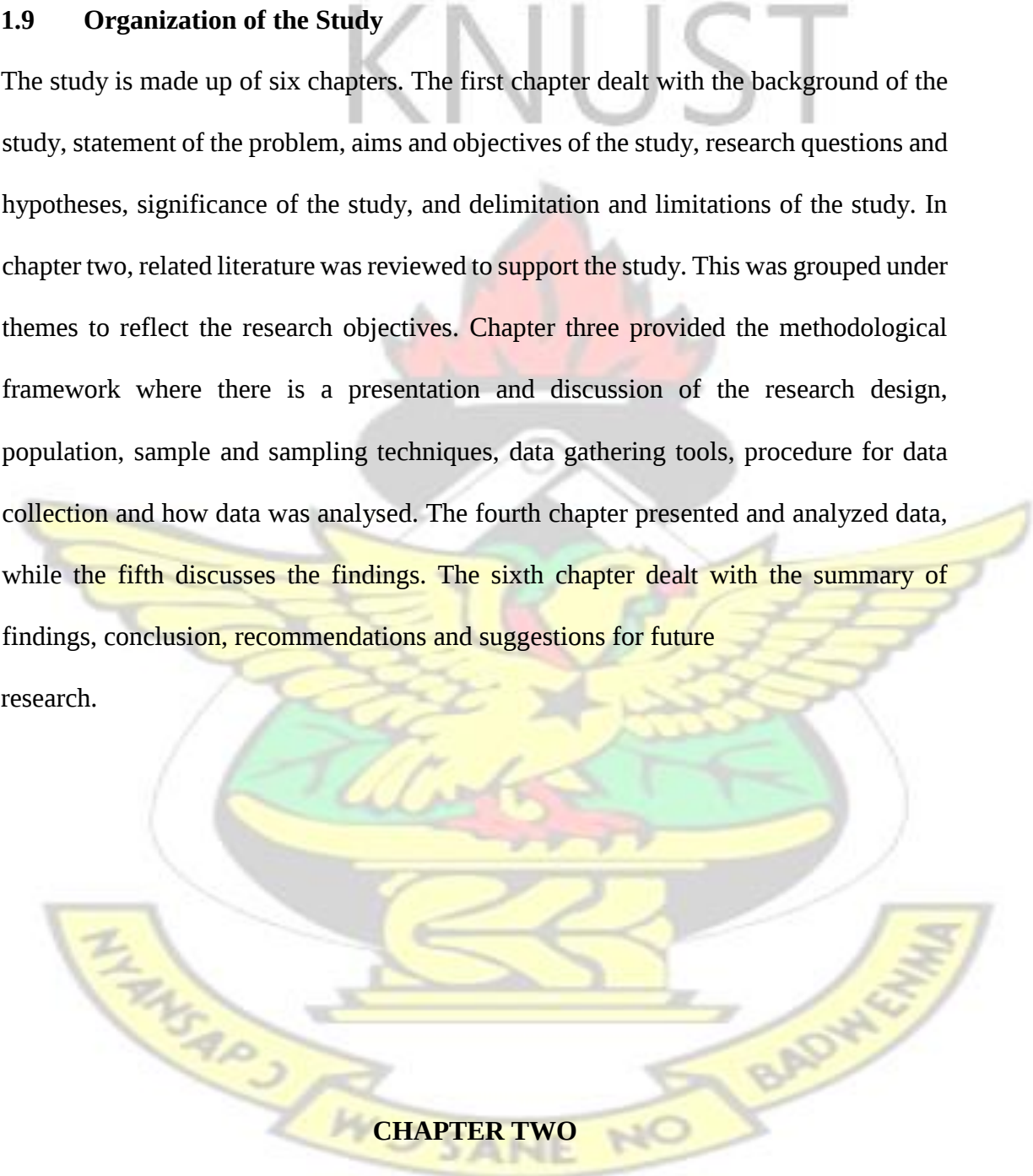
Kumasi is located in the transitional forest zone and is about 270km north of the national capital, Accra. It is between latitude 6.35° – 6.40° and longitude 1.30° – 1.35° , an elevation which ranges between 250 – 300 metres above sea level with an area of about 254 square kilometres. The unique centrality of the city as a traversing point from all parts of the country makes it a special place for many to migrate to. The metropolitan area shares boundaries with Kwabre East District to the north, Atwima District to the west, Ejisu-Juaben Municipal to the east and Bosomtwe to the south. It's beautiful layout and greenery has accorded it the accolade of being the "Garden City of West Africa". From the three communities of Adum, Krobo and Bompata, it has grown in a concentric form to cover an area of approximately 10 kilometres in radius.

The direction of growth was originally along the arterial roads due to the accessibility they offered resulting in a radial pattern of development. The city is a rapidly growing one with an annual growth rate of 5.47 per cent (Ghana Statistical Service, 2010). It encompasses about 90 suburbs, many of which were absorbed into it as a result of the

process of growth and physical expansion. The 2000 Population Census kept the population at 1,170,270. It was however projected to 1,610,867 in 2006 and 1,889,934 by 2009 (Ghana Statistical Service, 2010).

1.9 Organization of the Study

The study is made up of six chapters. The first chapter dealt with the background of the study, statement of the problem, aims and objectives of the study, research questions and hypotheses, significance of the study, and delimitation and limitations of the study. In chapter two, related literature was reviewed to support the study. This was grouped under themes to reflect the research objectives. Chapter three provided the methodological framework where there is a presentation and discussion of the research design, population, sample and sampling techniques, data gathering tools, procedure for data collection and how data was analysed. The fourth chapter presented and analyzed data, while the fifth discusses the findings. The sixth chapter dealt with the summary of findings, conclusion, recommendations and suggestions for future research.

The logo of Kwame Nkrumah University of Science and Technology (KNUST) is a large, faint watermark in the background. It features a yellow eagle with spread wings perched on a green shield. Above the eagle is a red torch. Below the shield is a yellow banner with the text 'NYANSAPƆ WƆ SANE NO BADWENMA'.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter reviewed related literature of earlier studies conducted on the subject to support the current study. Issues discussed have been organized under the following themes:

- Theoretical Framework.
- Forms of physical activity.
- Factors contributing to physical inactivity.
- Health implications of physical inactivity.
- Benefits of physical activity.
- Barriers that hinder the performance of physical activity.
- Related Empirical Studies.

2.2 Theoretical Framework

The main theories that underpin the study are the “Theories of Reasoned Action and Planned Behaviour” (Ajzen & Fishbein, 1980; Ajzen, 1985). The Self-Efficacy Theory, Information-Motivation-Behavioural Skills Model, the Disconnected Values Model (DVM), and Self-Determination Theory (SDT) were also discussed to complement the main theories in understanding the intriguing perceptions of one’s attitudes towards physical activity and exercise. The use of these theories was driven by their relevance to this study in explaining the importance of physical activity and regular exercise to human health, and the consequences of inactive behaviour. According to Buckworth and Dishman (2002), developing any framework in human behaviour begins with understanding the theories and models that help explain, describe, and predict behaviour.

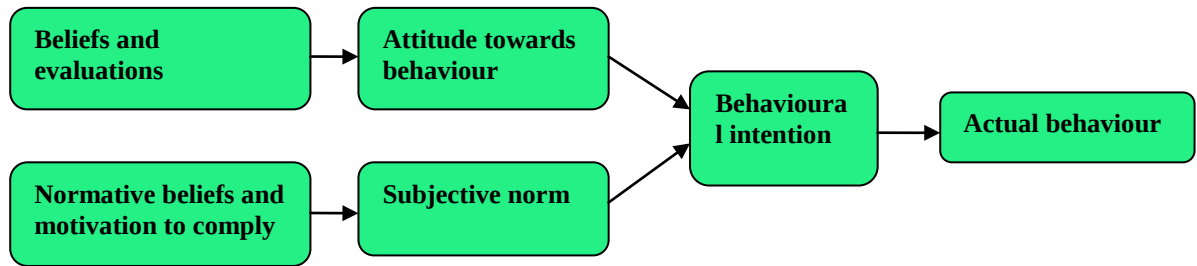


Figure 1: Theory of Reasoned Action (Source: Ajzen & Fishbien, 1974: p. 5)

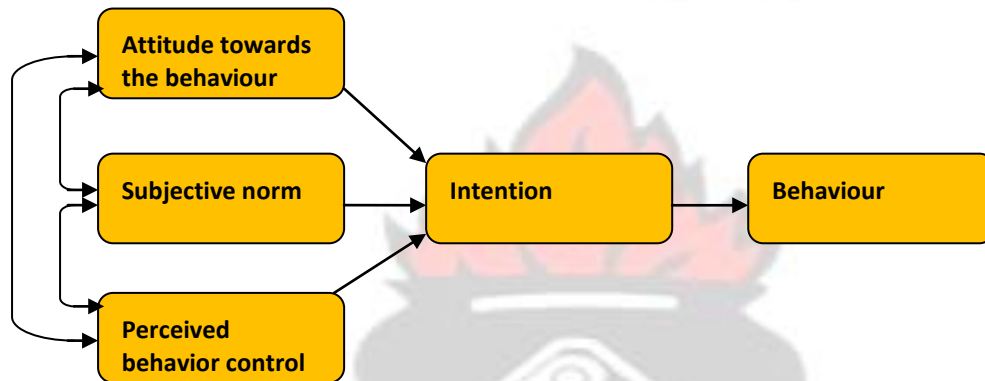


Figure 2: Theory of planned behaviour (Source: Ajzen & Fishbien, 1974: p. 7)

The Theories of Reasoned Action and Planned Behaviour are combined in this study to explain the phenomenon because one is an extension of the other (Ajzen & Fishbein, 1980; Ajzen, 1988). The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) are concerned with the factors that influence a person's decisions about his or her behaviour. According to the theory of reasoned action, proper decisions about one's behaviours are based on information and beliefs about their actions, the outcome they expect from their actions, and the value they place on these outcomes. The most important component of this theory, however, is that an individual's intentions form the best predictors of actual behaviour. The intention to perform certain actions reflects the person's attitudes about the behaviour and about subjective norms of that behaviour. The attitude toward exercise, for instance, reflects the individual's beliefs

about the benefits and consequences of positive and negative evaluations of engaging or not engaging in regular exercise.

One limitation of the models' attitude component, pointed out by Buckworth and Dishman (2002) is that, a person may believe that exercise is very healthy, yet conclude that there is a lack of time in the day to exercise regularly. The second component of TRA reflects the individual's perceptions about the importance that others place on the behaviour and the person's incentive to meet others' expectations. Thus, a person who is surrounded by one or more friends or family members who habitually exercise is more likely to exercise regularly than an individual whose friends and family do not. It is understandable, then, that developing social links as part of an exercise programme often results in better exercise adherence (Warburton, Nicol & Bredin, 2006). As Ajzen and Fishbein (1974) concluded, sometimes attitude is the primary predictor of intentions, while other times it is the social norm within which a person functions.

In his modified follow-up of TRA, Ajzen (1985) added a third component to predicting exercise behaviour "perceived behavioural control", that is, an individual's perception that he or she has the resources (i.e., skill and ability) and the opportunity to perform the behaviour or to attain the goal. Thus, an individual with unrealistic expectations (e.g., losing considerable weight; vastly increased musculature; running a marathon) will likely result in low perceived control about the situation, leading to disappointment and helplessness about their apparent inability to meet fitness-related goals. Subsequent low expectations about future success may result in quitting future exercise participation. Implications for supporting TPB through higher perceived behavioural control include establishing realistic exercise goals, and experiencing perceived skill and performance quality early in the exercise programme (e.g., perceptions of improvement and using proper technique). Hausenblas, Carron and Mack (1997) concluded, based on their meta-analysis of related studies, that

“individuals have the greatest commitment to exercise when they hold favourable beliefs about exercise and believe that they can successfully perform the behaviour” (p.

45), a concept called perceived competence.

Self-Efficacy Theory

Self-efficacy (SE) is a set of beliefs and expectations about how capable a person feels in performing the necessary behaviours to achieve a desirable outcome (Bandura, 1977).

An exerciser may feel high self-efficacy about engaging in a weight-training programme to gain strength, yet feel far less self-efficacy in performing other exercises. High self-efficacy about the activity usually results in a higher likelihood the person will begin and adhere to that activity. Self-efficacy is specific to a behaviour and situation, and is not usually generalized to other types of tasks (e.g., competitive sport versus exercise) or situations (e.g., running competition). Self-efficacy affects a person's expectations of success and failure, and therefore, influences a person's selection of those activities, the degree of effort expended on the activities, and the extent to which a person will persist at the activities, especially after experiencing failure or not meeting expectations. For instance, exercisers who do not experience rapid success, that is, meet goals quickly, will presume that the task is of insurmountable difficulty and quit exercising, perhaps due to low self-efficacy. In their review of over 100 studies on the effects of self-efficacy on exercise behaviour, McAuley and Mihalko (1998) concluded that, higher self-efficacy leads to greater likelihood of exercise participation and maintenance, if the individual: (a) is allowed to select the type of exercise behaviour undertaken, a concept called perceived choice, (b) possesses certain thought patterns, such as optimism and feelings of intrinsic motivation (i.e., exercising for pleasure and enjoyment), (c) expends optimal effort and feels capable of redoubling efforts in the face of barriers and challenges, and (d) has reasonably high expectations of successful performance and desirable outcomes. To

McAuley and Mihalko, the strongest influence of self-efficacy on exercise behaviour is performance accomplishments. Improving self-efficacy as a method to favourably influence exercise behaviour has considerable promise, however, it is likely that additional moderating factors must be included to help exercisers maintain this habit.

Information-Motivation-Behavioural Skills (IMB) Model

The information-motivation-behavioural skills (IMB) model (Fisher, Fisher & Harmon, 2003) has been applied to numerous health promotion behaviours, with particular attention to adherence in medical therapy settings. The model has considerable relevance to exercise behaviour, although apparently it has not received attention in this area by researchers. The model posits that adherence behaviour is a function of three components: (1) adherence information (e.g., about the medical regimen, about side effects), (2) adherence motivation (e.g., attitudes and beliefs about outcome of adherent behaviour; perceptions of significant others' support for adherence), and (3) adherence behavioural skills (e.g., for minimizing side-effects, for self reinforcement of adherence over time). Although not developed to describe, predict or influence exercise behaviour, the IMB has strong implications for enhancing exercise adherence. Perhaps changing behaviour from sedentary to active, rather than consisting of one determinant, consists of a series of stages, as suggested in the transtheoretical model, originally applied to addictive behaviours and later modified to exercise by Prochaska and Marcus (1994).

The Disconnected Values Model (DVM)

The process of behaviour change is a challenging process because habits and routines, in this case, lack of regular physical activity or exercise is firmly entrenched in a person's lifestyle (Ockene, 2001). Vigorous exercise requires effort and some degree of physical discomfort in order to obtain the well-known benefits. The degree of

discomfort, often measured as “ratings of perceived exertion” (Borg, 1998) directly reflects a person’s body weight, current fitness level, and the person’s sedentary lifestyle.

The DVM, according to Ockene (2001) is predicated on two postulates that define self-motivated behaviour and have strong implications toward promoting exercise behaviour. The first postulate is that, self-motivated behaviour reflects a person’s deepest values and beliefs about his or her passion, that is, their mission, or passion (Loehr & Schwartz, 2003). An individual’s acknowledged mission reflects their desire to become fully engaged in activities that really matter in meeting personal goals and future aspirations. The second postulate is that, the primary motivators of normal human behaviour consist of three stages: (a) to identify a deeply held set of values, (b) to live a life consistent with those values and (c) to consistently hold oneself accountable to them (Buckworth & Dishman, 2002). Ostensibly, then, an individual whose values include health, family, and performance are excellent examples of three common values that are self-motivated. The DVM posits that, developing an exercise habit rests, at least in part, on recognizing the inconsistency between one’s negative habits (i.e., lack of regular exercise) and their values, and then to institute a new, positive habit of exercise that is strongly connected to one’s values (Ockene, 2001).

Negative Habits and Performance Barriers

The model begins by acknowledging the existence of negative habits, defined as thoughts, emotions, or tasks one experience regularly that is acknowledged by the person as not healthy or in the person’s best interests, yet, remain under control. Vahid, Ramin, Farzin, Mohammad and Mohammad (2004) posit that, the primary reason individuals engage in negative habits is because the perceived benefits of maintaining the habit outweigh its costs and long-term consequences. Negative habits (e.g., lack of exercise,

poor sleep and nutrition) lead to barriers in performance, such as fatigue, negative mood state, and lack of concentration.

Perceived Benefits, Costs and Long-term Consequences of Negative Habits

There are benefits to every negative habit. If there were no benefits to a negative habit, the negative habit would not continue. As discussed earlier, there are possible costs to not exercising. These include reduced fitness, weight gain, and higher stress and anxiety, both of which are reduced due to exercise (Crawford & Eklund, 1994; Frost & DiBartolo, 2002). The long-term consequences of these costs include poorer physical and mental health, reduced quality of life, and, in some cases, shorter lifespan (Anshel, 2006; Lox, Martin & Petruzzello, 2003). However, if the costs are far greater than the benefits, and the person concludes that these costs are unacceptable, then a change in behaviour is far more likely to occur. A person's decision to initiate an exercise programme, ostensibly because there exist a disconnection between their negative habit of non-exercise and their deepest values and beliefs. This is followed by developing a self-regulation detailed action plan. The plan consists of determining the details of developing a habit of regular exercise.

Self-Determination Theory (SDT) (Deci & Ryan, 1985)

Self-Determination Theory has been proposed as one way of looking at motivation. SDT is a general theory which has frequently been applied in the exercise domain. The SDT framework posits that, human motivation lies along a continuum which represents varying degrees of autonomy. Autonomy refers to behaviours being selfdetermined or freely initiated by the individual (Deci & Ryan, 2008). The selfdetermination continuum is comprised of both intrinsic and extrinsic components.

Intrinsic motivation occupies the most self-determined end of the continuum and involves motivation derived from the sheer pleasure and satisfaction of engaging in the behaviour itself (Deci & Ryan, 2008). While building intrinsic motivation is not, in itself, a cognitive strategy, however, it is a necessary component of a long-term commitment to exercise and represents a primary area of applied research in exercise psychology. An exerciser who is intrinsically motivated might swim, for example, because they enjoy the feeling of their body moving through the water. Four distinct behavioural regulations comprise the extrinsic part of the motivational continuum. These four regulations, according to (Deci & Ryan, 2008) successively decrease in their degree of self-determination from autonomous regulations to controlling regulations.

In Deci and Ryan's (2008) work, they observed that integrated and identified regulations represent the more autonomous forms of extrinsic motivation. Integrated regulation, according to these authors is represented by individuals' belief that behaviour is an important part of their identity and is consistent with their personal values. Individuals who demonstrate integration might go running because they believe they are „a runner“ and therefore running is consistent with their sense of identity. Identified regulation refers to being motivated to perform behaviour because it is personally significant and results in outcomes which are valued by the individual (Ryan & Deci, 2000; Deci & Ryan, 2008). For example, individuals might engage in resistance training because they know that weight bearing activities are important for bone health. An individual who exercises for external reasons might do so to appease their spouse or their physician. It is also possible that an individual will be amotivated. That is, they will engage in behaviour without feeling any motivation, or they will exhibit a complete lack of intention to perform behaviour. One important contention of SDT is that the external

regulations and amotivation are less adaptive in nature while intrinsic motivation results in positive motivational consequences.

Research has supported this contention with motivation being linked to behavioural disengagement and negative psychological conditions (Deci & Ryan, 2008).

Furthermore, intrinsic motivation is associated with persistence at a task as well as psychological health and well-being (Deci & Ryan, 2008).

In an exercise context, research has examined individuals at various stages of exercise adoption and found that individuals with tendencies toward more regular exercise are more self-determined in their motivation (Mullan & Markland, 1997; Edmunds , Ntoumanis & Duda, 2006). In spite of these findings, Frederick and Ryan (1993) earlier suggested that some people may exercise despite being extrinsically motivated. This suggestion can be highlighted by research examining the relationships between obligatory exercise and motivation. In a study involving regular exercisers (Duncan , Hall , Rodgers & Wilson, 2010), it was found that individuals who are preoccupied with exercise, or who exercise at greater frequency, tend to score higher on identified regulation. Furthermore, individuals who experience negative emotional consequences (i.e., anger, depression) when they miss an exercise session tend to score highly on introjected regulation. In terms of exercise intensity, individuals who show symptoms of exercise dependence, introjected regulation approached significance as a positive predictor of strenuous exercise behaviour and identified regulation was found to be a positive predictor of strenuous exercise.

In summary, research in applied exercise psychology requires conceptual frameworks from which to explain cause and effect, to replicate future studies, and to generalize results to other populations. The theories and models applied to exercise behaviour have been only moderately successful in creating permanent change in exercise habits.

Further research is needed to improve the efficacy of exercise interventions.

2.3 Forms of physical activity

Physical activity encompasses several types of activities including sport and active recreation, active transport and occupational activity (Brabazon, 2006; Kavanagh, 2008). According to Brabazon (2006), the most popular forms of physical activity and recreation are walking, athletics, and swimming. Active transport involves expending energy to get from one place to another and include walking, cycling or other incidental exercise. Active transport can be an alternative to car travel and increases daily physical activity (Sims, Huang, Pietsch & Naccarella, 2004). These authors indicate that, areas that are well serviced by public transport, active transport can be an effective way to increase daily physical activity levels.

Occupational activity, as indicated by Brabazon (2006) includes physical activity that occurs in the course of paid or unpaid work and is dependent on the type and nature of work. According to this author, occupational activity in paid work can contribute to increased levels of physical activity although it can also contribute to reduced ability to participate in more enjoyable physical activity due to tiredness. However, increasingly time spent in many workplace environments is sedentary (Hunt, Marshall & Jenkins, 2008).

According to Hunt, Marshall and Jenkins, unpaid work also factors heavily in the lives of many physically disabled persons, especially women's responsibilities for children and older relatives, and taking responsibility for meal preparation and cleaning. This can lead to neglecting their own health and not having the energy or the time to participate in beneficial levels of physical activity (Vos, Barker, Begg, Stanley & Lopez, 2008).

2.4 Factors contributing to physical inactivity

Asides health benefits, physical inactivity have also impact on work performance, like work productivity and performance, turnover, loss of expertise, workplace accidents and injuries in employees (Bertera, 1990; Bouchard & Shephard, 1994; Chisholm, 1997; Pravosudov, 1998; Steers & Rhodes, 1998; Howard & Machalachki 1999; Pronk, Martinson, Kessler, Beck, Simon & Wang, 2004). According to Bouchard and Shephard (1994), a link is assumed between physical activity, physical fitness and work performance. Physical fitness is defined as motor properties that are necessary to perform and maintain actions in the workplace (Pate, 1998). Among these motor properties are manual dexterity, strength, agility, balance, reaction time and endurance.

According to Van-Heuvelen, Kempen, Brouwer and de Greef (2000), physical fitness determines 31-47% in women and 14-34% in men of the variance in physical performance and fitness characteristics. According the authors, strength and walking endurance influence these abilities the most. Matson-Koffman, Brownstein, Neiner and Greaney (2005) had recently reviewed literature to determine whether worksite interventions can increase people's physical activity or improve their dietary habits. In total, details were given on 18 worksite-based interventions directed at either physical activity or nutrition. They concluded that worksite-based interventions are effective in changing physical activity and nutrition behaviours of the working population. However, Kwak, Kremers, Van Baak and Brug (2006) showed, based on a secondary analysis of the results of data used by Matson-Koffman et al, that the participation rate of employees in worksite based intervention studies is low. They suggested the important reasons for refusal to participate in worksite based interventions are lack of time and resources in times of economic stagnation. Prodaniuk, Plotnikoff, Spence and Wilson (2004) also suggested that, low participation rate is due to lack of targeting the psychological factors to enhance physical activity behaviour.

2.5 Health implications of physical inactivity

Regular physical activity is vital for both men and women, disabled or non-disabled alike. However, there are differences in their barriers to participating in physical activity. Social, cultural, economic and political factors impact on women's health and their ability to be physically active (Andersen, Harro, Sardinha, Froberg, Ekelund, Brage & Anderssen, 2006). According to these authors, women experience many and varied barriers to participating in physical activity. These, according to the authors include time, caring demands, lower socioeconomic status, body image, safety and urban planning and existing health conditions. Often the barriers are connected, as is the case with caring demands and lack of time. Some women, according to Andersen et al. (2006) experience more than one difficulty when aiming to be physically active. Women's multiple roles both in and out of paid workforce can be the cause of some of these barriers as women may put others' needs before their own. The most commonly reported barriers faced by women when trying to increase activity levels are the lack of time, access to convenient facilities and safe environments (Wong, Koh & Lee, 1998).

According to Cole, Hammond, Lionard and Fridinger (1998), participation in regular physical activity depends on the availability and on proximity of community facilities and to environments favourable to physical activity. People are unlikely to use community facilities located more than a few miles away. Inadequate levels of physical activity are linked to obesity which can contribute to a number of interrelated health issues. These include earlier onset of puberty (Henry & Beischer, 1991), polycystic ovary syndrome (Taylor, Brown & Ebrahim, 2004), gestational diabetes (Janssen, 2007), type 2 diabetes (Baquet, van Praagh & Berthoin, 2003), cardiovascular disease (Oguma & Shinoda-Tagawa, 2004) and osteoporosis (Tolfrey & Jones, 2000).

Further, women who are overweight are also more likely to develop polycystic ovary syndrome, a hormonal disorder that affects women (Oguma & Shinoda-Tagawa, 2004). These authors added that, women with polycystic ovary syndrome may experience problems when trying to conceive and are far more likely to develop gestational diabetes when they are pregnant. There is also a strong association between polycystic ovary syndrome and type 2 diabetes. According to Kahle, Zipf, Lamb, Horswill and Ward (1996), women with polycystic ovary syndrome experiencing high insulin levels caused when cells don't respond effectively to insulin. The authors further indicated that, women with polycystic ovary syndrome experience worse symptoms when they are overweight. Physical activity therefore has a role to play in both the prevention of polycystic ovary syndrome and as an important aspect of managing disorders (Oguma & Shinoda-Tagawa, 2004). For women who are overweight, losing weight is one of the most effective ways of reducing the risk of developing type 2 diabetes. According to Kahle, Zipf, Lamb, Horswill and Ward (1996), a small amount of weight loss, for example five kilograms, improves the body's ability to use insulin. Also, gestational diabetes is a temporary form of diabetes experienced by pregnant women, and women who have had this condition are at increased risk of later developing type 2 diabetes (Janssen, 2007).

As gestational diabetes disappears after childbirth, many women do not make any long term changes to their physical activity or diet. This suggests that information and support given to women during and after pregnancy regarding the role of physical activity in preventing and managing gestational diabetes is vital. Regular exercise before and during pregnancy reduces the odds of giving birth to new-borns with excessive birth weight, which is linked with complications for both the mother and the infant (Janssen, 2007). Physical changes during pregnancy therefore may be perceived as additional barriers to regular physical activity (Doran & O'Brien, 2007).

In other studies, physical activity is found essential for building and maintaining healthy bones and therefore vital in the prevention of osteoporosis (Tolfrey & Jones, 2000). According to Tolfrey and Jones (2000), osteoporosis results in reduced bone density and strength, leading to increased risk of fracture from an event where a healthy bone would not be expected to break. This chronic disease according to Tolfrey and Jones is far more common among women than men and mostly occurs in those aged 55 years and over. Osteoporosis is likely to be under-recognised as it has no symptoms and its effects are mainly seen through fractures which are a major cause of morbidity among older women (Tolfrey & Jones, 2000). According to Tolfrey and Jones, the impacts of fracture are wide ranging and can include pain, loss of function, emotional distress and loss of independence. In addition, people who are not physically active are almost twice as likely to die from coronary heart diseases as those who are. Physical activity also has a role in the prevention of cancer. There is evidence that, physical activity reduces the risk of developing bowel (colorectal) and breast cancer (Meyer, Kundt, Lenschow, Schuff-Werner & Kienast, 2006).

Across all the above health issues related to physical inactivity, women experience earlier repercussions of their health behaviours (Owen & Bauman, 1992). According to Owen and Bauman, the onset of poor health and chronic disease is at an earlier age for women compared to men. Physical activity has a key role to play in delaying or preventing the development of chronic disease and improving women's quality of life. Participation in physical activity at levels that provide health benefits will not prevent all women from developing health conditions but can be an important aspect in the management of chronic conditions.

The situation in men is no much different compared to that of women. Physical inactivity in men can also cause much serious health problems. According to MatsonKoffman,

Brownstein, Neiner and Greaney (2005), men rather appear to engage in regular physical activity than women.

2.6 Benefits of physical activity

The physical health benefits of physical activity are clear. They include lower blood pressure and cholesterol and maintenance of a healthy weight (World Health Organisation, 2009). Some other examples of benefits include improved mental health and wellbeing (Heesch & Brown, 2008), social engagement (Jewson, Spittle & Casey, 2008), enhanced sleep (de Castro Toledo Guimaraes, de Carcalho, Yanaguibashi & do Prado, 2008) and reduced risk of fractures (Stessman, Hammerman-Rozenburg, Cohen, Ein-Mor & Jacobs, 2009).

According to Heesch and Brown (2008), regular physical activity plays a significant role in improving moods and subsequent mental health has been shown to relieve symptoms of depression. These benefits can be experienced by those with a diagnosed mental illness as well as the general population. The mental health benefits of physical activity frequently motivate those who are already physically active to maintain their routines. The benefits of physical activity on mental health can be achieved even in the absence of fitness gains (Armstrong, Bauman, & Davies, 2000). This may be due to factors including increased social engagement.

Social engagement is another key benefit of physical activity, and for persons with disabilities this often motivates continued participation (Jewson, Spittle & Casey, 2008). Martin and McCann (2005) in their work found regular group exercise to be a means of social support. Improved quality of sleep according to the authors is related to participation in physical activity and it is an important marker of quality of life. Also, Nieman (2005) opines that, people who are physically fit fall asleep faster, sleep better

and are less tired during the day. Further, men who participate in regular physical activity sleep more and experience a better quality of sleep than women who are sedentary (Cesario & Hughes, 2007).

There are additional benefits for women who remain physically active. Regular physical activity aids muscle strength, aerobic capacity, reduction of fracture risk and general wellbeing (Graco, Garrard & Jasper, 2009). Craig and Bittman (2009) state that, strength and training enables individuals to maintain their independence and ability to do day-to-day tasks and leisure activities. Additionally, physical activity is associated with maintaining independent function over time, irrespective of increasing age (Stessman, Hammerman-Rozenburg, Cohen, Ein-Mor & Jacobs, 2009).

Aside from the already known health benefits of being physically active, persons with physical disabilities can benefit from an active lifestyle in ways related directly to challenges associated with their disabilities. Physical activity participation can have a relaxing effect (Reid & Collier, 2002) and helps reduce psychological and emotional disorders (Allison, Basile & MacDonald, 1991; Morressey, Franzini & Karen, 1992; Powers, Thibadeau & Rose, 1992; Rosenthal-Malek & Mitchell, 1997). Physical activity participation has been linked to interpersonal trust, increased levels of social interactions observed in free play, popularity and more frequent participation in social activities in general (Broderick, Winter & Allen, 2006). Likewise, children with cognitive disabilities can benefit socially from participation in group physical activities which will in turn increase the likelihood that they will participate outside of school in similar pursuits (Broderick, Winter & Allen, 2006).

As stated by Broderick, Winter and Allen (2006): “Involvement in team exercise or activity is beneficial in promoting socialization skills.

2.7 Barriers that hinder the performance of physical activity

Allison, Basile and MacDonald, (2005) in their study defined Physical Activity barriers as “the obstacles individuals face in undertaking, maintaining or increasing physical activity” (p.156). Despite the benefits of physical activity, individuals with disabilities generally are not getting the same amount of physical activity opportunities as individuals without disabilities. Although individuals with disabilities, especially those with physical disabilities have made significant gains in their own way to enhance their fitness, they still face pervasive inequities in opportunities for physical activity (Wilson, Rogers, Loitz & Scime, 2006). According to these authors, individuals with disabilities are almost three times as likely to be sedentary as individuals without disabilities. In their view, nearly 56% of people with disabilities do not engage in any physical activity, compared to counterparts without disability. Persons with physical disabilities are excluded from having access to participate in competitions (Kahn, Ramsey, Brownson, Heath, Howze & Powell, 2002), and are more likely to experience attitudinal, social and programmatic barriers that may limit their inclusion in physical activity, fitness, sports, and recreation. Healthy behaviours are just as important for promoting health and wellness and preventing disease in persons with disabilities as they are for those without a disability. Yet, persons with disabilities have been left out of many health promotion efforts (Lox, Martin & Petruzzello, 2003). According to Warburton, Nicol & Bredin (2006), many fitness and recreation facilities, outdoor spaces, and some types of fitness equipment are not accessible to persons with disabilities making efforts to participate in physical activity very difficult. Furthermore, opportunities to participate in competitions are virtually non-existent.

There are few physical activity programmes that are adapted especially for persons with physical disabilities and participating in integrated programmes in the community often

proves unsuccessful. Consequently, physical activity patterns of those with physical disabilities are often different from those who have had more opportunities for activity (Pan & Frey, 2006).

Physical disability is often associated with movement problems and adolescents with such disabilities do not score much measures of fitness as their counterparts without disabilities (Reid & Collier, 2002). According to Todd and Reid (2006), it is often challenging for persons with physical disabilities to engage in physical activity, due to various deficits related to motor functioning, motivation, and others. Activities which demand the use of complex motor skills or occur in a team environment are likely to be too challenging for the physically disabled (Todd & Reid, 2006).

2.8 Related Empirical Studies

Regular physical activity is associated with enhanced health and well-being. In Ghana, little or no empirical evidence has been found on the effect of regular physical activity and exercise on individuals' health. However, results of numerous studies (Blair, Haskell, Ho, Paffenbarger, Vranizan & Farquhar, 1995; Daley & Duda, 2006; American College of Sports Medicine, 2007; Duncan, Hall & Wilson, 2010) have revealed that regular physical activity is widely recognized as a mean of preventing the occurrence of many chronic diseases and reduced risks. Research has shown reduced risk of cardiovascular and heart diseases, type 2 diabetes, some types of cancer, osteoporosis, fall-related injuries, depression, and obesity (Bauman, 2004). For this reason, it has been observed a worldwide increase in health enhancing physical activity interest among researchers (Armstrong, Bauman & Davies, 2000; Batty & Thune, 2000; Hagberg, Park & Brown, 2000; Cavill, Biddle & Sallis, 2001). In spite of the importance of physical activity for health, most people have a sedentary lifestyle. The recent „World Health Report“ of the World Health Organization (2003) states that more than 60% of adults

can be classified as inactive worldwide. Other studies have also reported relative risks for inactive people against active for conditions attributable to physical inactivity (King, Blair, Bild, Dishman, Dubbert, Marcus, Oldridge, Paffenbarger, Powell & Yeager, 1992; Hill & Wyatt, 2005; Anshel, 2006). The increased relative risks were reported for ischemic heart disease, osteoporosis and related injuries, and colon cancer; diabetes, hypertension, stroke, depression, and breast cancer (Friedenreich, 2001; Brabazon, 2006; Cadilhac, Magnus, Cumming, Sheppard, Pearce & Carter, 2009). It is worth adding that physical inactivity and poor diet were estimated to be the second leading cause of total US death in 2000 followed by smoking (Cadilhac, Magnus, Cumming, Sheppard, Pearce & Carter, 2009). According to estimation by Friedenreich (2001) of the direct cost of physical inactivity in 1.5 million adult Americans in 2000, 31% of cost related to colon cancer, heart disease, osteoporosis, and stroke as well as 12% costs of depression and anxiety were attributable to a lack of physical activity. Total costs of expenditures for medical treatment of six major diseases attributable to physical inactivity were high (\$ 83.6 million). The estimated total cost in USA (\$161 million) is very similar to direct health care costs in Australia (161 million).

Individual factors

The most commonly reported barriers to physical activity among physically inactive Australians are a lack of time (40%) and injury or disability (20%) (Booth, Bauman, Owen & Gore, 1997). Injury was reported by just under 20% of those aged 18 to 59 years as a barrier to being more active, and was a barrier for nearly 40% of people aged 60 and over (Finch, Owen & Price, 2001). Lack of time is consistently reported as a major constraint on participation in physical activity. People perceive that they have less discretionary time for exercise and sporting activities (Bauman, Bellew, Vita, Brown & Owen, 2002).

Other factors impacting on physical activity participation include lack of social support, lack of time, lack of enjoyment, having children, having health problems and feeling self-conscious (Chau, 2007).

Environment factors

The environment can either facilitate or discourage physical activity. Consideration should be given to aspects of the built environment that have a significant impact on levels of physical activity, including:

- the neighbourhood environment, such as provision of footpaths, street connectivity, mixed land use and urban density.
- the road environment and safety measures, such as provision of pedestrian crossings, traffic volume, speed limits and traffic calming.
- the amenity of the neighbourhood, such as green spaces and less urban decay, and distance to destinations.
- proximity, as adults are more likely to walk if they have a variety of destinations within 400 metres. The closer sports centres and parks are to young people, the more likely they are to use them (Sunarja, Wood & GilesCorti 2008, Garrard 2009, Kelty, Giles-Corti & Zubrick 2008).

Social and cultural environment factors

The cost of participating in physical activity is increasingly onerous for many people. The importance of physical activity opportunities that are affordable is evidenced by the strong correlation between sport participation and people's income (Begg, Vos, Barker, Stevenson, Stanley & Lopez, 2007). Contemporary lifestyles have become increasingly sedentary. Technological advances, labour-saving devices and passive forms of electronic entertainment used during leisure time require less energy expenditure in the domestic and occupational settings and have resulted in minimising physical activity (Bauman et al. 2002; Edwards & Tsouros, 2006).

Recent studies found that adult television viewing time and other sedentary behaviours are directly associated with disease, including type 2 diabetes and some cancers (Dunstan et al. 2010). Increased car ownership and use, along with safety concerns, have lead to less walking, cycling and transport-related physical activity (Edwards et al. 2006). Contemporary social norms of being a „good parent“ have also led to parents seeking to protect children from potential risks of strangers or hazards in the built environment. This has resulted in more children being driven to school, picked up from school and kept off the streets (Brown & Nepal 2010). Sporting environments need to be inclusive of the whole community and ensure safe, supportive and culturally inclusive environments for women and persons with disabilities. All of these factors need to be addressed in order to increase physical activity rates across all levels.

As the proportion of adults in societies continues to grow, so does their average life expectancy. Even though regular physical activity and participation in exercise have many health benefits, levels of physical activity and exercise decrease with increasing age (World Health Organization, 2009). The age related decline in physical capacity is experienced as an increased effort needed to perform daily activities, which could ultimately lead to avoidance of physical activity or exercise (Brabazon, 2006). This is a worrisome trend that can be prevented by adopting or maintaining regular physical activity or exercise into old age. Even when optimal levels of activity cannot be achieved, increasing participation in physical activity can still induce health benefits (World Health Organization, 2009). The limited success in getting and keeping adults physically active (Martin & McCann, 2005; Graco, Garrard & Jasper, 2009) shows a great need for knowledge of determinants of physical activity and regular exercise.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the methods that were used in collecting data for the study. It consists of the research design, population, sample and sampling technique, procedures for data collection, and data analysis. In addition, considerations that were taken to strengthen the validity of data and reliability of the instrument have been described.

3.2 Research Design

The study was a descriptive survey. Data has been presented using both qualitative and quantitative research approaches. This design allows researchers to easily describe and provide an understanding of the phenomenon using simple descriptive statistics (Bell, 2003). The design was found suitable because it allowed the researcher to collect data from the kind of sample required for this study, thus presented what had been found out without any prejudice.

3.3 Population

The study targeted all 520 registered members of the Association of Physically Challenged Persons in the Kumasi Metropolis. Members of this Association mostly include two categories of physically disabled persons. The first group consist of persons who have either weak upper or lower limbs or both in some cases by birth, and amputees.

3.4 Sample The sample involved 50 physically disabled persons, selected to participate in the study. Variables considered in the sample distribution included age, marital status, educational qualification, employment status, and working duration as presented in Table 1.

Table 1: Sample distribution

		Sample					
		Male		Female		Total	
		(N=34=68.0%)	(N=16=32.0%)	(N=50=100.0%)			
		Variables		Freq. %	Freq. %	Freq. %	
Age	≥ 25yrs	0	0.0	2	12.5	2	4.0
		8	23.5	2	12.5	10	20.0
		9	26.5	4	25.0	13	26.0
		14	41.2	6	37.5	20	40.0
	≤ 41yr	3	8.8	2	12.5	5	10.0
Marital Status	26-30yrs						
	31-35yrs						
	36-40yrs						
Marital Status	Single	10	29.4	4	25.0	14	28.0
	Married	13	38.2	10	62.5	23	46.0
	Divorced	11	32.4	2	12.5	13	26.0
Highest Educational Qualification	Bachelor	2	5.9	0	0.0	2	4.0
	Diploma	4	11.8	1	6.2	5	10.0
	Post-Secondary	10	29.4	8	50.0	18	36.0
	Secondary	16	47.0	4	25.0	20	40.0
	Below Secondary	2	5.9	3	18.8	5	10.0
Employment Sector	Public	9	26.5	3	18.8	12	24.0
	Private	18	52.9	8	50.0	26	52.0
	Unemployed	7	20.6	5	31.2	12	24.0
Working Duration/Day	1-2 hours	8	23.5	8	50.0	16	32.0
	3-4 hours	5	14.7	2	12.5		14.0
	5-6 hours	12	35.3	4	25.0	16	32.0
	7-8 hours	8	23.5	2	12.5	10	20.0
	More than 8 hours	1	3.0	0	0.0	1	2.0

Source: Field Data, 2013.

Table 1 presents data on the sample distribution of participants. In all, 34 male and 16 female physically disabled persons representing 68.0% and 32.0% respectively participated in the study. From the Table, majority 40.0% of the respondents fell between

the ages of 36-40 years. This was followed by the age groups of 31-35 years (26.0%), 26-30 years (20.0%), 41 year or more (10.0%), and 25 years and below (4.0%). On the respondents' marital status, close to half of the entire sample (i.e. 46.0%) was found to be married, while 28.0% and 26.0% respectively were single and divorced. In respect of respondents' highest educational qualifications, it was found that majority (40.0% and 36.0%) had up to secondary and Post-secondary education. However, very few (4.0%) of the respondents had Bachelor's degree. Also, while 10.0% of the respondents had Diplomas, the other 10.0% were below secondary education level. For their employment, more than half (52.0%) of the respondents was employed in the private sector, and 24.0% in the public sector. The rest 24.0% were found to be unemployed. In the case of those found to be employed, their working duration per day varied. While 32.0% each in two instances work between 1-2 hours and 5-6 hours per day, the others (14.0%) work between 3-4 hours; 20.0% work between 7-8 hours, and just 2.0% work more than 8 hours per day.

3.5 Sampling Technique

The Association of Physically Challenged Persons in Kumasi was purposively selected to participate in the study. This group was arbitrarily considered important, because the researcher believed it was typical and representative of the population targeted for the study. In selecting the actual sample for the study, a sociometric sampling method (Snowballing) was adopted. According to Denzin and Lincoln (2000), sociometric sampling technique is generally used to study a small group, where all members of the group identifies their friends who in turn know their friends and colleagues, until the informal relationships converge into some type of a definite social pattern. With this method, participants who were present at their fitness training ground informed others who were not present to complete the questionnaires during their next training section until the required sample for the study was reached.

3.6 Instrumentation

The only instrument used to collect data for the study was questionnaire. According to Robson (2003), questionnaires are instruments designed to collect data for decision making in research. It is considered as the best for researchers who wish to acquire original data for describing a large population (Babbie & Mouton, 2002). The questionnaire was divided in two parts. The first part comprising six (6) items that solicited background information on the participants, while the second part comprising thirty-six (36) items which included five (5) point Likert scale items (*Strongly agree, Agree, Uncertain, Strongly disagree, and disagree*) type questions that aimed at soliciting respondents' views about their perceived knowledge, attitudes and barriers to physical activity and regular exercise (see Appendix C). After the construction of the research instrument, the items were critically discussed with the researcher's colleagues to correct any ambiguities that may occur. The choice of questionnaire guaranteed the respondents' anonymity, since their names were not written on the questionnaire sheets.

3.7 Validity and Reliability Considerations

The main validity consideration for this study was on how to make the study findings statistically generalisable beyond the sample (external validity) and whether the instrument used really measured the key element (forms of physical activity undertaken by persons with physical disabilities; benefits of regular physical activity; health implications of physical inactivity; barriers hindering the performance of physical activity; and the extent of regular physical activity among persons with physical disabilities) that it was intended to measure (construct validity). This was done through the collection and critical analysis of views from the respondents which ultimately revealed some findings.

In order to strengthen external validity, attention was paid to the sampling procedures and the extent to which the final sample was representative of the population. To strengthen construct validity, attempts were made to give clear definitions of the key term or concepts. For example, during the administration of the instrument, the term „physical activity“ and other concepts thought not to be obvious to some participants were further explained. This was to ensure the comprehensiveness of the instrument and to also ensure the reliability of the data generated.

3.8 Ethical Consideration

Some basic ethical issues were considered to protect the rights of participants. Firstly, a letter of introduction and of informed consent to participate in the study was sent to the participants (see Appendix A and B). Before the researcher went out to collect data, scheduled meetings with the participants were communicated to them days ahead of time. In order to solicit their cooperation and assistance, the researcher explained the purpose of the study to them during one of their Association meetings, and assured them of the necessary confidentiality on the information to be gathered. The participants were also made to know that their participation was voluntary and were free to abstain or withdraw from the study. This was to seek their cooperation during the study. After the study, an appreciation letter was sent to the participants through their Association to thank them for their co-operation and full participation (see Appendix C).

3.9 Procedures of Data Collection

This section presents all the processes the researcher undertook to generate data for the study. These included sending and distributing the questionnaire to the participants during one of their weekend meetings, and also allowing them to complete them. During

the completion of the questionnaire, further clarifications were sought and explanations provided by the researcher. Ten minutes was spent to complete the questionnaires after which they were collected.

3.10 Data Analysis

In order to critically examine the views of the respondents, some statistical methods were employed. The questionnaire items as presented in the analysis were grouped under themes to avoid wrong placement of data in the computations. Descriptive statistics, using frequencies and simple percentages was used to describe the data on the basis of the reaction of the respondents to the items. Appropriate tables were also used where necessary to clearly present data. The results were subsequently discussed and supported with evidence from related literature. For question 5 that investigated the extent of physical activity among male and female physically disabled persons, the following formulae were used to calculate the percentage representation for both groups.

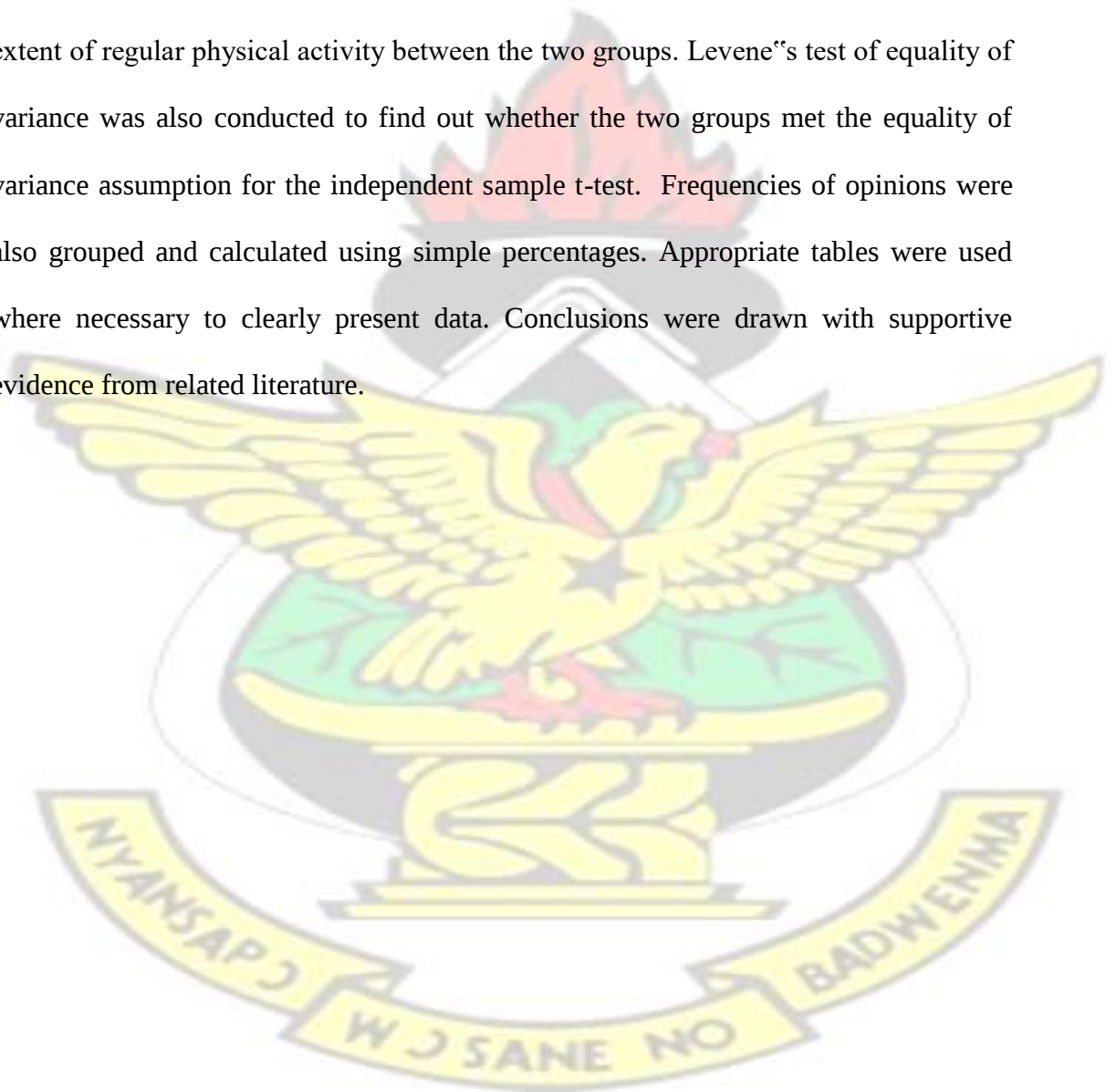
$$\text{1 (male representation): } \frac{\text{Total no. of responses for item}}{\text{Total no. of male respondents}} \times 100 \text{ Formula}$$

$$\text{Formula 2 (female representation)} \quad \frac{\text{Total no. of responses for item}}{\text{Total no. of female respondents}} \times 100$$

Hypotheses Testing

The cumulative totals for both male and female responses for research question 5 were calculated, which result was used to test the hypotheses. For easy calculation, the two extremes (i.e. *strongly agree and agree*) and (*strongly disagree and disagree*) was merged. Thus, *strongly agree + agree = agreed responses* and *strongly disagree + disagree = disagreed responses*.

Since data for this survey was quantitative in nature, it had to be prepared for statistical analyses using the SPSS version 16.0, and this involved a number of statistical operations. A data base was then carefully created using the SPSS programme with all variables labelled and given defined values. An independent sample t-test was conducted to find out whether the observed differences in the extent to which the respondents perform regular physical activity among the groups were significant. The mean values for both male and female groups were calculated based on each item that measured the extent of regular physical activity between the two groups. Levene's test of equality of variance was also conducted to find out whether the two groups met the equality of variance assumption for the independent sample t-test. Frequencies of opinions were also grouped and calculated using simple percentages. Appropriate tables were used where necessary to clearly present data. Conclusions were drawn with supportive evidence from related literature.



CHAPTER FOUR

RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the results and the findings of the data analysed through questionnaire from the respondents. Results from the data were analysed according to each research question raised and also based on each set of questionnaire items for each research question raised.

4.2 Analysis of Data

In this part, data was presented and analysed with brief comments to reflect the research questions. However, detailed discussion was made on the findings under themes generated from the research questions and supported with related literature.

4.2.1 Research Question 1: What forms of physical activity do persons with physical disabilities undertake? Table 2: Forms of physical activity (N=50)

Statement	Strongly Agree		Agree		Uncertain		Strongly Disagree		Disagree	
	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)
Forms of physical activities I engage in include:										
Running	2 (4.0)	4 (8.0)	4 (8.0)	2 (4.0)	0 (0.0)	1 (2.0)	16 (32.0)	4 (8.0)	12 (24.0)	5 (10.0)
Brisk walking	12 (24.0)	6 (12.0)	10 (20.0)	8 (16.0)	2 (4.0)	0 (0.0)	4 (8.0)	0 (0.0)	6 (12.0)	2 (4.0)
Climbing stairs	4 (8.0)	6 (12.0)	2 (4.0)	2 (4.0)	4 (8.0)	0 (0.0)	16 (32.0)	6 (12.0)	8 (16.0)	2 (4.0)

Jogging around	10 (20.0)	9 (18.0)	6 (12.0)	7 (14.0)	0 (0.0)	0 (0.0)	8 (16.0)	2 (4.0)	5 (10.0)	3 (6.0)
Spot exercises	13 (26.0)	3 (6.0)	10 (20.0)	2 (4.0)	0 (0.0)	4 (8.0)	4 (8.0)	6 (12.0)	6 (12.0)	2 (4.0)
Total	41 (16.4)	28 (11.2)	32 (12.8)	21 (8.4)	6 (2.4)	5 (2.0)	48 (19.2)	18 (7.2)	37 (14.8)	14 (5.6)

Research question 1 sought to identify the forms of physical activity undertaken by Source: Field Data, 2013. persons with physical disability who were member of the Association of the Physically

Challenged in Kumasi. The intention was to find out the forms of activities such individuals regularly engaged in, which positively or negatively impact on their general wellbeing. Table 2 therefore presents the results of respondents regarding the forms of physical activities they engaged in. The results show that, majority of the respondents engaged in exercises such as running, brisk walking, and jogging around. It is evident from the table that, while 74.0% and 72.0% respectively were doing running and brisk walking, 64.0% of the respondents engaged in jogging as a form of exercise. Only 36.0% were jogging and also doing spot exercises. The results interestingly revealed that, a total of 11 respondents (representing 4 males and 5 females) neither engaged in running, brisk walking, climbing stairs, nor spot exercises. The results further revealed that, more female with physical disability climbed stairs as a form of exercise than their male counterparts. However, equal number of respondents (i.e. 16, in each case) preferably engaged in jogging as a form of exercise. Additionally, it is evident that a lot more male physically challenged individuals engaged in spot exercises than females. This constitutes about 46.0% for both *strongly agree* and *agree* responses as compared to 10.0% for their female counterparts. As female physically challenged individuals exercised by climbing stairs more, the males on the other hand engaged in brisk walking more than the females.

Based on the results as shown in Table 2, it is found that majority of individuals belonging to the Association of the Physically Challenged in Kumasi engaged in running as a form of exercise more than brisk walking, followed by climbing stairs, jogging and spot exercises.

4.2.2 Research Question 2: What are the Benefits of Regular Physical Exercise to Persons with Physical Disabilities?

Research question 2 sought to find out the benefits persons with physical disability derives from regular physical exercise.

Table 3: Benefits of regular physical exercise

Statement	Strongly Agree		Agree		Uncertain		Strongly Disagree		Disagree	
	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)	M Freq. (%)	F Freq. (%)
I engage in regular physical exercise for the following reasons:										
improved physical health	18 (36.0)	6 (12.0)	14 (28.0)	10 (20.0)	2 (4.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
improved emotional wellbeing	6 (12.0)	8 (16.0)	12 (24.0)	4 (8.0)	8 (16.0)	2 (4.0)	4 (8.0)	0 (0.0)	4 (8.0)	2 (4.0)
improved body appearance	2 (4.0)	4 (8.0)	4 (8.0)	6 (12.0)	8 (16.0)	0 (0.0)	12 (24.0)	2 (4.0)	8 (16.0)	4 (8.0)
flexibility	4 (8.0)	0 (0.0)	2 (4.0)	2 (4.0)	10 (20.0)	6 (12.0)	8 (16.0)	4 (8.0)	10 (20.0)	4 (8.0)
relieving tension	2 (4.0)	2 (4.0)	6 (12.0)	8 (16.0)	6 (12.0)	2 (4.0)	10 (20.0)	0 (0.0)	10 (20.0)	4 (8.0)
Total	32 (12.8)	20 (8.0)	38 (15.2)	30 (12.0)	34 (13.6)	10 (4.0)	34 (13.6)	6 (2.4)	32 (12.8)	14 (5.6)

Source: Field Data, 2013.

The result from Table 3 reveals the respondents' experiences regarding the benefits of regular physical exercise. It is quite clear from the result that, respondents experienced improved health through regular exercise. This result represents the view of 96.0% of the respondents. Further, a total of 60.0% of the respondents exercised for improved emotional wellbeing. Interestingly, as much as 20.0% of the respondents were uncertain about whether regular physical exercise improved their emotional wellbeing or not. This also shows that, the other 20.0% of the respondents disagreed with the assertion that regular exercise improved their emotional wellbeing. On the part of improved body

appearance, body flexibility, and tension, the respondents disagreed or were uncertain that regular exercise made them experienced such benefits.

It is found from the results that, individuals with physical disability who belonged to the Association of the Physically Challenged in Kumasi benefited from improved health, and also emotional wellbeing through regular physical exercise. It is also evident from the data that a significant number, 44 (17.6%) of the respondent did not take notice of the benefits they derived from exercising their body.

4.2.3 Research Question 3: What factors contribute to physical inactivity among persons with physical disabilities?

Table 4 captures the responses regarding factors that contribute to physical inactivity among members of the Association of the Physically Challenged in Kumasi. As shown in the Table, 64.0% of the respondents did not think that regular exercise was difficult and too tiring. On the other hand, 32.0% thought it was.

Table 4: Factors contributing to physical inactivity

Statement	Strongly Agree		Agree		Uncertain		Strongly Disagree		Disagree	
	M f (%)	F f (%)	M f (%)	F f (%)	M f (%)	F f (%)	M f (%)	F f (%)	M f (%)	F f (%)
The following factors contribute to physical inactivity:										
I've been thinking about regular exercise as difficult and too tiring.	2 (4.0)	4 (8.0)	6 (12.0)	4 (8.0)	2 (4.0)	0 (0.0)	14 (28.0)	6 (12.0)	10 (20.0)	2 (4.0)
I have no much energy to be able to do regular exercise.	4 (8.0)	0 (0.0)	6 (12.0)	2 (4.0)	4 (8.0)	2 (4.0)	6 (12.0)	4 (8.0)	14 (28.0)	8 (16.0)
I've been worried about my body form when I exercise regularly.	0 (0.0)	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	4 (8.0)	16 (32.0)	6 (12.0)	18 (36.0)	4 (8.0)
I have no exercise equipment at home that I use.	22 (44.0)	14 (28.0)	10 (20.0)	2 (4.0)	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	0 (0.0)	0 (0.0)
I have not been thinking about my ability to exercise regularly.	2 (4.0)	0 (0.0)	4 (8.0)	4 (8.0)	4 (8.0)	4 (8.0)	10 (20.0)	6 (12.0)	14 (28.0)	2 (4.0)
There is no fitness centre that I could go to exercise regularly.	8 (16.0)	6 (12.0)	20 (40.0)	6 (12.0)	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	4 (8.0)	4 (8.0)
My family or friends do not encourage me to exercise regularly.	6 (12.0)	4 (8.0)	2 (4.0)	6 (12.0)	8 (16.0)	2 (4.0)	10 (20.0)	4 (8.0)	8 (16.0)	0 (0.0)
My parents gave academic success priority over exercise and sports.	6 (12.0)	2 (4.0)	10 (20.0)	2 (4.0)	6 (12.0)	4 (8.0)	8 (16.0)	6 (12.0)	4 (8.0)	2 (4.0)
I have no time for exercise because of my busy schedules.	4 (8.0)	6 (12.0)	8 (16.0)	4 (8.0)	10 (20.0)	0 (0.0)	6 (12.0)	2 (4.0)	6 (12.0)	4 (8.0)
I have little time for exercise because of my social and family responsibilities.	2 (4.0)	8 (16.0)	2 (4.0)	4 (8.0)	14 (28.0)	0 (0.0)	8 (16.0)	4 (8.0)	8 (16.0)	0 (0.0)
I have not been thinking about exercise as having positive effects on my health.	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	2 (4.0)	0 (0.0)	20 (40.0)	6 (12.0)	10 (20.0)	10 (20.0)
Total	56 (10.2)	44 (8.0)	70 (12.8)	36 (6.5)	50 (9.1)	16 (2.9)	102 (18.5)	44 (8.0)	96 (17.5)	36 (6.5)

Source: Field Data, 2013.

In the same instance, 4.0% were uncertain about the assumption. Similarly, 64.0% of the respondents believed that they had sufficient energy to perform regular exercise. It is clear from the results that, even though the respondents had energy to perform regular exercise. Almost, all (96.0%) the respondents did not have equipment for regular exercise at home. Only 4.0% of the respondents had some training equipment at home. For those who engaged in regular exercise, a total of 88.0% had no worry at all about their body form. The respondents appeared unbothered because they knew the benefits that can be derived from such exercises.

In other instances, a total of 64.0% of the respondents had been thinking about their ability with regards to the performance of regular exercise. Although, 80.0% of the respondents agreed that there were no fitness centres in their communities where they could go for exercises, 44.0% were encouraged by their family and friends to exercise regularly. The respondents also appeared divided on their parents' preferences regarding academics and exercise or sports. On one side, 40.0% of the respondents thought that their parents preferred academic successes than sport, 40.0% of the respondents on the other side disagreed. However, 20.0% of the respondents were uncertain about whether their parents had any preferences at all.

Further, it became evident from the results that almost half (44.0%) of the respondents could not find sufficient time to exercise due to their work schedules. Another 32.0% could not also perform exercises due to their social and family responsibilities. Out of this 32.0%, 24.0% (representing 75.0% of the total agreed responses) were females. Again, 28.0% (representing 70.0% of the total agreed responses) of the 40.0% were females. Nonetheless, 52.0% of the respondents stuck to exercise than other activities that were presumed more entertaining. It is worth noting that, data in Table 4 showed positive signs of the effect of exercise on the respondents. Almost all the respondents

(92.0%) indicated that they had been thinking about exercise as having positive effects on the health. The rest 8.0%, either was not positive about the effects of exercise on their health or was not sure of the effect of it.

From the results, it was found that there were no equipment at home or fitness centres in the communities to facilitate regular physical exercises of respondents, even though they had thought of the positive impact exercise was having on their health.

4.2.4 Research Question 4: What are the health implications of physical inactivity of persons with physical disabilities?

Research question 4 examined the health implications of physical inactivity of members of Association of the Physically Challenged in Kumasi. The question specifically investigated how physical inability affected the health of members of the Association.

Table 5: Health implications of physical inactivity

Statement	Strongly Agree		Agree		Uncertain		Strongly Disagree		Disagree	
	M	F f	M	F f	M	F f	M	F f	M	F f
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Lack of regular exercise affects me in the following ways:										
Have adequate amount of sleep each night.	2 (4.0)	2 (4.0)	6 (12.0)	2 (4.0)	10 (20.0)	2 (4.0)	8 (16.0)	6 (12.0)	8 (16.0)	4 (8.0)
Have good self-esteem.	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	12 (24.0)	4 (8.0)	12 (24.0)	2 (4.0)	8 (16.0)	10 (20.0)
Generally feel stressed.	10 (20.0)	8 (16.0)	14 (28.0)	4 (8.0)	6 (12.0)	4 (8.0)	2 (4.0)	0 (0.0)	2 (4.0)	0 (0.0)
Physically fit.	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	2 (4.0)	4 (8.0)	28 (56.0)	10 (20.0)	2 (4.0)	2 (4.0)
Fit to perform all tasks.	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	8 (16.0)	4 (8.0)	14 (28.0)	6 (12.0)	10 (20.0)	6 (12.0)
Total	12 (4.8)	10 (4.0)	26 (10.4)	6 (2.4)	38 (15.2)	18 (7.2)	64 (25.6)	24 (9.6)	30 (12.0)	22 (8.8)

Source: Field Data, 2013.

It is observed from Table 5 that, a little over half (52.0%) of the respondents did not have adequate amount of sleep anytime due to lack of regular exercise. Surprisingly, 24.0% of the respondents could not tell whether their inability to have adequate sleep was due to lack of regular exercise or not. It is also interesting to note that, 72.0% of the

respondents believed that they generally feel stressed each time they lack regular exercise. Furthermore, a total of 64.0% of the respondents disagreed to the statement that, they had increased self-esteem when they lack regular exercise. Additionally, 84.0% of the respondents recognized that lack of regular exercise made them physically unfit. Further, 72.0% of the respondents indicated that they were not fit to perform all tasks. Based on the results, it is found that lack of regular physical exercise caused stress and made respondents physically unfit.

4.2.5 Research Question 5: To what extent do male and female persons with physical disabilities perform regular physical activity?

Question 5 examined and compared the extent of regular physical activity among male and female persons with physical disability.

Table 6: Extent of regular physical activity.

Statement	Strongly Agree		Agree		Uncertain		Strongly Disagree		Disagree	
	M	F	M	F	M	F	M	F	M	F
The following are the extent to which you engage in physical activity:	f	f	f	f	f	f	f	f	f	f
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
I exercise at least three times a week.	8 (23.0)	4 (25.0)	10 (29.0)	4 (25.0)	6 (18.0)	2 (12.5)	6 (18.0)	2 (12.5)	4 (12.0)	4 (25.0)
I exercise at least 2 hours every time.	6 (18.0)	2 (12.5)	8 (23.0)	4 (25.0)	10 (29.0)	6 (37.5)	4 (12.0)	2 (12.5)	6 (18.0)	2 (12.5)
Most of the time, I exercise alone.	8 (23.0)	4 (25.0)	16 (47.0)	8 (50.0)	0 (0.0)	0 (0.0)	6 (18.0)	2 (12.5)	4 (12.0)	2 (12.5)
I exercise at home.	6 (18.0)	6 (37.5)	14 (41.0)	4 (25.0)	0 (0.0)	0 (0.0)	6 (18.0)	2 (12.5)	8 (23.0)	4 (25.0)
I sometimes exercise at the gym.	2 (6.0)	0 (0.0)	4 (12.0)	2 (12.5)	0 (0.0)	0 (0.0)	10 (29.0)	6 (37.5)	18 (53.0)	8 (50.0)
I exercise at the fitness club.	10 (29.0)	6 (37.5)	24 (71.0)	10 (62.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
I exercise regularly.	6 (18.0)	4 (25.0)	6 (18.0)	6 (37.5)	10 (29.0)	0 (0.0)	4 (12.0)	2 (12.5)	8 (23.0)	4 (25.0)
I develop the capacity for regular exercise.	8 (23.0)	2 (12.5)	10 (29.0)	4 (25.0)	4 (12.0)	8 (50.0)	6 (18.0)	0 (0.0)	6 (18.0)	2 (12.5)
I participate in physical activities without easily getting fatigued.	6 (18.0)	6 (37.5)	10 (29.0)	4 (25.0)	8 (23.0)	2 (12.5)	8 (23.0)	4 (25.0)	2 (6.0)	0 (0.0)

I feel extremely confident about my ability to maintain regular physical exercise.	6 (18.0)	2 (12.5)	8 (23.0)	2 (12.5)	10 (29.0)	10 (62.5)	4 (12.0)	0 (0.0)	6 (18.0)	2 (12.5)
Total	66 (19.4)	36 (22.5)	110 (32.4)	48 (30.0)	48 (14.1)	28 (17.5)	54 (16.0)	20 (12.5)	62 (18.0)	28 (17.5)

Source: Field Data, 2013.

The response data presented in Table 6 is calculated based on the number/percentage of each item for each group of respondents. The results revealed that 48.0% of the respondents exercised at least three times a week, for which more females (25.0%) strongly agreed to have performed exercises than male (23.0%) respondents. Additionally, 29.0% and 25.0% for male and female respondents respectively agreed they exercised at least three times daily. The results also show that, more males (41.0%) exercised at least 2 hours every time than the females (37.5%). These results represent both *agreed* and *strongly agreed* responses.

Further, a significant number (36 out of 50) of respondents exercised alone, and that, 30 engaged in exercises at home. Comparatively, 75.0% of the female respondents were 5.0% more than their male counterparts who exercised alone. The results show that 62.5% of female and 59.0% of male respondents exercised at home.

Interestingly, as 62.5% of female respondents exercised regularly, only 36.0% of the males did so. The results further show that, while 52.0% of the males had developed the capacity for regular exercise, only 37.5% of their female counterparts had the capacity. Furthermore, some respondents were found to have participated in physical activities without easily getting fatigued. These represent 47.0% and 62.5% of male and female respondents respectively.

Lastly, it was evident that while 29.0% and 62.5% of male and female respondents respectively did not feel confident their ability to maintain regular physical exercise,

41.0% and 25.0% of male and female respondents respectively did have such confidence.

Findings from the results are that, individuals with physical disability who were members of the Association of the Physically Challenged in Kumasi were found to regularly exercise alone, and at home. Majority of the respondents who exercised alone were found to be females. It was also found that, quite a significant number of the respondents exercised regularly, and had developed their capacity for regular physical exercise.

4.2.6 Summary of discussed items

This section presents the summary of all items discussed earlier in Tables 2-6 of this chapter.

Table 7: Total observed frequencies.

Themes from research questions	Strongly Agree		Agree		Uncertain		Strongly Disagree		Disagree	
	M f (%)	F f (%)	M f (%)	F f (%)	M f (%)	F f (%)	M f (%)	F f (%)	M f (%)	F f (%)
1. Forms of physical activity persons with physical disability undertake.	41 (16.4)	28 (11.2)	32 (12.8)	21 (8.4)	6 (2.4)	5 (2.0)	48 (19.2)	18 (7.2)	37 (14.8)	14 (5.6)
2. Benefits of regular physical exercise to persons with physical disability.	32 (12.8)	20 (8.0)	38 (15.2)	30 (12.0)	34 (13.6)	10 (4.0)	34 (13.6)	6 (2.4)	32 (12.8)	14 (5.6)
3. Factors that contribute to physical inactivity among persons with physical disability.	56 (10.2)	44 (8.0)	70 (12.8)	36 (6.5)	50 (9.1)	16 (2.9)	102 (18.5)	44 (8.0)	96 (17.5)	36 (6.5)
4. Health implications of physical inactivity of persons with physical disability.	12 (4.8)	10 (4.0)	26 (10.4)	6 (2.4)	38 (15.2)	18 (7.2)	64 (25.6)	24 (9.6)	30 (12.0)	22 (8.8)

5. The extent to which male/female physically disabled persons perform regular physical activity.	66 (19.4)	36 (22.5)	110 (32.4)	48 (30.0)	48 (14.1)	28 (17.5)	54 (16.0)	20 (12.5)	62 (18.0)	28 (17.5)
Cumulative Total	207 (11.5)	138 (7.7)	276 (15.3)	141 (7.8)	176 (9.8)	77 (4.3)	302 (16.8)	112 (6.2)	257 (14.3)	114 (6.3)

Table 7 shows the trend of responses to each research questions by the respondents. In all, a total of 1,800 item by item responses have been recorded. On the part of male respondents, a cumulatively total of 207 (11.5%) and 276 (15.3%) respectively *strongly agreed* or *agreed* to the items raised to provide clue to research question 1. On the other hand, 138 (7.7%) and 141 (7.8%) respectively were recorded for *strongly agree* or *agree* responses. Regarding the “disagreed” responses, while a total of 302 (16.8%) and 257 (14.3%) of the *strongly disagree* or *disagree* responses were recorded for male respondents, 112 (6.2%) and 114 (6.3%) were recorded for their female counterparts. One hundred and seventy-six, representing 9.8% and 77 (4.3%) *uncertain* responses were respectively recorded for the male and female respondents.

4.2.7 Hypotheses Testing

The hypotheses are tested based on the observed frequencies for both the positive (agreed) and negative (disagreed) responses under the two groups (*male and female*) as presented in Table 6.

It was hypothesized that:

H₀ There is a significant difference in the extent to which male and female persons with physical disability perform regular physical activity.

H₁ There is no significant difference in the extent to which male and female persons with physical disability perform regular physical activity.

Table 8: Mean values of the extent of regular physical activity among male/female physically disabled

persons

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Extent of regular physical activity	Male	34	2.81	1.199	.206
	Female	16	2.73	1.152	.288

Ten criteria were considered to investigate the difference in the extent of regular physical activity among male and female physically disabled persons (see Appendix

F). These criteria were examined to find out whether the responses differed by gender.

The mean response values as shown in Table 8 indicated that, male physically disabled persons may have performed more regular physical activity than their female counterparts. However, the difference was quite marginal.

In Table 9, an independent sample t-test was conducted to find out whether the observed differences in the extent of regular physical activity among the two groups (i.e. male and female) were significant.

Table 9: Independent Sample T-test for Equality of Means

		t	df	Sig. (2tailed)	Mean Dif.	Std. Error Dif.	95% Confidence Interval of the Difference	
							Lower	Upper
Extent of regular physical activity	Equal variances assumed	.225	48	.823	.081	.359	-.641	.803
	Equal variances not assumed	.229	30.588	.821	.081	.354	-.641	.803

In respect of the extent of regular physical activity among male and female physically disabled persons, the independent sample t-test statistics in Table 9 gives a p-value of

0.803 which is more than the significant level of 0.05. The null hypothesis is therefore not rejected. Hence, there are no significant differences in the extent of regular physical activity between male and female physically disabled persons. Refer to Appendix F for detailed statistical information.

Table 10: Significant Value of Variance

		Levene's Test for Equality of Variances	
		F	Sig.
Extent of regular physical activity	Equal variances assumed	0.128	0.722
	Equal variances not assumed		

Levene's test of equality of variance conducted indicated that the two groups met the equality of variance assumption for the independent sample t-test. Thus, the p-value of 0.722 was insignificant as compared with significance level of 0.05. This goes to confirm the earlier results from the t-test that, there is no significant difference in the extent of regular physical activity among male and female physically disabled persons investigated.

CHAPTER SIX

DISCUSSION OF FINDINGS

5.1 Introduction

This part presents detailed discussion of results under themes derived from the research questions. Also, other studies found to be related to the current study have been cited to support the discussion.

5.2 Forms of Physical Activity

The forms of physical activity performed by members of the Association of the Physically Challenged in Kumasi as investigated indicate that brisk walking was found to be the most regular physical activity of the respondents. The results further show that aside brisk walking, climbing of stairs, jogging and spot exercises were conducted variously.

Regarding brisk walking, the respondents may have thought that it was the most relaxed and simple form of exercise. Researchers such as Powell (1996) and Singh (1997) found that, walking is one of the best forms of physical activity. In their view, it is low impact (so does not put stress on the joints), weight-bearing (so it can improve bone density)

and a 60kg individual walking briskly will burn about 300kcal an hour, so it can assist with weight loss. Additional benefits, according to Singh (1997) include stress reduction and improved sleep. The long-term health benefits of walking are startling. In Blair and Jackson's (2001) study for instance, brisk walking was found to be less stressful and more relaxed form of exercising. In the authors' view, even though there appears to be numerous forms of physical activity, brisk walking was found most common among people, especially persons with disability.

In another related study (Jeffery, Epstein, Wilson, G. Drewnowski, Stunkard, Hill, & Wing, 2000), spot exercise was found to dominate physical activities engaged by persons with physical disability. This, according the authors may be due to various factors. Firstly, Jeffery, et al. (2000) argued that, a type of disability may inform the form of exercise an individual will perform. For instance, a person who lost both legs may engage in only spot exercises. Secondly, environmental factors such as the geographical location of a town (*i.e. including the nature of the land surface*) can influence the choice of exercise space and a form of physical exercise to engage in. Lastly, domestic and other responsibilities including work schedules are also contributing factors to the choice of exercises (Kelty, Giles-Corti, & Zubrick, 2008). In view of these, Kelty et al. concluded that, the choice of a particular form of physical activity depends on individuals' own assessment of their ability and how these abilities can be explored in an enabling physical environment. In other studies (Edwards & Tsouros, 2006; American College of Sports Medicine, 2007), regular brisk wheelchair activities, walking, swimming, social dancing, climbing stairs, cycling, chair and bed exercises, gardening or house work were found to be forms of regular physical activities.

In this study therefore, the forms of physical activity performed by the physically disabled were found indifferent from those performed by such individuals elsewhere.

5.3 Benefits of Regular Physical Activity

There exists some amount of literature in respect of the benefits of physical activity or exercise. This study therefore investigated how regular physical activity or exercise benefited members of the Association of the Physically Challenged in Kumasi. This study's finding that regular physical exercise improved the health and wellbeing of physically disabled persons is found to be consistent with findings from a number of studies such as Friedenreich (2001: p.288) who argued that, "regular physical activity enhances the general wellbeing of people".

Exercise has been linked to numerous physical health benefits such as improving weight, blood pressure, lowering the risks of cardiovascular disease and other illnesses, and even increasing longevity (Kohl, & Blair, 1992; Gauvin & Spence, 1995; Plante, 1999).

In addition to providing physical benefits, exercise has been consistently found to be associated with an improvement in mood and the ability to cope with stress as well as promoting emotional health and well being (Plante & Rodin, 1990; Byrne & Byrne, 1993; Gauvin & Spence, 1995).

Frankish, Milligan and Reid (1998: p. 287) also found accumulating evidence which indicates that physical inactivity is a risk factor for cardiovascular and other major diseases. Frankish et al. in their study assert that the relationship between health and active living has social, emotional, and socioeconomic factors that affect an individual's decision to engage in an active lifestyle. This is in line with the present study which evidence showed that, some people engaged in various forms of physical activities or exercises without being aware of their benefits. The assumption is that, such individuals may have engaged in physical activities during their leisure or free time, which is incongruence to earlier studies cited in this work.

Regarding the times exercises are conducted by persons with physical disability, a considerable number (17.6%) of the respondents showed their uncertainty about the benefits of exercises. There abound studies in this area of research.

A study at the University of Illinois examined the effects of 2 physical activity modes, walking and low-intensity resistance/flexibility training, on depressive symptoms and physical self-esteem over a 5-year period among adults. The results suggest that adults who participate in walking or low-intensity resistance/flexibility training experience sustained reductions in depression symptoms and increases in physical self-esteem (Lindwall, Rennemark, Halling, Berglund, & Hassmen, 2007).

It is therefore important to note that, the benefits of regular physical activity are found in literature to be of greater worth for healthy living.

5.4 Factors Contributing to Physical Inactivity

The effects of physical activity or exercise on the health of people have been espoused in literature. In similar studies, there have been numerous findings that identified some contributory factors to physical inability. Such findings do not appear different from what was found out in this current study. As shown in this study, lack of equipment and fitness centres in the communities were found to have hindered regular physical activity or exercise. Other related studies (Bostock, 2001; Hillsdon, Foster, & Cavill, 2005) found that, despite the benefits of physical activity, adults generally are not physically active. For instance, Hillsdon, Foster and Cavill's (2005) survey showed that a substantial 42.0% of adults in UK for instance were classified as inactive, participating in no episodes of activity.

Lack of strong motivation for physical activity and lack of strong beliefs related to the benefits of physical activity were related to approximately 53.1% and 49.2%,

respectively, of excess inactivity in this group. Hillsdon, Foster and Cavill found these 2 factors as related to almost 60% of the excess inactivity in their sample. These results suggest interventions on lack of strong motivation and strong belief for the benefits of physical activity and were considered in public health initiatives to reduce the prevalence of physical inactivity in adults.

Also, Hillsdon, Foster and Cavill (2005: p.312) cited lack of simple training equipment for adults at home as a factor for sedentary behaviour among people. They argue that since some adults could not exercise at fitness centres where facilities were to be available, there was the need for such individuals to have access to simple equipment to facilitate their training.

Comparatively, even though the current study dealt with persons with physical disability who are also adults, the consequence of lack of facilities for physical activity were similar in as much as they lead to physical inactivity in the group.

5.5 Health Implications of Physical Inactivity

Generally, regular physical activity is found to improve psychological health by helping people cope with stress more successfully than they would without such engagements (Hillsdon, Foster, & Cavill, 2005). Hardcastle and Taylor (2001) and Thomas, Nelson and Silverman, (2005) also espouse that there are wide range of risks that are associated with physical inactivity. These authors in their study found that, persons have a greater risk of developing high blood pressure when they are less active. These studies assume that significant number of people is inadequately active, and inactivity increases the risk of prevalent conditions such as coronary heart disease, non-insulin dependent diabetes and colon cancer.

Physical inactivity is considered a modifiable risk factor for cardiovascular disease and a widening variety of other chronic diseases, including diabetes mellitus, cancer (colon

and breast), obesity, hypertension, bone and joint diseases (osteoporosis and osteoarthritis), and depression. From this present study, lack of regular physical exercise was found to have caused stress and made physically disabled persons unfit.

Supporting the findings of this study, Edwards and Tsouros (2006) in their study found that lack of equipment for physical activity may lead to sedentary lifestyle which can contribute to feelings of anxiety and depression, and may even increase the risk of certain cancers. Edwards and Tsouros further explained that thousands and thousands of deaths result each year due to a lack of regular physical activity.

Additionally, physical inactivity tends to increase with age, and women were found to be more likely to lead sedentary lifestyles than men. There is empirical evidence which is convincing that exercise either alone or in combination with other evidencesupported treatment is effective in treating clinically significant depression (Brosse, Sheets, Lett, & Blumenthal, 2002).

Research has also shown that physical activity is an effective means of reducing anxiety and various indices of stress among adults (Dunn, Trivedi, & O'Neal, 2001). While physical activity might help to deal more effectively with perceived stress, available literature suggests that adults are generally not meeting recommendations for physical activity (Dunn, Trivedi, & O'Neal, 2001).

Although, literature abounds to show the relationships between physical activity and measures of stress, the strength of the findings in this study may not powerfully support this.

5.6 The Extent of Physical Activity among Male and Female Persons with

Physical Disability

The relationship between the extent of regular physical activity and gender was investigated in this study. The findings show that, individuals with physical disability of the Association of Physically Challenged persons in Kumasi regularly exercise alone, or at home while others exercise at gyms, in small groups, or with someone (a friend or family member). According to the results, majority of the respondents who exercised alone were females. Also observed were significant number of respondents who exercised regularly, and had developed their capacity for regular physical exercise. Expatriating these results, it is important to note that the role of regular exercise (i.e., in part, exercising with another person rather than alone), generally with family or friends has frequently been associated with effective long-term weight loss maintenance (Jewson, Spittle, & Casey, 2008). Specifically, exercising with others might improve psychological functioning due to the social support aspects of the activity. This might help to explain some of the reasons why exercise makes people feel better regardless of improved physiological changes that regular exercise provides. Exercising with someone would result in more positive mood changes (e.g., increased calmness, decreased tension) than exercising alone.

The association between regular physical activities compared to sedentary lifestyle has a clearly protective role dependant on the level of physical activity. Moderate physical activity of 2.5 hours per week decreases the relative risk of all cause mortality by 0.65 in women and by 0.90 in men (Fox, 1999).

In a similar study, one of the biggest barriers associated with levels of activity in women is the perception that physical activity is unfeminine. This is apparent in the gender imbalance evident across the globe. Also, women may find it necessary to compete with traditional cultural stereotypes, that of the „home-maker“ and „caregiver“ for example,

which, where prevalent, could place conceptual limits upon a woman's self-perception and the perception of others, as well as practical limits upon a woman's time to exercise.

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CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the summary of findings, conclusions, and recommendations for the study.

6.2 Summary of Findings

The study investigated the impact of regular physical activity on the general life of persons with physical disability in the Kumasi Metropolis. The objectives of the study were to: (a) identify the forms of physical activity undertaken by persons with physical disabilities, (b) find out the benefits of regular physical exercise to persons with physical disabilities, (c) identify the factors that contribute to physical inactivity among persons with physical disabilities, (d) examine the health implications of physical inactivity of persons with physical disabilities, and (e) examine and compare the extent of regular physical activity among male and female persons with physical disabilities. Five research questions were formulated that guided the study. A closed-ended questionnaire in the form of a likert type scale anchored on a five point ranging from strongly agree (SA), agree (A), uncertain (U), strongly disagree (SD), and to disagree (D).

The purposive sampling technique was used to select the respondents involved in the study. Data analyses were done by the use of descriptive statistics, simple frequencies and percentages. The findings of the study are presented based on the key research questions as follows:

Research Question 1

Research question 1 focused on identifying the forms of physical activity undertaken by persons with physical disability in the Kumasi Metropolis. The study found that, the preferred physical activity or exercise physically challenged persons who belonged to the Association of the Physically Challenged in Kumasi included running, brisk walking, climbing stairs, jogging and spot exercises.

Research Question 2

Research question 2 explored the benefits of regular physical exercise to persons with physical disability. It was found from the study that, regular physical activity or exercise improved the health and emotional wellbeing of persons who are physically challenged. The study also revealed that, people engaged in physical activity without noticing their benefits.

Research Question 3

Research question 3 investigated factors contributing to physical inactivity among persons with physical disability. The study found lack of training equipment as one major factor inhibiting regular physical exercise. It was also found that, lack of fitness centres in the communities also contributed to some amount of physical inability among persons with physical disability.

Research Question 4

Research question 4 examined the health implications of physical inactivity of persons with physical disability. In this current study, lack of regular physical exercise was found to have caused stress among persons with physical disability. Further, lack of regular exercise made the physically disabled persons unfit.

Research Question 5

Research question 5 examined and compared the extent of regular physical activity among male and female persons with physical disability. The study found that, physically disabled persons in many cases exercised alone, or at home. Majority of those who exercised alone were found to be females. Also, a significant number of persons with physical disability exercised regularly, and had developed their capacity for regular physical exercise.

6.3 Conclusions

Based on the findings of the study, the following conclusions were made:

- The forms of physical activity or exercise persons with physical disability who are members of the Association of the Physically Challenged in Kumasi includes running, brisk walking, climbing stairs, jogging, and spot exercises.
- The benefits persons with physical disability who are members of the Association of the Physically Challenged in Kumasi derive from regular physical activity or exercise includes improved health and emotional wellbeing.
- Lack of equipment and fitness centres in communities are contributing factors to physical inability among persons with physical disability.

- Lack of regular physical activity or exercise causes stress and makes physically disabled persons unfit.
- Persons with physical disability in most cases engage in regular physical exercise alone, or with someone, or in small groups.

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6.4 Recommendations

Based on the findings of the study, it is recommended that the physically disabled population is to take part in various forms of regular physical activity of moderate intensity for half an hour, on at least five days of the week. Moderate intensity physical activity has been found to have significant benefits to health. While this is the ideal recommendation, it should be acknowledged that any activity is better than none, and people should be encouraged to start at a level of activity with which they are comfortable. This may be as little as five minutes of activity to begin with, the aim being to progress gradually in duration and intensity. The greatest relative health gain comes when a sedentary person is encouraged to begin to be a little more active.

Additionally, communities through their Local Government Authorities must provide fitness centres that are stocked with training equipment to facilitate regular physical exercise. Also, individuals in the communities should be encouraged to own simple training equipment at home in order that they can engage in regular physical exercises. Further, societies must be educated on the hazards of sedentary lifestyles. This will create some amount of awareness among people that, physical inactivity can cause several health problems such as stress and emotional disorders.

Lastly, even though exercising alone is not in itself compromising, group activities are found to be motivating and more rewarding.

6.5 Suggestion for Further Research

Little is known about the reasons why people do and do not participate in physical activity and the relationship between their levels of participation and different stages in their lives. A number of studies (Coakley, & White, 1992; Mays, & Pope, 2000; Robertson, 2003) found that significant shifts in the life course of people have implications for participation in physical activity. A mix of quantitative and qualitative methods could build an evidence base to understand changes to physical activity at critical transitional phases during childhood, adolescence and adult life.



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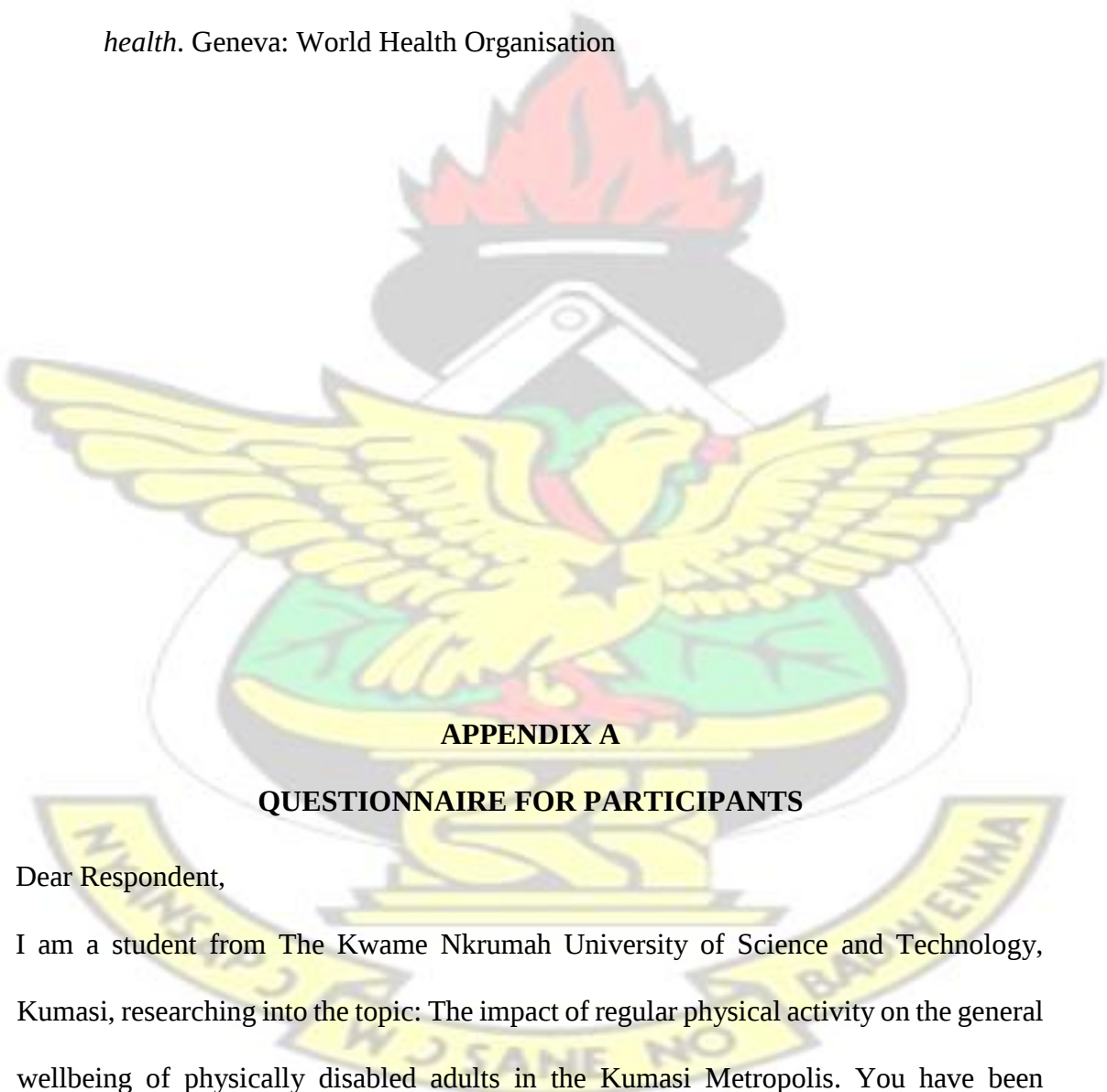
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APPENDIX A

QUESTIONNAIRE FOR PARTICIPANTS

Dear Respondent,

I am a student from The Kwame Nkrumah University of Science and Technology, Kumasi, researching into the topic: The impact of regular physical activity on the general wellbeing of physically disabled adults in the Kumasi Metropolis. You have been selected as one of the respondents in this study. It is hoped that, you can supply some information which are for research purposes only. The confidentiality of the information provided by you is assured.

Thank you.

Instructions:

In order to answer the questions as honestly as possible, your name need not appear anywhere on the questionnaire. Please, note that there is no right or wrong answers. Your help in completing the questionnaire is of vital importance, although participation is entirely voluntary.

1. Age: _____
2. Marital Status (*Please, tick ✓*): ☐ Married ☐ Single ☐ Divorced
3. Highest Educational Qualification(*e.g. Master's degree*):-

4. Are you employed? ☐ Yes ☐ No
5. If employed, which sector of employment? ☐ Private ☐ Public
6. Working Experience (*Please, tick ✓*): ☐ 1-5yrs ☐ 6-10yrs ☐ 11-15yrs
16-20yrs ☐ 21-25yrs ☐ 26-30yrs ☐ 31+

Forms of physical activity

7. What type of exercise do you normally perform? (*You may circle more than one*)
 - a) Running
 - b) cycling
 - c) Brisk walking
 - d) Climbing the stairs
 - e) Yard work
 - f) Home chores
 - g) Jogging around
 - h) Spot exercises
 - i) Others (*specify*): _____

Benefits of regular physical activity or exercise

8. What is your main motivation for exercising? (circle or specify only one)

- a) improve physical health
- b) improve mental health
- c) improve body's appearance
- d) Recreation/ leisure
- e) Others (Specify): _____

For items 9-16, please tick (✓) only one response against each of the items provided.

Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
9 I do vigorous activity that elevates my heart rate for 20 minutes at least two days a week					
10 I do exercises for flexibility at least two days a week					
11 I do exercises for muscle fitness at least two days a week					
12 I regularly perform exercises designed to relieve tension					

Question	Very High	High	Somewhat	Low	Very Low
13 How much do you value regular activity?					
14 How much do you value physical appearance?					
15 How much do you value physical strength?					
16 How much do you value physical endurance?					

Factors contributing to physical inactivity

For items 17-27, please tick (✓) only one response against each of the items provided.

Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
17 I've been thinking about exercise as difficult and too tiring.					

18	I have no much energy to be able to do exercise.					
19	I've been worried about my looks when I exercise.					
20	I have not been thinking about my ability to exercise.					
21	There is no fitness centre that I could get to.					
22	I have no exercise equipment at home that I use.					
23	My family or friends do not encourage me to exercise.					
24	My parents gave academic success priority over exercise.					
25	I have no time for exercise because of my busy schedules.					
26	I have no time for exercise because of my social and family responsibilities.					
27	I've been thinking about other recreational activities that are more entertaining than exercise.					
28	I have not been thinking about exercise as having positive effects on my health.					

Health implications of physical inactivity

For items 29-35, please tick (✓) only one response against each of the items provided.

	Question	Yes	No	Not Sure
29	Do you get an adequate amount of sleep each night?			
30	Are you happy most of the time?			
31	Do you have good self-esteem?			
32	Do you generally feel stressed?			
33	Are you physically fit?			
34	Are you able to perform the physical tasks of your work?			
35	Are you physically able to perform leisure activities?			

Barriers of physical activity

36. Do you have any physical limitations that prevent you from exercising? yes [] no []

37. If yes, what are the limitations?

Recommended remedies to physical inactivity

38. Which of the following would you recommend as remedies to physical inability?

(Please, circle as many as you wish).

- a) Making use of available facilities in one's community (including sports clubs and fitness centres).
- b) Support from instructors
- c) Policy and legislation on "exercise for fitness".
- d) Others (*specify*): _____

Extent of regular physical activity performance

39. Do you usually exercise alone? yes [] no []

40. Where do you normally exercise?

- a) Home
- b) Gym
- c) Fitness club
- d) Others (*specify*):_____

41. Do you exercise regularly? yes [] no []

42. If yes, how many times on average in a month do you exercise? _____

For items 43-45, please tick (✓) only one response against each of the items provided.

	Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
43	I can easily develop my capacity for exercise					
44	I can participate in physical activities without easily getting fatigued					
45	I feel extremely confident about my ability to maintain regular physical exercise					

THANK YOU FOR PARTICIPATING IN THIS STUDY.

APPENDIX B

INTRODUCTORY LETTER FROM REGIONAL SPORTS AUTHORITY

REGIONAL SPORTS AUTHORITY

(ASHANTI)

TEL: (233) 3200 34400,30046,30047

FAX: (233) 3220 34400,30047

EMAIL: nscashanti@yahoo.com

NSC/ASH.1/SF.28

Baba Yara Sports Stadium

P.O. Box 1919

Kumasi-Ghana



Our Ref :

Your Ref :

20th May, 2014

Date :

THE HEAD
DEPARTMENT OF COMMUNITY HEALTH
KNUST
KUMASI

Dear Sir,

LETTER OF INTRODUCTION

In reference to your letter dated 14th January, 2013, I write to inform you that the National Sports Authority (Ashanti) has given approval to enable MS. MARY CUDJOE to do her research work titled '**The Impact Of Regular Physical Activity on the General Wellbeing of Physically Disabled Adults in the Kumasi Metropolis.**'

It is our wish that her findings will go a long way to improve the general life of persons with physical disabilities in Ghana as a whole.

On behalf of the National Sports Authority, I wish you a successful research.

Best Sporting Regards.

SAKA ACQUAYE
(REGIONAL DIRECTOR)

cc: Ms Mary Cudjoe
KNUST
Kumasi.

APPENDIX C ETHICAL CLEARANCE



KWAME NKURUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL

COMMITTEE ON HUMAN RESEARCH PUBLICATION AND ETHICS



Our Ref: CHRPE/AP/226/14

25th June, 2014.

Miss Mary Cudjoe
Department of Community Health
School of Medical Sciences
KNUST.

Dear Madam,

LETTER OF APPROVAL

Protocol Title *"The Impact of Regular Physical Activity on the General Wellbeing of Physically Disabled Adults".*

Proposed Site: *Kumasi Sports Stadium.*

Sponsor: *Principal Investigator.*

Your submission to the Committee on Human Research, Publications and Ethics on the above named protocol refers.

The Committee reviewed the following documents:

- A notification letter of 20th May, 2014 from the Ashanti Regional Sports Authority (study site) indicating approval for the conduct of the study in the Region.
- A completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Proposal.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, renewable annually thereafter. The Committee may however, suspend or withdraw ethical approval at anytime if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study

Thank you Madam, for your application.

Yours faithfully,


Rev. Prof. John Appiah-Poku.
Honorary Secretary
For: **CHAIRMAN**

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