

**CONSTRAINTS TO EXERCISE ADHERENCE AND NEGOTIATION  
STRATEGIES AMONG CLIENTS AT SELECTED FITNESS CENTRES IN  
NAIROBI COUNTY, KENYA**

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UNIVERSITY**

**OCTOBER, 2018**

**DECLARATION**


I declare that this thesis is my original work and has not been presented in any other university for consideration. This thesis has been complemented by referenced sources duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other sources- including the internet, these are specifically acknowledged through referencing in accordance to anti-plagiarism regulation.

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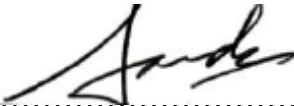
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**DEDICATION**

To my entire family for your love and support always.

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## **ABBREVIATIONS AND ACRONYMS**

**ACSM**-American College of Sports Medicine

**AHK**- Active Healthy Kids

**CDC**- Centre for Disease Control and Prevention

**FBEA**- Fitness Based Exercise Activity

**FID**- Frequency Intensity Duration

**LTPA**- Leisure Time Physical Activity

**NCDs**- Non- Communicable Diseases

**PA**- Physical Activity

**PI**- Physical Inactivity

**SPSS**-Statistical Package for the Social Sciences

**WHO**- World Health Organization

## OPERATIONAL DEFINITION OF TERMS

**Clients:** Fitness facility users who pay for engaging in the activities, programmes and services offered at the facility.

**Adherence Conformity:** It refers to meeting the recommended standards for participating in exercise by American College of Sports Medicine and World Health Organization.

**Constraints:** Refers to elements that are encountered by clients which hinder the formation of exercise preferences and hinder participation and enjoyment in exercise activities.

**Exercise:** A type of fitness activity that is organised, requires repetitive bodily movement and is performed using various techniques by clients at fitness centres with the intent of improving or maintaining one or more components of physical fitness and performance or health.

**Exercise Adherence:** Refer to the strength of a client's commitment to performing physical exercise with fitness centre membership for at least six months.

**Fitness centre:** It is a place that facilitates exercise activities.

**Negotiation:** It is ways which clients use to alleviate or lessen the effects of constraints in order to continue participating in and enjoy exercise.

**Participation:** Refers to a client's active involvement in exercise and physical activity programmes offered in a fitness centre.

## ABSTRACT

The positive association between taking part in regular exercise activities and enhanced health benefits have been widely illustrated and documented and depend on continued participation. Despite this, most people are deficiently active or totally latent, with over a half of the individuals who begin an exercise routine dropping out within the initial six months. While various factors hinder adherence to exercise programmes, strategies to overcome these hindrances are of great importance in promoting sustained participation in exercise. This study assessed the constraints to exercise adherence and negotiation strategies among clients of selected fitness centres in Nairobi County, Kenya. A cross-sectional analytical quantitative research design was used where information was collected from clients enrolled at selected fitness centres across the County (N = 382). Constraints were assessed using Constraints Scale while negotiation strategies were measured using the Negotiation Scale Questionnaire. The conformity rate was 299 (78.3%), males were 160 (41.9%) and females 139 (36.4%). A majority of those conforming were in the age groups of 31-40 (22.8%), 21-30 (22.5%) and 41-50 (19.9%). The findings indicated that there was a positive correlation between conformity status and gender ( $r_s = .10$ ,  $df = 381$ ,  $p = .043$ ), with males associated with more conformity to recommended exercise for general health. Spearman's correlation further indicated significant relationships between: interpersonal constraints and gender ( $r_s = .13$ ,  $df = 381$ ,  $p = .011$ ) and both structural ( $r_s = .12$ ,  $df = 381$ ,  $p = .025$ ) and intrapersonal ( $r_s = .10$ ,  $df = 381$ ,  $p = .047$ ) constraints and level of education. Interpersonal coordination had a significant inverse relationship with gender ( $r_s = -.13$ ,  $df = 381$ ,  $p = .015$ ) and level of education ( $r_s = -.11$ ,  $df = 381$ ,  $p = .030$ ) respectively. Mann-Whitney U test results showed significant differences between gender for both conformity status ( $Mdn = 1$ ,  $U = 16679$ ,  $Z = -2.020$ ,  $p = .043$ ,  $r = .10$ ) and interpersonal constraints ( $Mdn = 3.67$ ,  $U = 15500$ ,  $Z = -2.545$ ,  $p = .011$ ,  $r = .13$ ). Results also showed that males utilized interpersonal coordination negotiation strategies more than females ( $Mdn = 3.00$ ,  $U = 15615.5$ ,  $Z = -2.43$ ,  $p = .015$ ,  $r = .12$ ). Further, Kruskal-Wallis H test results showed significant differences between conformity status and both age ( $H(5) = 65.66$ ,  $p < 0.001$ ) and level of education ( $H(4) = 14.99$ ,  $p = .005$ ) categories. Structural ( $H(4) = 12.54$ ,  $p = .014$ ) and interpersonal ( $H(4) = 13.92$ ,  $p = .008$ ) constraints also had significant differences across levels of education. Besides, the findings indicated significant differences for interpersonal coordination ( $H(5) = 23.761$ ,  $p < 0.001$ ), financial resources ( $H(5) = 13.083$ ,  $p = .023$ ) and skills acquisition ( $H(5) = 23.310$ ,  $p < 0.001$ ) negotiation strategies across age groups. In addition, there were significant differences for interpersonal coordination across levels of education ( $H(4) = 14.798$ ,  $p = .005$ ). Indications were drawn from the results on the need for proprietors, managers and supervisors, fitness instructors, administrators and potential entrepreneurs to review their training programmes, activities and activity areas to help eliminate perceived constraints by their clients to foster adherence. Further, clients' education is important in enhancing their awareness to negotiate and overcome exercise constraints.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Study

Fitness centres are increasingly distinguished as important places to facilitate fitness based exercise activities (FBEA) and their use has been linked to numerous positive health outcomes. The benefits of taking part in exercise and fitness activities are far reaching and they are unrestricted to everyone regardless of age or ability. These activities comprise several facets of wellness and health that overlap to foster benefits that can sustain individuals' livelihood (Asihel, 2005; Balady et al., 2000; Mannell, 2007; Winnet & Carpinelli, 2001). Regardless of the reasonable, well and widely-documented health benefits of physical exercise, many people still lead inactive lifestyles (Grieser, Gao, Ransdell & Simonson, 2012). According to Kelli and Miriam (2010), 50% of those starting an exercise programme stop within six months. This begs the question on why individuals do not maintain consistent practice in exercise regimes.

Inadequacy, rising levels of low and inconsistent participation in exercise especially in African countries is of great concern currently due to the associated negative health consequences (Omondi, Walingo, Mbagaya & Othuon, 2010; Kaleth & McIlrath 2011). Lack of inculcated culture amongst pupils in Kenya since early years of primary school where some only participate in sports or other fitness related activities when they join secondary school is a significant factor into negative awareness on the benefits of physical exercise and practice and consequent uptake of active lifestyle by adults in later years (HAKA, 2011).



Meeting recommended activity levels is paramount when participating in exercise in order to draw maximum benefits (World Health Organization, 2010). American College of Sports Medicine (2007) recommend that an adult should have no less than 30 minutes of direct power physical action 5 days a week or 20 minutes of enthusiastic force movement 3 days for each week. However, Beacham et al. (2011) observe that many adults initiate exercise programmes but are unable to maintain consistent practice. Early dropout from exercise has huge and broad negative ramifications on the instructor, customer and service levels (Arensman et al., 2013; Cooper & Conklin, 2015).

Just like other African countries, Kenya continues to experience challenges in physical exercise consistence, with lack of comparable data in physical inactivity and the commensurate rise in lifestyle related conditions and their associated risk factors (Onywera et al., 2012). Despite the presence of fitness centres, constraints to exercise programmes and activities in fitness centres are present. Constraints are elements that limit the formation of exercise preferences or inhibit participation and enjoyment in exercise activity (Jackson 2000). Godbey, Crawford and Shen (2010) identified three types of constraints: intrapersonal, interpersonal and structural factors. Healthy Active Kids Kenya (2011) reports physiological factors and time or opportunity restrictions as the main constraints to participation in exercise. According to Kaleth, McIlrath and Keith (2011), some of the constraints experienced by clients are inaccessibility of opportunities, unavailability of a place to exercise and the hefty cost of enrolling in a fitness centre. Environmental constraints include poor maintenance of fitness facilities, physical inaccessibility and safety issues (Stodolska & Shiness, 2010). According to

Anaza and McDowell (2013), structural constraints include: out-dated equipment, inadequate facilities, financial constraints, cultural norms and traditional expectations as well as lack of time.

As reported by Kay and Jackson (1991), inspite of constraints, people find ways to participate in and enjoy exercise. Decreasing constraints by promoting the utilization of negotiation efforts build involvement levels for current clients or the individuals who might want to take part in exercise (Hall, Rodgers, Wilson, & Norman, 2010). Similarly, intervention methodologies can decrease the overall unfavourable impacts of limitations on involvement in exercise activities (Woods, 2011). Time management, skills acquisition, interpersonal coordination and financial resources have been distinguished by studies as the common constraint negotiation strategies utilized by individuals to lessen the effects of constraints. (Beggs, Elkins, & Powers, 2005; Elkins, Beggs & Choutka, 2007; Hamidreza, 2014; Hubbard & Mannell, 2001; Rintaugu, Mwangi & Bailasha, 2013).

Research reveals that gender, age and level of education can influence determinants related to physical activity, such as perceived constraints (Alexandris & Carrol 1997; Balaska & Kouthouris 2014; Hoden, 2010). For example, Hoden (2010) found that women experience intrapersonal, interpersonal and structural constraints more than men. Meseguer, Galán, Herruzo, Zorrill, and Rodríguez-Artalejo (2009) established that adherence was lower among the less educated individuals as compared to the more educated. Miranda and Ken (2004) contend that understanding exercise structures as a facet of lifestyle by age and gender can elucidate the problem of steadfast adherence to

active lifestyles. However, there is limited evidence on studies that have examined these differences in fitness centre based exercise activities. Accordingly, this study sought to examine differences in reported conformity, constraints and negotiation strategies regarding clients' fitness centre based exercise activities by gender, age and level of education.

## **1.2 Statement of the Problem**

Research has shown that a majority of people are aware and knowledgeable about the benefits of exercise yet they do not start, with half of those starting dropping out before six months are over (Kelli & Miriam, 2010; Marcus & Forsythe, 2003; Weinberg & Gould, 2007; Wilson & Brookfield, 2009). Exercise adherence conformity is a major concern for those working in fitness setting with retention of clients being a key challenge. The best designed fitness programme will succeed or result in a higher level of exercise adherence conformity if the fitness service provider is aware of or addresses the psychological, social and environmental factors related to the client maintaining an exercise regimen. There is insufficient data on the physical exercise transition and reduction in habitual physical exercise particularly among populations in developing countries (Onywera et al., 2012). In Kenya, there is limited evidence on the availability of exercise adherence data and studies focusing on individuals with subscriptions in fitness centres. Iwasaki (2007) notes that there exists a gap between exercise studies viewed through the lens of western culture and exercise experienced in the rest of the world.

### **1.3 Purpose of the Study**

This study sought to examine differences in reported exercise adherence conformity, constraints encountered and negotiation strategies utilized regarding clients' with membership at selected fitness centres in Nairobi County, Kenya by gender, age and level of education.

### **1.4 Objectives of the Study**

The objectives of the study were:

1. To evaluate exercise adherence conformity of clients in selected fitness centres in Nairobi County against the recommended standards.
2. To establish the clients perceived constraints to exercise adherence at selected fitness centres in Nairobi County.
3. To determine the negotiation strategies commonly used by clients at selected fitness centres in Nairobi County.
4. To establish the relationship between the clients' exercise adherence conformity to the recommended standards in exercise and their socio-demographic characteristics.
5. To investigate the relationship between the clients' constraints to exercise adherence and their socio-demographic characteristics.
6. To investigate the relationship between the clients' exercise constraints negotiation strategies and their socio-demographic characteristics.

### **1.5 Research Questions**

1. What is the rate of exercise adherence conformity to the recommended standards among clients at the selected fitness centres in Nairobi County?
2. What are the clients' perceived constraints towards participation in and adherence to exercise at selected fitness centres in Nairobi County?
3. What are the exercise constraints negotiation strategies commonly used by clients at selected fitness centres in Nairobi County?

### **1.6 Study Hypotheses**

H<sub>0</sub>1. There is no significant relationship between the clients' exercise adherence conformity to the recommended standards in exercise and

- i. Gender
- ii. Age
- iii. Level of education

H<sub>0</sub>2. There is no significant relationship between the clients' perceived constraints to exercise adherence and

- i. Gender
- ii. Age
- iii. Level of education

H<sub>0</sub>3. There is no significant relationship between the clients' exercise constraints negotiation strategies and

- i. Gender

- ii. Age
- iii. Level of education

### **1.7 Significance of the Study**

The findings of the study may enrich the present knowledge about exercise adherence with emphasis on constraints and negotiation strategies. The study provides baseline data for future studies in the area of exercise adherence.

The results of this study may help proprietors, managers, potential entrepreneurs, instructors, administrators and supervisors to concentrate more on mastery of key strategies in order to retain and promote adherence to exercise programmes by their clients in the future. The results may also be useful to fitness centre managers, supervisors and instructors in reviewing activities and training programmes offered at their centres. This may result in designing more suitable activities focused on specific needs of their customers, to help meet their expectations and ultimately enhance adherence and fitness centre utilization. The findings of this study may further improve the probability that clients may attempt to take part in innovative ways to overcome limitations that may in some way or another hinder their participation.

### **1.8 Delimitations of the Study**

This study was delimited to:

1. Clients with membership for at least 6 months at selected fitness centres in Nairobi County.

2. The constraints and negotiation factors to exercise adherence of the respondents stipulated in this study.

### **1.9 Limitations of the Study**

1. The study relied on self-reported information; respondents may have interpreted the items on the instrument in a variety of ways. However, the researcher appropriately explained the guidelines on how to fill the questionnaire so as to reduce bias.
2. The study instruments were questionnaires that might have been subjective
3. Underlying medical condition of the respondents either diagnosed or not

### **1.10 Assumptions of the Study**

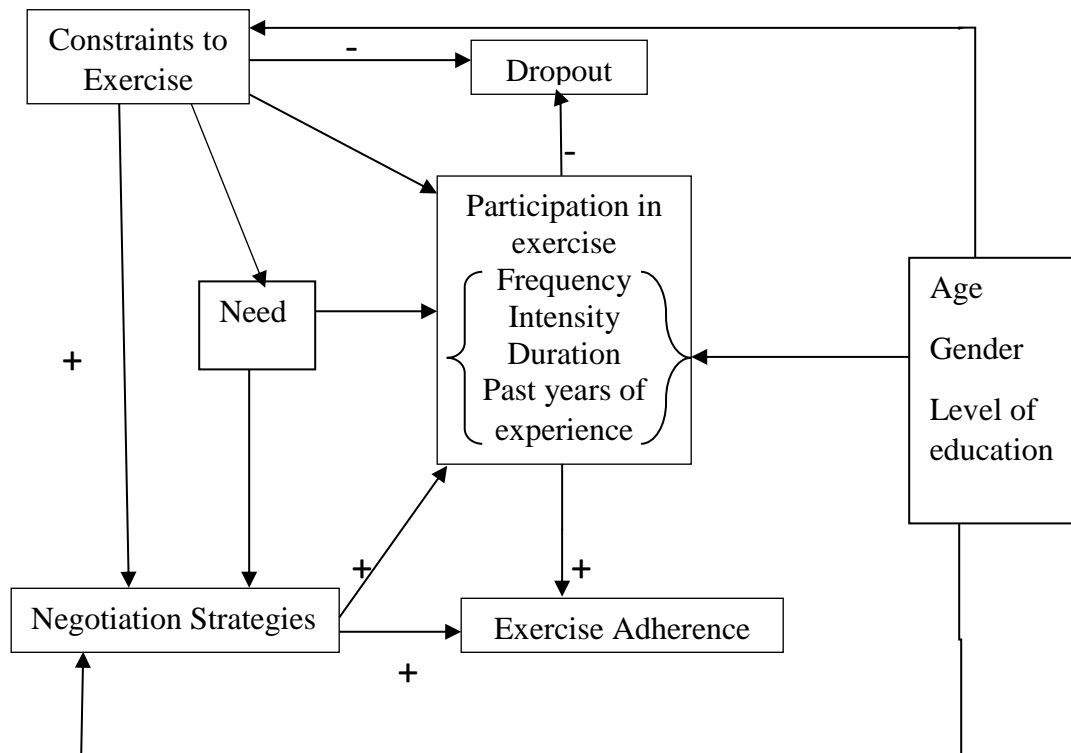
The study was based on the following assumptions:

That respondents would be honest in their responses. The study also assumed that there exist constraints to exercise adherence and that the clients in fitness centres have the capacity to employ negotiation strategies to overcome the constraints.

### **1.11 Conceptual Framework**

The need to exercise by a client may either lead to direct participation in exercise or strengthen the negotiation process which in turn enhances participation. This need to exercise may also be subject to or affected by constraints. However, a client may encounter constraints (intrapersonal, interpersonal, and structural) which may on one end trigger use of negotiation strategies and efforts (time, social, skill and financial) that encourage participation and subsequent adherence to exercise programmes (negotiating

influence). On the other hand, constraints may negatively influence participation in exercise leading to dropout from exercise programmes (inhibitory influence). Participation in exercise depends mainly on negotiation through constraints using several strategies. These strategies thus debilitate the negative impacts of constraints on participation. Clients' reporting of constraints may reflect their ability to negotiate constraints, not just their experience of them. In the frame work (Figure 1.1), plus (+) sign denotes a positive path whereas a minus (-) sign denotes a negative path and an arrow (  $\longrightarrow$  ) symbol signals the direction of the variable (s).



**Figure 1.1: Constraints- effects mitigation model adopted from Hubbard and Mannel (2001)**



The demographic variables of age, gender and level of education in addition to past years of participation may independently trigger participation or non-participation in exercise. These variables may also affect individual responses to encountered constraints and use of negotiation strategies. Participation in exercise is quantified in terms of an individual's frequency of taking part per week, intensity of training per session and duration of training per session.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The greatest challenge in the fitness profession is adherence conformity to exercise and physical activity by individuals who start exercise programmes. Research shows that nearly half of those who begin an exercise programme will quit within six months (Allen & Morey 2010). In this chapter, the following themes have been outlined: Exercise and fitness programmes adherence conformity to the recommended standards, exercise and fitness programmes adherence conformity and socio-demographic characteristics, constraints to participation in exercise and fitness programmes, constraints to exercise adherence and socio-demographic characteristics, constraints negotiation strategies in exercise and fitness programmes adherence and constraints negotiation strategies and socio-demographic characteristics.

### **2.2 Exercise and Fitness Programmes Adherence Conformity to the Recommended Standards**

In the fitness profession, the greatest challenge lies in the ability of individuals to adhere to exercise once they enrol for exercise programmes. Studies on adherence to physical activity demonstrate that almost 50% of the individuals who start an exercise programme stop within the first six months (Dunn, Marcus & Kampert, 1999; Marcus & Forsythe, 2003; Weinberg & Gould, 2007; Wilson & Brookfield, 2009; Kelli & Miriam, 2010). Several studies give varying definitions of exercise adherence. Hallam and Petosa (2004) in their research on the long-term impact of a four-session work-site intervention on selected social cognitive theory variables linked to adult exercise

adherence, define adherence as the number of weeks participants exercised three times or more.

Other studies give distinct definitions as follows: the number of sessions attended out of the total possible sessions (Izquierdo-Porrera, Powell, Reiner & Fontaine, 2003); the quality of an individual's dedication to performing physical exercise (Scott, 2003); total exercise sessions attended (McAuley, Jerome, Marquez, Elavsky & Blissmer, 2003) or number of exercise sessions reported (King, Haskell, Young, Oka & Stefanick, 1995). Buckworth and Nigg (2004) found that the frequency, intensity and duration of exercise are not often reported in adherence research; a factor that this study incorporated. As for a study by Lippke and Ziegelmann (2006) on understanding and modelling health behaviour, the need to include timeframe between initiation and maintenance stages is highlighted.

Further, Bock, Marcus, Pinto and Forsyth (2001) in their undertaking on maintenance of physical activity following an individualized motivationally tailored intervention state that anything below six months of regular exercise is not enough. This also supported a finding of an earlier study (Dishman, 1994). People who start an exercise programme and continue to exercise regularly for at least six months have an excellent chance of maintaining a regular exercise routine for years to come (Buckworth & Dishman, 2002). The proposed study incorporated time frame in regard to exercise adherence.

Center for Disease Control (2007) research on physical activity for everyone and American College of Sports Medicine (2007) recommend that an adult ought to have no less than 30 minutes of moderate intensity exercises, 5 days a week or 20 minutes of

vigorous intensity exercises, 3 days for every week (Balady et al., 2000). World Health Organization, [WHO] (2010) recommends at least 150 minutes of moderate intensity throughout the week or no less than 75 minutes of vigorous intensity exercises throughout the week or a proportional mix of both for grown-ups between 18–65 years or more; for aerobic activity, sessions of at least 10 minutes and major muscle groups strengthening exercises for no less than 2 days a week. Those with mobility problems should engage in exercises on 3 or more days each week whereas those who presently do not meet the recommended standards should aim to increase frequency, intensity and time.

Troiano et al. (2008), found that adult adherence to the recommended exercise levels (at least 150 minutes of moderate intensity throughout the week) was below five percent. Studies by Garber et al. (2011) as well as Kulavic, Cherilyn, Hultquist and McLesteret (2013) recommend that strength-training exercises be performed at a frequency of 2-3 times weekly. This study viewed exercise adherence in terms of conforming to these internationally accepted standards.

### **2.3 Exercise and Fitness Programmes Adherence Conformity and Socio-demographic Characteristics**

#### **2.3.1 Exercise and Fitness Programmes Adherence Conformity and Gender**

Numerous studies have been conducted in different countries to find out the effect of gender on adherence to exercise, leisure, recreation and sports (Humphreys & Ruseski, 2007; Seabra, Mendoca, Thomis, Malina & Maia, 2007; Robertson & Emerson, 2010; Downward, Lera-López & Rasciute, 2014; Mutter & Pawlowski, 2014a). For example,

Downward et al. (2014) conducted a study on the correlates of sports participation in Europe and found out that males spent more time on exercise and sport regularly than females. Similarly, earlier studies by various authors have all concurred in their findings that males take part more likely than females (Downward & Riordan, 2007; Taks & Scheerder, 2006; Attarzadeh & Sohrabi, 2007; Berger, Reilly, Parent, Sequein & Hernandez, 2008). On the other hand, Fourie, Slabbert and Saayman (2011) undertaking on leisure and sport participation patterns of high school learners in Potchefstroom South Africa found that women participated in Leisure Time Physical Activity [LTPA] more than men.

Meseguer, Galan, Herruzo, Zorrilla and Rodríguez (2011) conducted a study on leisure-time physical activity adherence to recommendations and observed that men had a higher adherence rate to recommended levels of physical activities than women. A Study by Eberth and Smith (2010) and another by Garcia, Lera-Lopez, and Suarez (2011) obtained similar findings. Azevedo et al. (2007) study on gender differences in leisure-time physical activity deduced that males accumulate more time in terms of participation in LTPA and higher activity levels in terms of moderate and vigorous intensity than females. In addition, Stanley and Freysinger (1995) observed that men have a higher frequency and duration of participation than women per week. Equally, Shaw, Bonen and McCabe (1991) study that examined the relationship between constraints and participation reported that females have a lower duration of physical activity per week than the males. The present study was conducted in Kenya and specifically in fitness centres. The above literature helps to unpack the findings of this

study on adherence conformity in terms of similarities and differences that exist between males and females.

### **2.3.2 Exercise and Fitness Programmes Adherence Conformity and Age**

Various studies have been conducted in relation to the influence of age on exercise adherence. For instance, most recent studies by Murtagh, Murphy, Woods and Lane (2014) on physical activity, ageing and health and by Minhat, Mohd Amin and Shamsuddin (2012) on late-life leisure constraints among Malaysian elderly, found that physical activity and adherence decreases with age. This was similar to observations by Meseguer et al. (2011) and other older studies that regular participation in activity declines with age (Caspersen, Merritt, Health, & Yeager, 1990; Stanley & Freysinger, 1995; Ampofo-Boateng, Yen & Barnabas, 2003; Wilcox, Bopp, Oberrecht, Kammermann & McElmurray, 2003).

Other studies related to sport participation found a decline in duration taken in sports with age (Eberth & Smith, 2010; Humphreys & Ruseski, 2011; Ruseski, Humphreys, Hallmann, & Breuer, 2011). Others have highlighted specific age groups and the relationship with adherence. For instance, a study by Balaska and Kouthouris (2014) on promoting sport participation in Greece, showed a significant decrease after the age of forty years. Australian Sports Commission (2012) found that ages 25-34 years had lowest regular participation while ages 35-44 years had highest regular participation. The study by Campbell, MacAuley, McCrum and Evans (2001) on age differences in the motivation factors for exercise found that those who fell between 15- 24 years had the least participation rate.

Some studies have specifically focused on females and their age and reported distinct findings. One such study is by McArthur et al. (2014) who examined factors influencing adherence to regular exercise among middle-aged women. The findings revealed that females decrease consistent exercise when they reach middle-age by up to 40%. Gomez, Mateus and Cabrera (2004) in their work on leisure-time physical activity among women in Bogota, Colombia reported that middle-aged women (30–49 years) recorded the largest proportion of inactivity. Another study by Surakka, Alanen, Aunola, Karppi and Lehto (2009) on adherence to a power-type strength training programme in sedentary, middle-aged men and women found that women aged below 40 years had a lower exercise attendance rate than women aged 50 years and above.

A study by Scharff, Horman, Kreuter and Brennan (1999) on factors associated with physical activity among women across the life span, reported a participation rate in regular physical activity for those aged 30 years and below at 59% while those aged 60 years and older at 33%. Literatures from these studies present some unique observations but also project some gaps especially with regards to segregation of age into specific age groups. The current study had several age groups which further bridged this gap.

### **2.3.3 Exercise and Fitness Programmes Adherence Conformity and Level of**

#### **Education**

Level of education impacts adherence to on the exercise and fitness programmes. According to a study by Meseguer et al. (2011) on leisure-time physical activity, adherence was higher among more educated individuals than the less educated ones. A

research by Balaska and Kouthouris (2014) on promoting sport participation in Greece found out that higher education levels is associated with higher sport involvement whereas lower education levels was connected with lower sport involvement. Similarly, studies by Downward, Dawson and Dejonghe (2009) and Van Bottenburg, Rijnen and Van Sterkenburg (2005) on sport participation in the European Union concur by identifying a positive relationship between education level and adherence. These studies however, do not categorize education into various levels; something that the current study focused on.

#### **2.4 Constraints to Participation in Exercise and Fitness Programmes**

Constraints are important lens for understanding exercise behaviours (Godbey et al., 2010). Several studies have been conducted in different countries to establish perceived constraints to participation in physical exercise (Jung-Woong, Min-Haeng & Kang-Bon, 2009; Casper, Bocarro, Kanters & Floyd, 2011; Anaza & McDowell, 2013). Adam, Hiamey and Afenyo (2014) conducted a study on leisure constraints in the university setting in Ghana and classified constraints into intrapersonal, interpersonal and structural.

Crawford and Godbey (1987) define intrapersonal constraints as psychological elements that arise internally within the individual and reign in interacting with preferred activity instead of interposing with choice and participation. They further refer to interpersonal constraints as those factors emerging out of social connections and correspondence between people. Moreover, they deem structural constraints as remotely forced elements that mediate between people's decisions and involvement happening after physical fitness inclinations are shaped or before actual participation happen.



Several studies concur that constraints are experienced progressively with intrapersonal constraints being experienced first-hand, followed by interpersonal constraints while structural constraints are distant in influencing participation in exercise activities (Alexandris & Stodolska, 2004; Mannell & Loucks-Atkinson, 2005; Tsai & Coleman, 2009). For example, a research by Ridinger, Funk, Jordan and Kaplanidou (2012) reported intrapersonal constraints as the most prominent and structural constraints as the least encountered. Alexandris, Tsorbatzoudis and Grouios (2002) in their work noted that intrapersonal constraints are the most perceived by university students in Greece, followed by interpersonal constraints whereas structural constraints are the least perceived. These conclusions are further in line with findings of a previous research by (Alexandris, Grouios, Tsorbatzoudis and Bliatsou, 2001).

Some studies have cited experience of constraints in the order of structural, intrapersonal and then interpersonal constraints (Ehsani, 2003; Stensland, Aas & Mehmetoglu, 2017). In an assessment of motivators, constraints and benefits of participation in sport as perceived by the students, Marwat, Zia-ul-Islam and Khattak (2016) found structural constraints to be the most encountered constraints, followed by intrapersonal constraints and then interpersonal constraints as the least experienced. These findings were similar to a study by Anaza and McDowell (2013) on constraints of participating in recreational sport activities among urban Nigerian women. Studies related to constraints in Saudi Arabia by Alahmad (2016) and in China by Cai (2015) cite structural constraints as the most, perceived, followed by interpersonal and intrapersonal constraints being least perceived. Other studies on constraints to exercise adherence supported this position (Bolla, Dawson & Harrington, 1993; Alexandris &

Carroll, 1997; Walker, Jackson & Deng, 2007; Kara & Demirci, 2010). Masmanidis, Tsigilis and Costa (2015) examined perceived constraints on campus recreational programmes and noted that interpersonal constraints had the highest mean factors followed by structural and intrapersonal constraints. These findings are largely supported by Wilhelm Stanis, Schneider, Shinew, Chavez, and Vogel (2009) who observed similar results.

Studies by Anaza and McDowell (2013) and by Alexandris and Carroll (1997), identified injury fears and lack of interest as intrapersonal constraints. A research undertaken by Little (2002) pinpointed gender role expectation as a key intrapersonal constraint. Interpersonal constraints from reviewed studies are lack of partner for engagement and lack of appropriate social environment (Ehsani, 2002; Szabó, 2006; Ehsani, 2007; Anaza & McDowell, 2013; Mirsafian, 2014) while structural constraints encompass inadequate facilities, financial constraints and lack of time (Alexandris et al., 2003; Drakou, Tzetzis & Mamantzi, 2008; Kara & Demirci, 2010; Anaza & McDowell, 2013; Wood & Danylchuk, 2015; Alahmad, 2016; Marwat et al., 2016). In Iran, Mirsafian (2014) found poorly organized sports programme, lack of coordination between the existing sport facilities and the participation of students in sports as well as sport programmes not being held in adequate times as the structural constraints.

In Hungary, another undertaking by Mirsafian (2014) established low quality of universities' sport services, poor financial situation and lack of proper management of the sport programmes at the universities as the structural constraints. A study by Alexandris and Carroll (1997) identified time constraints due to work, school, and

family, social commitments, poorly kept crowded facilities, accessibility and transportation as the main structural constraints. Nonetheless, a study by Tsai and Coleman (2009) observed that facility accessibility and financial barriers (structural barriers) did not have any effect on participation. The current study sought to uncover the most dominant constraints among respondents in fitness centres in Nairobi County, Kenya.

## **2.5 Constraints to Exercise Adherence and Socio-Demographic Characteristics**

### **2.5.1 Constraints to Exercise Adherence and Gender**

Diverse studies have been conducted on the effects of gender on constraints to exercise adherence. Some note that women experience all types of constraints, (intrapersonal, interpersonal and structural) more than men (Harrington & Dawson, 1995; Jackson & Henderson, 1995; Dadashi, 2000; Beirami, 2009; Hoden, 2010; Mirsafarian, 2014). Various studies have categorised constraints as follows: Shaw and Henderson (2005), and Alexandris and Carroll (1997), found that women perceive more structural constraints than men. On the contrary Öcal (2014) found out that males are affected more by structural constraints than females. Studies by Henderson and Bialeschki (1993), Shaw (1994), Aitchison (2003), Shores, Scott and Floyd (2007), and by Balaska and Kouthouris (2014), found intrapersonal and interpersonal constraints to be more encountered by women than men.

Similarly, Raymore, Godbey and Crawford (1994), Alexandris and Carroll (1997), found that intrapersonal constraints significantly affect females more than males. Conversely, a Malaysian study by Ampofo-Boateng et al. (2003) inferred intrapersonal

constraints to be the same for male and females. A study conducted by Khan (2011) on gendered leisure found out that interpersonal constraints are encountered more by females than males. Majority of these studies are not directly related to exercise, therefore in comparison to the current study that was specific to exercise, differences and similarities were observed with regards to constraints and gender on the spectrum of adherence to participation in exercise, leisure and sports.

### **2.5.2 Constraints to Exercise Adherence and Age**

Various studies have reported the experience of all intrapersonal, interpersonal and structural constraints across various age groups. A comparative study done between Hungarian and Iranian students on constraints to participation in physical activity and sport by Mirsafian (2014), found significant differences between all constraint dimensions (intrapersonal, interpersonal and structural) across various age groups. In addition, Alexandris et al. (2003), Ampofo-Boateng et al.(2003) and Kleiber, McGuire, Aybar-Damali, and Norman (2008) found that all constraints are regularly time strengthened and their increment occur with age without reporting on the statistical significance. Older studies by McGuire, Dottavio, and O’Leary (1986) and Ehsani (2002) found that all constraints are experienced more by younger adults (18 – 25years) compared to middle and older aged adults. More recent studies by Biddle, Gorely, Pearson & Bull (2011), Casper et al. (2011) and Alahmad (2016) indicate a statistically significant difference in constraints based on different age groups.

Jackson (1993) analysed patterns of leisure constraints and concluded that structural constraints reduce with age. In contrast, Mirsafian (2014) found out that the youngest

respondents experience structural constraints more than others. Some earlier studies noted an increase of structural constraints with age without giving specific age groups (Wang, Norman and McGuire, 2005; Shores, Scott and Floyd, 2007). Alexandris et al. (2003) further indicate that older individuals experience both the interpersonal and structural constraints more than young and middle-aged individuals. Alexandris and Carroll (1997) on the other hand revealed that intrapersonal constraint increases with age. This finding has been observed in earlier studies by O'Brien Cousins (2000); Murphy, Williams, and Thomas (2002); McGuire and Norman (2005).

Son, Kerstetter and Mowen (2008) propose that future research should focus on constraints and constraint dimensions using more representative age groups. The current study factored this proposition and categorised age into specific groups.

### **2.5.3 Constraints to Exercise Adherence and Level of Education**

A few studies have reported no significant influence of education level on constraints. However, establishing the influence of level of education on constraints in the current study was an important insight. Mirsafian (2014) comparative study between Hungarian and Iranian students on constraints to participation in physical activity and sport found that university level experienced all constraint dimensions (intrapersonal, interpersonal and structural).

Several other previous studies had reported similar findings. For instance, Searle and Jackson (1985b) in their study on socio-economic variations in perceived barriers to participation in recreation among would-be participants found that increasing levels of education were associated with a decrease in the perception of constraints with those

below high school perceiving more, followed by high school, then post-secondary with those having university level of education encountering the least perception of constraints. Alexandris and Carroll (1997) observed that more educated individuals experience a lower level of constraints as opposed to the less educated ones who experience more constraints. This finding was similar to an earlier study by Kay and Jackson (1991).

## **2.6 Constraints Negotiation Strategies in Exercise and Fitness Programmes**

### **Adherence**

By using effective negotiation methodologies, individuals may overcome constraints and eventually take an interest in or maintain fitness and exercise activities. These have been highlighted in several studies in leisure involvement and intramural sports participation. These studies have supported the application and utilization of negotiation strategies related to time management, financial resources, skills acquisition and interpersonal coordination.

Some of the studies related to leisure include: Samdahl and Jekubovich (1997), Hubbard and Mannell (2001), Little (2002), Son, Mowen and Kerstetter (2008), while those related to intramural sports are by Beggs et al. (2005) and Elkins et al. (2007). The later studies found that the main negotiation strategies employed by respondents are; participating in soccer with friends, followed by planning things ahead, arranging soccer training with friends and finishing assignments/studying early so that they have time to participate in soccer. On the other hand, the least utilized methods are attending a game that fits the schedule of activities, followed by being reminded by teammates

about the game and saving money to do soccer activities. The current study investigated these negotiation strategies to assess their utilization in overcoming constraints to participation in exercise programmes and subsequent adherence thereof. It deduced both the most and least used strategies by individuals with membership at fitness centres in Nairobi, Kenya.

A study by Wood and Danylchuk (2015) on the impact of constraints and negotiation strategies on involvement in intramural sport found that time management was the most used negotiation strategy followed by skills acquisition while interpersonal coordination was the least used. A previous study by Elkins et al. (2007) found that students utilized interpersonal coordination and skills acquisition more, while time and financial resources management were the least used negotiation strategies in pursuit of participation in campus intramural sport.

Samdahl and Jekubovich (1997) and Beggs et al. (2005) found that negotiation strategies related to time management were the most utilized while Jackson and Rucks (1995) observe that students employ improvement of finances, modification of engagements and time, skill acquisition and changing interpersonal relations negotiation strategies in leisure pursuit. A much earlier study by Kay and Jackson (1991) found that management of finances was the most used negotiation strategy. These studies were conducted among participants outside fitness centres settings and they indicate almost similar negotiation strategies. The current study cross examined its findings against those of these studies so as to see what similarities and differences exist.

## **2.7 Constraints Negotiation Strategies and Socio-Demographic Characteristics**

### **2.7.1 Constraints Negotiation Strategies and Gender**

A study conducted by Emir, Gürbüz and Öncü (2015) in Turkey on differences in leisure constraints and negotiation strategies found that males are more successful in developing negotiation strategies to overcome constraints than females. Hua and Chiu (2013) found that Malaysian female sports tourists utilized several strategies related to financial resources, time management, social skills and skills acquisition.

Several studies have been undertaken focusing on females only and concur that women are able to modify, adapt, change and restructure their resources, viewpoints and understanding of constraints and responsive negotiation strategies to sustain involvement in activities (Little, 2002; Anaza & McDowell, 2013).

Other studies report similarities in their findings by establishing continued involvement in physical recreation activities by some women through the use of negotiation strategies that enable them to resist gender role expectations (Henderson & Bialeschki, 1993; Jackson & Henderson, 1995; Samdahl & Jekubovich, 1997; Hudson, 2000; Shaw & Henderson, 2005).

### **2.7.2 Constraints Negotiation Strategies and Age**

The relationship between age and negotiation strategies to exercise adherence, leisure and participation in intramural sports has not been widely studied. There is scarce literature in this area. Thus, the present study bridged this gap in literature. However, an old study by McGuire, Dottavio, and O'Leary (1986) on constraints to participation in outdoor recreation across the life span: a nation-wide study of limitors and prohibitors



found that fewer middle-aged and older adults may develop coping skills to deal with constraints on participation than younger adults. In an opposing view, Son, Kerstetter and Mowen (2008) indicated that perhaps individuals who are aged 50 years old or more might already have gone through the process of identifying and utilizing negotiation strategies to go through some of the specific constraints they faced earlier in their lives. As such, the constraints that continue to limit participation may be unrelated to the negotiation strategies utilized.

### **2.7.3 Constraints Negotiation Strategies and Level of Education**

A sociological study by Fathi (2010) on explanation of athletic participation of university students reported that the ability of students to look for solutions and overcome constraints for participating in sports, increases with advancement with level of education, meaning that improvement in use of negotiation strategies is higher for those with higher education levels. The study went further to highlight that master's programme students are more mature than bachelor's level in responding to constraints that hinder participation. Notably, there is also scarcity in literature on the influence of education level on negotiation strategies to exercise adherence. The incorporation of this aspect in the current study served to shrink this gap and give a much clearer answer to this relationship.

## **2.8 Summary of Literature Review**

From reviewed literature, studies were identified that addressed exercise adherence to the recommended standards and the influence of socio- demographic characteristics on the same. The literature indicated that adherence occurred if an individual participates

in exercise, leisure and sports for more than six months and with a participation rate of minimum 3 days per week for 30 minutes per session using moderate intensity or 5 days a week for 20 minutes using vigorous intensity. Some studies have indicated that adherence rates are higher among males than females and vice versa. Studies note that adherence declines with age while others reported lowest participation rates among young adults and that adherence rates for women decrease as they approach middle age. Furthermore, exercise adherence increases with higher levels of education.

Various studies reported varying experience of intrapersonal, interpersonal and structural constraints. Some are more pressing and encountered first hand than others. Several studies indicated that women experienced all constraints more than men while a few studies found that men experienced more constraints than women. Differences and similarities exist among young, middle aged and the old in terms of how they experience constraints. Different levels of education were associated with varying encounter of constraints with those at university education experiencing less constraints whereas those with less than high school education experiencing more constraints. Utilization of negotiation strategies of time management, financial resources, skills acquisition and interpersonal coordination varied across different studies. Males are generally more successful in developing and using negotiation strategies to overcome constraints than females.

Some literature specifically focused on female gender only deduced varied utilizations of negotiation strategies while others showed how negotiation strategies enabled women resist gender role expectation. Middle aged and older adults develop and use negotiation

strategies better and more than young adults. On the other hand, adults aged 50 years and older might have already identified and utilized negotiation strategies. A study by Fathi (2010) found that those with higher education level are better placed to utilize negotiation strategies than those with lower education levels. The current study may enrich this literature and knowledge in exercise adherence by giving implications and recommendations for policy, practice and further research. This will be consumed by stakeholders in the fitness industry as well as scholars in exercise, recreation and sports.

## **CHAPTER THREE: METHODOLOGY**

### **3.1 Research Design**

The study employed a cross-sectional analytical quantitative research design to assess constraints and negotiation strategies among clients at selected fitness centres in Nairobi County. This design enabled the researcher to gather information on demographics of respondents, conformity factors and constraints; constraints negotiation strategies, analyse and report data. According to Best and Kahn (2006), a survey enables studies to obtain data that describes a set of circumstances and specific traits of a population at the time of the study.

### **3.2 Measurement of Variables**

The study's independent variables were age, gender and level of education. Gender was measured at a nominal level whereas age and level of education were measured at an ordinal level. Dependent variables included constraints, negotiation strategies and frequency of participation per week, duration of participation per session, training intensity per session and accumulated years of exercising experience. Constraints and negotiation strategies were measured at an ordinal level using a 5-point Likert scale.

### **3.3 Location of the Study**

The study was conducted among clients with membership at selected fitness centres in Nairobi County. Nairobi is an urban area where most people are employed or run business daily. It is a major county that is surrounded by other counties, major commercial activities, universities, colleges, large hotels, military bases, residential

estates and a typical mix of urban, rural and slums setup with many fitness centres around and within these areas. Owing to the cosmopolitan nature of this region, it enabled the study to assess constraints and negotiation strategies at selected fitness centres.

### **3.4 Target Population**

The population for this study was described as clients with membership for at least 6 months at fitness centres which are located in Nairobi County. In order to obtain the fitness centres for this study, the Kenya Business Directory (2016) and the Yellow Pages Directory (2016) under the categories of “Gyms and Fitness Centres in Nairobi” respectively as at August 2016 was used. This yielded a total of 279 fitness centres as listed in Appendix B. From a preliminary search in 5 different fitness centres, the minimum number of clients required for a facility to run is 10 clients. There were 279 fitness centres in Nairobi County, thus the target population was approximately  $279 \times 10 = 2790$  clients.

#### **3.4.1 Inclusion criteria**

The sample for this study was drawn from only those respondents who had active memberships spanning six months or over in selected fitness centres.

#### **3.4.2 Exclusion criteria**

Any clients who had participated in fitness programmes at the selected centres for less than six months.

Any clients who were attending the selected fitness centre following a doctor's prescription for recovery from a chronic medical condition or rehabilitation from an injury.

Any clients who had already been contacted and participated in the study

### **3.5 Sampling Procedures**

The survey covered the 279 fitness centres across Nairobi County. There were 17 constituencies in Nairobi County which were classified using stratified random sampling for this study, thus yielding 17 strata. Simple random sampling was used to select two centres per stratum and in proportionately sampling the respondents.

### **3.6 Sample Size**

The Cochran (1977) formula was used in determining the sample size for this study.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where  $n_0$  is the sample size, Z-value is 1.96 per the Z table as the confidence level for the study was 95 %, e is the margin of error (5%), p is the (estimated) proportion of the population (50%) and q is  $1 - p$  (1 - 0.5) .

Therefore;

Sample size ( $n_0$ ) =  $((1.96)^2 (0.5) (0.5)) / (0.05)^2 = 384$ . This is for population above 10,000 and thus correction for the Cochran Formula for sample size calculation was used to modify the sample size as follows.

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where  $n_0$  is Cochran's sample size recommendation,  $N$  is the population size, and  $n$  is the new adjusted sample size. The target population for this study was 2790.

Therefore;

Adjusted sample size ( $n$ ) =  $384 / (1 + (383 / 2790)) = 337$  respondents.

However, the researcher increased the total number of questionnaires sent out by 67 (20%) to compensate for non-response. Out of this 45 (13%) were responded to. This adjusted the sample size to 382 respondents. Owing to non-responses to certain items, the effective sample size used in this study varied between 378 and 382.

### **3.7 Research Instruments**

A self-administrated questionnaire was used to collect data from clients. The first part of the questionnaire requested for demographic information and conformity factors in terms of frequency of participation per week, intensity of participation per session and duration of participation per session. The second part collected information on constraints to exercise adherence at fitness centre while the third section of the questionnaire sought information about the strategies to negotiate constraints. Both constraints and negotiation strategies were specifically assessed using a modified version of the Hubbard and Mannel (2001) questionnaire as used by Wood (2011). Respondents indicated the extent to which they experienced 40 constraint items on a

scale of 1 to 5, where 1 = strongly disagree and 5 = strongly agree. The scale represented 6 items for interpersonal, 15 for intrapersonal and 19 for structural constraints. The respondents further indicated how often they utilized 27 negotiation strategies on a scale of 1 to 5, where 1 = never and 5 = very often. The scale represented 3 items for financial resources, 11 for time management, 4 for skills acquisition and 9 for interpersonal coordination (Appendix E).

### **3.8 Pre Testing of Research Instrument**

The pretesting of the instrument was carried out among clients with membership at two randomly selected Fitness centres (Thika Health and Fitness centre and Ruiru Gym and Aerobics) in neighbouring Kiambu County to prevent bias in responses (n=20). The retesting of the instrument was done to ensure explicitness and veracity of the questionnaire items.

### **3.9 Validity and Reliability**

The Wood (2011) questionnaire based on the work of Hubbard and Mannell (2001) leisure constraint scale had an adequate reliability with a coefficient alpha of 0.72 for the full scale and the negotiation scale had a co-efficient alpha of 0.89 for the full scale. However, the reliability of the modified questionnaire was established using the test-retest method. The questionnaire was administered to clients with membership at two randomly selected Fitness centres in Kiambu County and re-administered after two weeks. The responses were correlated for the reliability index using two-tailed interclass correlations. After test- retest, the study accepted a Cronbach alpha of 0.72 score for constraint scale and 0.89 score for negotiation scale. Validity was established through



literature review and instrument analysis by experts in the areas of exercise science, sports and recreation.

### **3.10 Data Collection Technique**

Questionnaires were distributed among selected fitness centre clients to understand the relationship between demographics (gender, age and level of education), conformity, constraints and negotiation strategies. Data were collected among fitness centre clients via onsite questionnaires in the months of July and August 2017.

Potential respondents were approached at the fitness centre reception and workout areas and asked if they were willing to participate in the study. They were informed on the purpose of the study, and that taking part entailed filling a questionnaire which had several questions concerning their experience of constraints and use of negotiation strategies to exercise together with some demographic inquiries. Respondents who met the inclusion criteria, filled an informed consent form (appendix C) and then went ahead to complete the survey. They filled the self-administered questionnaires and returned them immediately or before they left the centre.

To boost variability, sampling was proportioned across weekends and weekdays. In addition, to minimize bias, distribution of questionnaires took place in the morning, during daytime and in the evening thus targeting all clients including those who attend group exercise classes.

### **3.11 Data Analysis and Presentation**

The coding and analysis of data was done using statistical package for social sciences (SPSS) version 20 for various descriptive and inferential statistics. Individual respondents' scores for frequency, intensity and duration were used to generate conformity status for further analysis whereas individual respondents' scores for constraints and negotiation strategies subscales were computed for data analysis purposes. From these individual scores, data were summarised in means and frequencies for subsequent data analysis. Means, frequencies, percentages and cross tabulations were analysed for descriptive statistics. Normality tests were run to establish the sample distribution. Correlations were done using Spearman's rank order to establish relationships between demographics of gender, age and level of education for conformity status, constraints subscales and negotiating strategies subscales respectively. Group mean differences along age and level of education in conformity status, constraints and negotiation strategies were measured using Kruskal-Wallis H test. Mann – Whitney U test was conducted to assess differences by gender in conformity status, constraints and negotiation strategies scales.

### **3.12 Ethical and Logistical Considerations**

Study clearance was obtained from the Kenyatta University Graduate School and Kenyatta University Ethical Review Committee. Thereafter, a research authorization and permit was obtained from National Council of Science, Technology and Innovation. A research authorization was also obtained from Regional Coordinator of Education Nairobi. Permission to collect data from clients at selected fitness centres was sought

from the managers, supervisors and fitness instructors; and arrangements made beforehand to facilitate access to the clients. Respondents were informed on their cooperation in the study and on the observation of their anonymity of responses and confidentiality of the information to be collected. Participation consent was then sought where each participant signed an informed consent form (Appendix C). Five research assistants who were graduates in sport and recreation management and exercise science were trained by the researcher so as to help in the administration of the questionnaires. They were trained and given both verbal and written information on interpersonal skills, socio- demographic items, inclusion and exclusion criteria, constraints items and negotiation strategy items on the instrument to enable them to efficiently administer the questionnaires. The assistants were initially used to conduct a pre-test as a way of assessing their understanding and adaptability to the whole process. Each assistant was assigned five centres while the principal researcher visited the other nine centres.

## CHAPTER FOUR: RESULTS

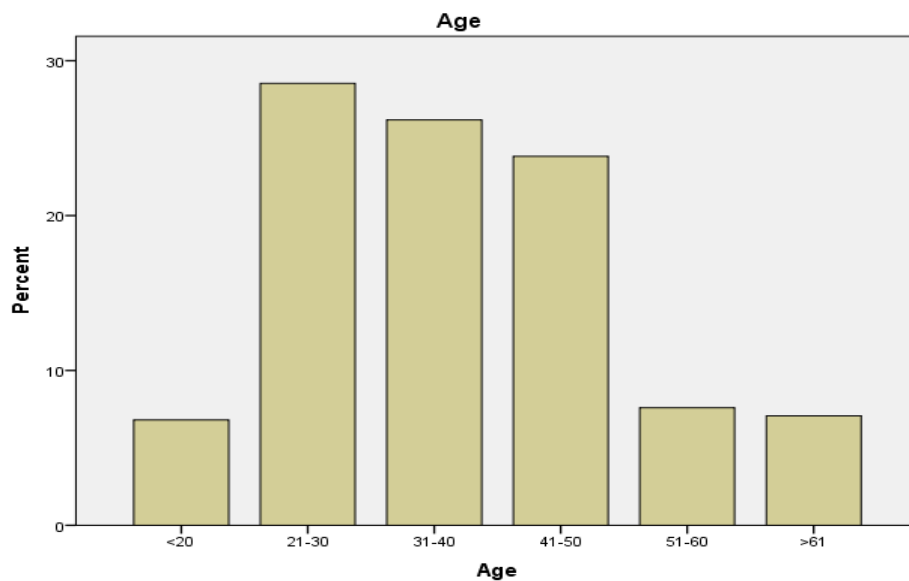
The purpose of this study was to evaluate the constraints and the negotiation strategies to exercise adherence among clients at selected fitness centres in Nairobi County. This chapter presents results of the study in line with the study objectives. It first presents the demographic characteristics of the respondents, adherence conformity and testing of hypothesis. In addition, the interpretations and implications of the results are presented.

### 4.1 Demographics of Respondents

#### 4.1.1 Gender of the Respondents

The total number of respondents who participated in the study was 382 (100%). There was an almost equal distribution of male and female for the sample with male respondents being 194 (50.8%) and female respondents, 188 (49.2%).

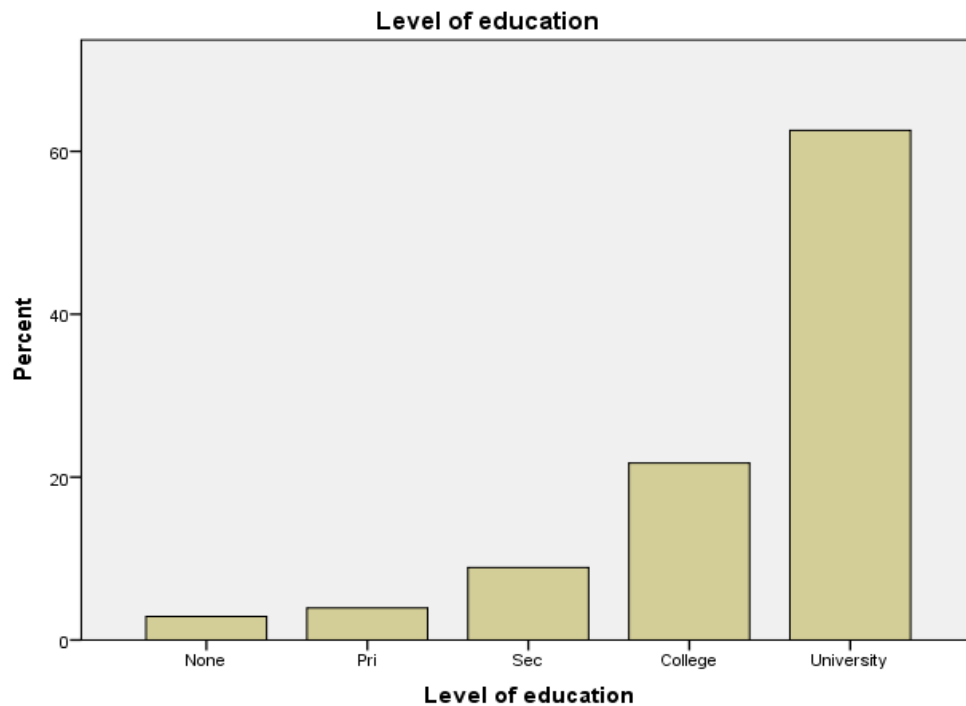
#### 4.1.2 Age of the Respondents



*Figure 4. 1: Frequency by age of the respondents*

Findings of the study as shown in figure 4.1 indicated that a larger portion of the sample (28.5%) were aged between 21-30 years, followed by those aged 31-40 years at 26.2% and then those aged 41-50 years at 23.8%. Those aged below or 20 years were 6.8%, 61 years or above were 7.1% and those aged 51-60 years were 7.6% and represented the smaller portion of the sample.

#### 4.1.3 Education Level of the Respondents



**Figure 4. 2: Frequency by education level of the respondents**

In terms of education levels, as per figure 4.2, the majority (62.6%) of the sample had attained university level of education whereas the least (2.9 %) had no schooling. Those who had college level of education accounted for 21.7%, secondary level 8.9% and primary level of education 3.9%.

## 4.2 Exercise Adherence Conformity to the Recommended Standards

### 4.2.1 Frequency of Participation per Week

Table 4. 1: *Outcome by frequency of participation per week*

Days per Week	Frequency	Percent
≤2	52	13.6
3-4	205	53.7
5-6	121	31.7
Total	378 <sup>a</sup>	99.0

Note: The maximum score is 382

<sup>a</sup> Four items which account for 1% were missing

The findings in table 4.1 shows that more than half of the clients were taking part between 3-4 days (53.7%) with 31.7% participating 5-6 days and 13.6% taking part for less than or 2 days per week respectively.

### 4.2.2 Intensity of Participation per Session

Table 4. 2: *Frequency by intensity of participation per session*

Intensity	Frequency	Percent
Low	52	13.6
Moderate	226	59.2
High	104	27.2
Total	382	100.0

Findings of the study in table 4.2 indicated that the majority of the clients (59.2%) participated in exercise at moderate intensity with the least (13.6%) participating at low intensity. Those who participated at a high intensity accounted for 27.2%.

#### 4.2.3 Duration of Participation per Session

Table 4. 3: *Frequency by duration of participation per session*

Time taken	Count	Percent
<1hour	40	10.5
1hour	202	52.9
2-3hours	130	34.0
>3hour	8	2.1
Total	380 <sup>a</sup>	99.5

Note: The maximum score is 382

<sup>a</sup> Two items accounting for 0.5% were missing

The results in table 4.3 indicates that 202 (52.9%) of the clients participated in an exercise session for one hour. Those who spent more than three hours per session represented 2.1%. Clients who took less than one hour in an exercise session were 10.5% while participants who spent between two to three hours per session accounted for 34.0%.

#### 4.2.4 Accumulated Years of Exercising Experience

Table 4. 4: *Frequency by accumulated years of exercising experience*

Number of Years	Frequency	Percent
1-5years	207	54.2
6-10years	87	22.8
>10years	86	22.5
Total	380 <sup>a</sup>	99.5

Note: The maximum count is 382

<sup>a</sup>Two items accounting for 0.5% were missing

With regards to accumulated years of exercising experience, the study revealed that the majority of the clients' 207 (54.2%) had been participating in exercise for the past 1-5 years. The results in table 4.4 indicate that 22.8 % of the clients had participated in exercise for the past 6-10 years while 22.5% had participated for more than 10 years.

#### 4.2.5 Conformity Status and Gender

Table 4. 5: *Gender versus conformity status cross tabulation*

			Conformity Status					
			Conforming	% of	Non-	% of	Total	% of
				Total	conforming	Total	N	Total
Gender	Male	n	160	41.9%	34	8.9%	194	50.8%
	Female	n	139	36.4%	49	12.8%	188	49.2%
	Total	N	299	78.3%	83	21.7%	382	100.0%



Descriptive statistics were run for conformity status and gender. Results as presented in table 4.5 indicated that 299 (78.3%) respondents were conforming whereas 83 (21.7%) respondents were not conforming. More males 160 (41.9%) than females 139 (36.4%) were conforming while on the other hand more females 49 (12.8%) than males 34 (8.9%) were not conforming.

#### 4.2.6 Conformity Status and Age

Table 4. 6: *Age versus conformity status cross tabulation*

		Conformity Status						
		Conforming	% of Total	Non-conforming	% of Total	Total N	% of Total	
Age groups	≤20	n	16	4.2%	10	2.6%	26	6.8%
	21-30	n	86	22.5%	23	6.0%	109	28.5%
	31-40	n	87	22.8%	13	3.4%	100	26.2%
	41-50	n	76	19.9%	15	3.9%	91	23.8%
	51-60	n	28	7.3%	1	0.3%	29	7.6%
	≥61	n	6	1.6%	21	5.5%	27	7.1%
	Total	N	299	78.3%	83	21.7%	382	100.0%

The results in table 4.6 revealed that most of those who were conforming belonged to age groups of 31-40 at 22.8% followed by 21-30 at 22.5%, then 41-50 years at 19.9%. Those who conformed least were in the age groups of 61years or above at 1.6% and below or 20 years at 4.2%. In terms of not conforming, those in the age groups 21-30 years were 6.0% followed 61years or above were 5.5% then 41-50 years were 3.9% as

the most non-conforming respectively. The least non-conforming were those in age groups 51-60 at 0.3% and below or 20 years at 2.6%.

#### 4.2.7 Conformity Status and Level of Education

Table 4. 7: *Level of education versus conformity status cross tabulation*

			Conformity Status					
			Conforming	% of	Non-	% of	Total	% of
				Total	conforming	Total	N	Total
Level of Education	No schooling	n	4	1.0%	7	1.8%	11	2.9%
	Primary	n	10	2.6%	5	1.3%	15	3.9%
	Secondary	n	25	6.5%	9	2.4%	34	8.9%
	College	n	64	16.8%	19	5.0%	83	21.7%
	University	n	196	51.3%	43	11.3%	239	62.6%
	Total	N	299	78.3%	83	21.7%	382	100.0%

Descriptive statistics were run for conformity status with education level as shown in table 4.7. Results showed that those with university level of education 196 (51.3%) were the most conforming, followed by college level 64 (16.8%) then secondary level 25 (6.5%) while the ones with no schooling level 4 (1.0%) were the least conforming. In addition, highest number of those not conforming had university level of education 43 (11.3%) whereas those with primary level were the least 5 (1.3%).

#### 4.2.8 Accumulated Years of Exercising Experience According to Gender

Table 4. 8: *Gender versus years of exercising experience cross tabulation*

			Years of exercising experience							
			1-5 years	% of Total	6-10 years	% of Total	>10years	% of Total	Total N	% of Total
Gender	Male	n	106	27.9%	42	11.1%	44	11.6%	192	50.5%
	Female	n	101	26.6%	45	11.8%	42	11.1%	188	49.5%
	Total	N	207	54.5%	87	22.9%	86	22.6%	380 <sup>a</sup>	100.0%

Note: The maximum score is 382

<sup>a</sup> Two items accounting for 0.5% were missing

Results shown in table 4.8 indicates that males had a slightly higher percentage than females for accumulated years of exercising experience for both 1-5 years (27.9% against 26.6%) and more than 10 years (11.6% against 11,1%) whereas females had a slightly higher percentage than males for 6-10 years (11.8 against 11.1%).

#### 4.2.9 Accumulated Years of Exercising Experience According to Age

Table 4. 9: Age versus years of exercising experience cross tabulation

		Years of exercising experience							Total N	% of Total
		1-5 years	% of Total	6-10 years	% of Total	>10years	% of Total			
Age	≤20	n	24	6.3%	2	0.5%	0	0.0%	26	6.8%
	21-30	n	93	24.5%	11	2.9%	5	1.3%	109	28.7%
	31-40	n	41	10.8%	30	7.9%	27	7.1%	98	25.8%
	41-50	n	29	7.6%	35	9.2%	27	7.1%	91	23.9%
	51-60	n	11	2.9%	8	2.1%	10	2.6%	29	7.6%
	≥61	n	9	2.4%	1	0.3%	17	4.5%	27	7.1%
	Total	N	207	54.5%	87	22.9%	86	22.6%	380 <sup>a</sup>	100.0%

Note. The maximum score is 382

<sup>a</sup> Two items accounting for 0.5% were missing

The results presented in table 4.9 shows that the majority of those aged 21-30 years (24.5%) had an accumulated years of exercising experience of 1-5 years with those aged 61 years or above (2.4%) and 51-60 years (2.9%) having the least respondents for this category. Those aged 41-50 years (9.2%) and 31-40 years (7.9%) had higher percentages for 6-10 years with those aged 61 years or above (0.3%) and below or 20 years (0.5%) having the least. The category of more than 10 years exercising experience returned the lowest numbers for all age groups with those aged 31-40 and 41-50 years

having the highest percentages at 7.1% each while those aged below or 20 years having none.

#### 4.2.10 Accumulated Years of Exercising Experience According to Level of Education

Table 4. 10: *Level of education versus years of exercising experience cross tabulation*

			Years of exercising experience							
			1-5 years	% of Total	6-10 years	% of Total	>10 years	% of Total	Total N	% of Total
Level of education	No schooling	n	7	1.8%	0	0.0%	4	1.1%	11	2.9%
	Primary	n	9	2.4%	4	1.1%	2	0.5%	15	3.9%
	Secondary	n	16	4.2%	10	2.6%	8	2.1%	34	8.9%
	College	n	33	8.7%	24	6.3%	26	6.8%	83	21.8%
	University	n	142	37.4%	49	12.9%	46	12.1%	237	62.4%
	Total	N	207	54.5%	87	22.9%	86	22.6%	380 <sup>a</sup>	100.0%

Note. The maximum score is 382

<sup>a</sup> Two items accounting for 0.5% were missing

Findings presented in table 4.10 shows an increase in percentages in terms of accumulated years of exercising experience with an increase with the next higher level of education except for more than 10 years where those at primary level (10.9%) of education had a higher percentage than those at secondary level (21%).

### 4.3 Clients' Perceived Constraints to Exercise Adherence

#### 4.3.1 Perceived Constraints to Exercise Adherence

Table 4. 11: *Weighted means for perceived constraints subscales items*

Constraints Subscales	<i>M</i>	<i>SD</i>
<b>Structural Constraints</b>	<b>3.60</b>	<b>.71</b>
Inappropriate exercise programmes to gender	4.28	2.31
Lack of time due to work obligations	3.12	1.31
<b>Intrapersonal Constraints</b>	<b>3.84</b>	<b>.75</b>
I do not enjoy exercise activities	4.19	.90
Not well informed about offered exercise activities	3.37	1.24
<b>Interpersonal Constraints</b>	<b>3.66</b>	<b>.96</b>
Excessive attention of family to my studies	3.81	1.14
Lack of social encouragements	3.52	1.26

By using unit – weighted composite scores, descriptive statistics were run for the constraints subscales. Results as shown in table 4.11 indicate that the constraints with the highest means were intrapersonal ( $M = 3.84$ ,  $SD = 0.75$ ), followed by interpersonal ( $M = 3.66$ ,  $SD = 0.96$ ) whereas the structural constraints had the least mean score ( $M = 3.60$ ,  $SD = 0.71$ ). The most reported individual constraints were intrapersonal and some structural constraints. From the results, those with highest means were inappropriate exercise programmes to gender ( $M = 4.28$ ,  $SD = 2.31$ ), not enjoying exercise activities ( $M = 4.19$ ,  $SD = 0.90$ ) and exercise activities being too stressful ( $M = 4.10$ ,  $SD = 2.71$ );

lack of social skills ( $M = 4.05$ ,  $SD = 2.82$ ), physically inappropriate to participate in exercise ( $M = 4.03$ ,  $SD = 0.98$ ) and availability of more facility for one gender ( $M = 3.95$ ,  $SD = 1.53$ ). Others were lack of transportation to the fitness facility ( $M = 3.95$ ,  $SD = 1.07$ ), cultural limitation ( $M = 3.94$ ,  $SD = 1.05$ ) and fear of injury ( $M = 3.93$ ,  $SD = 1.00$ ). Most of the individual items with the lowest means were structural constraints. These included; lack of time due to work obligations ( $M = 3.12$ ,  $SD = 1.31$ ), lack of time due to family obligations ( $M = 3.30$ ,  $SD = 1.37$ ) and overcrowded fitness facilities ( $M = 3.30$ ,  $SD = 1.32$ ). Others were inadequate instructing in the exercise programmes ( $M = 3.37$ ,  $SD = 1.31$ ), inadequate information about offered exercise activities ( $M = 3.37$ ,  $SD = 1.24$ ), high cost of some exercise programmes ( $M = 3.40$ ,  $SD = 1.23$ ) and lack of time due to studies obligations ( $M = 3.49$ ,  $SD = 1.00$ ).

### 4.3.2 Constraints Subscales and Gender

Table 4. 12: *Weighted means for constraints subscales by gender*

Gender	<i>n</i>	Structural constraints		Intrapersonal constraints		Interpersonal constraints	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male	194	3.56	.70	3.83	.83	3.57	1.00
Female	188	3.64	.73	3.85	.67	3.75	.90
Total	382	3.60	.71	3.84	.75	3.66	.96

Descriptive statistics were run for each subscale of constraints and gender. The results as presented in table 4.12 indicates highest means for intrapersonal constraints subscale

( $M = 3.84$ ,  $SD = 0.75$ ), followed by interpersonal constraints subscale ( $M = 3.66$ ,  $SD = 0.96$ ) and the least was structural constraints subscale ( $M = 3.60$ ,  $SD = 0.71$ ). Further, the results reported higher means for intrapersonal ( $M = 3.83$ ,  $SD = 0.82$ ;  $M = 3.85$ ,  $SD = 0.67$ ), followed by interpersonal ( $M = 3.57$ ,  $SD = 1.01$ ;  $M = 3.75$ ,  $SD = 0.90$ ) then structural ( $M = 3.56$ ,  $SD = 0.70$ ;  $M = 3.64$ ,  $SD = 0.73$ ) constraints subscales for both male and female respectively in the same order. Notably, female respondents reported higher means for each of the three constraints subscales than the male respondents.

### 4.3.3 Constraints Subscales and Age

Table 4. 13: *Weighted means for constraints subscales by age*

Age groups	<i>n</i>	Structural constraints		Intrapersonal constraints		Interpersonal constraints	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
≤20	26	3.80	.76	3.72	.61	3.91	1.43
21-30	109	3.73	.65	3.90	.77	3.74	.90
31-40	100	3.64	.75	3.88	.58	3.65	.98
41-50	91	3.48	.75	3.83	.99	3.62	.92
51-60	29	3.42	.51	3.76	.49	3.51	.49
≥61	27	3.34	.74	3.70	.57	3.39	1.02
Total	382	3.60	.71	3.84	.75	3.66	.96

In terms of age, (table 4.13) the study showed that intrapersonal constraints registered the highest mean ( $M = 3.84$ ,  $SD = 0.75$ ) while the structural constraints registered the



least mean ( $M = 3.60$ ,  $SD = 0.71$ ) for all constraints subscales with age. Across all age groups (below or 20 to 61 years or above), intrapersonal constraints subscale had the highest mean amongst the three subscales with structural constraints having the lowest mean. Exceptionally, for age group below or 20 years, interpersonal constraints had the highest mean ( $M = 3.91$ ,  $SD = 1.43$ ) while the intrapersonal constraints had the lowest mean ( $M = 3.72$ ,  $SD = 0.61$ ). The results further indicated highest means for age group below or 20 years ( $M = 3.80$ ,  $SD = 0.76$ ;  $M = 3.91$ ,  $SD = 1.43$ ) which were decreasing across next age level groups with age group 61 years or above ( $M = 3.34$ ,  $SD = 0.74$ ;  $M = 3.39$ ,  $SD = 1.02$ ) having the lowest means for both structural and interpersonal constraints subscales respectively. For the intrapersonal subscale, the age group of years 21-30 had the highest mean ( $M = 3.90$ ,  $SD = 0.77$ ), followed by age groups 31-40, 41-50, 51-60 and then below or 20 years with 61 years or above reporting the lowest mean ( $M = 3.70$ ,  $SD = 0.57$ ).

#### 4.3.4 Constraints Subscales and Education Level

Table 4. 14: *Weighted means for constraints subscales by education level*

Level of Education	<i>n</i>	Structural constraints		Intrapersonal constraints		Interpersonal constraints	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
No Schooling	11	3.49	.57	3.61	.60	3.64	.78
Primary	15	3.65	.80	4.13	1.08	3.73	.69
Secondary	34	3.67	.80	3.84	.61	3.43	.82
College	83	3.36	.68	3.65	.68	3.35	1.03
University	239	3.67	.70	3.90	.76	3.79	.95
Total	382	3.60	.71	3.84	.75	3.66	.96

Using unit-weighted composite scores, descriptive statistics were run for all the subscales of constraints with education level as shown in table 4.14. Results indicated highest means in intrapersonal constraints ( $M = 3.84$ ,  $SD = 0.71$ ), then interpersonal ( $M = 3.66$ ,  $SD = 0.75$ ) and the least was structural constraints ( $M = 3.60$ ,  $SD = 0.96$ ). Intrapersonal constraints subscale registered the highest means across all levels of education except for no schooling where interpersonal constraints subscale returned the highest mean ( $M = 3.63$ ,  $SD = 0.78$ ). Primary level of education recorded the highest mean for this subscale ( $M = 4.13$ ,  $SD = 1.08$ ). Structural constraints subscale registered the lowest means for no schooling, primary and university levels of education respectively. On the other hand, interpersonal constraints subscale recorded the lowest means for both college and secondary levels of education in that order.

#### 4.4 Clients' Exercise Negotiation Strategies to Exercise Adherence

##### 4.4.1 Negotiating Strategies to Exercise Adherence

Table 4. 15: *Weighted means for negotiation strategies items*

Negotiation Strategies Subscales	<i>M</i>	<i>SD</i>
<b>Interpersonal coordination</b>	<b>2.97</b>	<b>.89</b>
My exercise buddies assist with my skill development	3.34	2.41
I participate in exercises that meet the interests of my friends more than mine	2.13	1.29
<b>Financial Management</b>	<b>3.62</b>	<b>.99</b>
I save money to do exercises	3.89	1.42
I improvise with the equipment and/or clothes I have	3.24	1.15
<b>Time management</b>	<b>3.46</b>	<b>.69</b>
I set aside time for exercise	4.11	.84
I participate in exercises when I know I don't have to be there every week	2.57	1.18
<b>Skills Acquisition</b>	<b>3.56</b>	<b>.84</b>
I participate in exercises that meet my ability	3.75	1.04
I practice the required skills on my own	3.23	1.10

By using unit – weighted composite scores, descriptive statistics were run for negotiation strategies subscales. Results as indicated in table 4.15 show that financial resources had the highest mean ( $M = 3.62$ ,  $SD = 0.99$ ), followed by skills acquisition ( $M$

= 3.56,  $SD = 0.84$ ), then time management ( $M = 3.46$ ,  $SD = 0.69$ ) while interpersonal coordination had the lowest mean ( $M = 2.97$ ,  $SD = .89$ ). The individual negotiation strategies items that returned highest means were related to time and financial management. From the results, those with highest means were setting aside time for exercise ( $M = 4.11$ ,  $SD = 0.84$ ), trying to plan ahead for things ( $M = 3.96$ ,  $SD = 2.81$ ) and making exercise a priority ( $M = 3.94$ ,  $SD = 1.00$ ). Others were saving money to do exercises ( $M = 3.89$ ,  $SD = 1.42$ ), trying to budget for the money ( $M = 3.85$ ,  $SD = 1.08$ ) and trying to be organized ( $M = 3.84$ ,  $SD = 0.94$ ). The individual items that assessed interpersonal coordination registered the lowest means. These were participation in exercises that meet the interests of own friends more than self ( $M = 2.13$ ,  $SD = 1.29$ ), participation in exercises when one don't have to be there every week ( $M = 2.57$ ,  $SD = 1.18$ ), arranging exercise sessions with friends ( $M = 2.65$ ,  $SD = 1.14$ ) and participation in activities with people of the same gender ( $M = 2.95$ ,  $SD = 1.20$ ).

#### 4.4.2 Negotiation Strategies Subscales and Gender

Table 4. 16: *Weighted means for negotiation strategies by gender*

Gender	Interpersonal coordination			Financial resources		Time management		Skills acquisition	
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male	194	3.03	.78	3.60	.85	3.48	.75	3.59	.91
Female	188	2.91	.98	3.64	1.11	3.44	.63	3.53	.76
Total	382	2.97	.89	3.62	.99	3.46	.69	3.56	.84

Descriptive statistics were run for each subscale of negotiating strategies and gender. Results as presented in table 4.16, indicated highest means for financial resources subscale ( $M = 3.62$ ,  $SD = 0.99$ ), followed by skills acquisition subscale ( $M = 3.56$ ,  $SD = 0.84$ ), then time management subscales ( $M = 3.46$ ,  $SD = 0.69$ ) and the lowest was interpersonal coordination subscale ( $M = 2.97$ ,  $SD = 0.89$ ). Results registered higher means for financial resources ( $M = 3.64$ ,  $SD = 1.11$ ;  $M = 3.60$ ,  $SD = 0.85$ ) for both female and male respondents respectively followed by skills acquisition ( $M = 3.59$ ,  $SD = 0.91$ ;  $M = 3.53$ ,  $SD = 0.76$ ), then time management ( $M = 3.48$ ,  $SD = 0.75$ ;  $M = 3.44$ ,  $SD = 0.63$ ) while interpersonal coordination recorded the lowest means ( $M = 3.03$ ,  $SD = 0.78$ ;  $M = 2.91$ ,  $SD = 0.98$ ).

#### 4.4.3 Negotiation Strategies Subscales and Age

Table 4. 17: *Weighted means for negotiation strategies by age*

Age groups	<i>n</i>	Interpersonal coordination		Financial resources		Time management		Skills acquisition	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
≤20	26	3.45	1.27	3.98	.68	3.70	.59	3.82	.51
21-30	109	3.08	.84	3.42	1.39	3.42	.76	3.59	.89
31-40	100	2.91	.67	3.72	.71	3.42	.50	3.57	.95
41-50	91	2.69	.86	3.55	.85	3.39	.72	3.47	.88
51-60	29	3.15	1.31	3.82	.76	3.80	1.04	3.79	.51
≥61	27	3.02	.60	3.81	.55	3.44	.37	3.23	.34
Total	382	2.97	.89	3.62	.99	3.46	.69	3.56	.84

In terms of age, (table 4.17) the study showed that financial resources had the highest mean ( $M = 3.62$ ,  $SD = 0.99$ ) while the interpersonal coordination had the lowest the mean ( $M = 2.97$ ,  $SD = 0.89$ ) for all negotiation strategies with age. For age groups below or 20, 31-40, 41-50, 51-60 and 61 years or above old; financial resources subscale had the highest mean amongst the four subscales with interpersonal coordination having the lowest mean for all age groups including the 21-30 years category. In exception, skills acquisition had the highest mean for age group 21-30 years ( $M = 3.59$ ,  $SD = 0.89$ ).

#### 4.4.4 Negotiation Strategies Subscales and Level of Education

Table 4. 18: *Weighted means for negotiation strategies and Level of education*

Level of Education	<i>n</i>	Interpersonal Coordination		Financial Resources		Time Management		Skills Acquisition	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
No Schooling	11	3.10	.76	3.30	.92	3.31	.62	3.41	.48
Primary	15	3.53	1.64	3.73	.62	3.58	.52	3.78	.57
Secondary	34	3.33	.64	3.64	1.01	3.77	.95	3.60	.59
College	83	2.88	1.10	3.67	1.38	3.32	.76	3.36	.83
University	239	2.90	.75	3.61	.83	3.47	.62	3.62	.89
Total	382	2.97	.89	3.62	.99	3.46	.69	3.56	.84

Using unit-weighted composite scores, descriptive statistics were run for all the subscales of negotiation strategies by level of education as shown in table 4.18. The results indicated highest means for financial resources ( $M = 3.62$ ,  $SD = 0.99$ ), followed by skills acquisition ( $M = 3.56$ ,  $SD = 0.84$ ), then time management ( $M = 3.46$ ,  $SD = 0.69$ ) whilst interpersonal coordination had the lowest mean ( $M = 2.97$ ,  $SD = 0.89$ ). Interpersonal coordination recorded the highest mean for primary ( $M = 3.53$ ,  $SD = 1.64$ ) and the least for college ( $M = 2.88$ ,  $SD = 0.64$ ). Financial resources registered the highest mean for primary ( $M = 3.73$ ,  $SD = 0.62$ ) and the least for no schooling ( $M = 3.30$ ,  $SD = 0.92$ ). Time management had the highest means for secondary ( $M = 3.77$ ,  $SD = 0.95$ ).

= 0.95) and the least for no schooling ( $M = 3.31$ ,  $SD = 0.62$ ) whereas skills acquisition registered the highest mean for primary ( $M = 3.78$ ,  $SD = 0.57$ ) and the lowest for college level of education ( $M = 3.36$ ,  $SD = 0.83$ ).

#### 4.5 Normality Tests for Constraints and Negotiation Strategies Subscales

##### 4.5.1 Normality Test for Constraints Subscales

Table 4. 19: *Constraints subscales Shapiro-Wilk test of normality*

Constraints scale	Statistic	<i>df</i>	<i>Sig.</i>
Structural constraints	.985	382	.001
Intrapersonal constraints	.911	382	.000
Interpersonal constraints	.919	382	.000

The data were subjected to Shapiro-Wilk normality test. The results in table 4.19 indicated that the data were not normal and its distribution was non-normal thus the use of non-parametric tests. The constraints subscales yielded the following values  $w = .985$ ,  $df = 382$ ,  $p = .001$  for structural,  $w = .911$ ,  $df = 382$ ,  $p < 0.001$  for intrapersonal and  $w = .919$ ,  $df = 382$ ,  $p < 0.001$  for interpersonal constraints. This means that the data are significantly different from a normally distributed data.



#### 4.5.2 Normality Test for Negotiation Strategies Subscales

Table 4. 20: *Negotiation strategies subscales Shapiro-Wilk test of normality*

Negotiating strategies scale	Statistic	<i>df</i>	<i>Sig.</i>
Social skills	.910	382	.000
Financial resources	.850	382	.000
Time management	.888	382	.000
Skills acquisition	.866	382	.000

The data was subjected to Shapiro-Wilk normality test. The results presented in table 4.20 shows that the data were not normal and its distribution was non-normal thus the use of non-parametric tests. The negotiating strategies subscales yielded the following values  $w = .910$ ,  $df = 382$ ,  $p < 0.001$  for social skills,  $w = .850$ ,  $df = 382$ ,  $p < 0.001$  for financial resources,  $w = .888$ ,  $df = 382$ ,  $p < 0.001$  for time management and  $w = .866$ ,  $df = 382$ ,  $p < 0.001$  for skills acquisition. This means that the data are significantly different from a normally distributed data.

#### 4.6 Relationship between the Clients' Exercise Adherence Conformity Status to the Recommended Standards in Exercise and their Socio-demographic Characteristics

##### 4.6.1 Correlations between Conformity Status to the Recommended Standards and Gender

Table 4. 21: *Correlations between conformity status and gender*

		Conformity Status	Gender
Conformity status	Correlation	1.000	.104*
	Coefficient		
	Sig. (2-tailed)	.	.043
	<i>n</i>	382	382
Spearman's rho	Correlation	.104*	1.000
	Coefficient		
	Sig. (2-tailed)	.043	.
	<i>n</i>	382	382

\*  $p \leq 0.05$ .

The results shown in table 4.21 are of Spearman's rank difference correlation. They indicated that there was a positive relationship between conformity status to the recommended standards and gender ( $r_s = .10$ ,  $n = 382$ ,  $p = .043$ ).

#### 4.6.2 Comparing Conformity Status to the Recommended Standards across Gender

Table 4. 22: *Conformity status and gender Mann-Whitney u test of significance*

	Gender	<i>n</i>	Mean Rank	Median	<i>U</i>	<i>W</i>	<i>Z</i>	<i>Sig.</i>
Conformity Status	Male	194	183.47					
	Female	188	199.78	1	16679.00	35594.000	-2.020	.043*
	Total	382						

\*  $p \leq 0.05$ .

Table 4.22.1

*Frequencies of conformity status and gender (report)*

		Gender	
		Male	Female
Conformity Status	> Median	34	49
	<= Median	160	139

Table 4.22 presents mean ranks and test statistics while table 4.22.1 presents the medians. Mann-Whitney U tests for conformity status on the variable of gender were run to test the mean differences. The test indicated significant difference which was unlikely to be due to chance alone ( $Mdn = 1$ ),  $U = 16679$ ,  $Z = -2.020$ ,  $p = .043$ ,  $r = .10$ . This means that hypothesis  $H_{01}$  that there is no significant relationship between the clients' adherence conformity to the recommended standards in exercise and gender was rejected. The number of females above the median was higher than males whereas the

number of males at less than or at the median was greater than that of females; an indication that gender had an influence on clients' conformity status.

#### 4.6.3 Correlations between Conformity Status to the Recommended Standards and Age

Table 4. 23: *Correlations between conformity status and age*

		Conformity status	Age
Spearman's rho	Conformity status	Correlation Coefficient	1.000
		Sig. (2-tailed)	.049
		<i>N</i>	.344
	Age	Correlation Coefficient	.344
		Sig. (2-tailed)	1.000
		<i>N</i>	.344

Results of a Spearman's rank difference correlation in table 4.23 did not indicate any significant relationship between conformity status and age ( $r_s = .049$ ,  $n = 382$ ,  $p = .34$ ).

#### 4.6.4 Conformity Status to the Recommended Standards across Age Categories

	Age groups	<i>n</i>	Mean Rank	$X^2$	<i>df</i>	<i>Sig.</i>
Conformity Status	≤20	26	223.46	65.66	5	.000
	21-30	109	190.30			
	31-40	100	174.83			
	41-50	91	181.48			
	51-60	29	156.59			
	≥61	27	298.56			

Table 4. 24: *Age and Kruskal-Wallis test of significance*

Kruskal- Wallis H test was conducted to establish whether there was difference on conformity status to the recommended standards to exercise adherence and age. The test results in table 4.24 indicated significant differences for conformity status according to age ( $H(5) = 65.66, p < 0.001$ ) with mean ranks of 223.46, 190.30, 174.83, 181.48, 156.59 and 298.56 for age's below or 20 years, 21-30 years, 31-40 years, 41-50 years, 51-60 years and 61 years or above respectively. Post hoc tests were run using Bonferroni adjustment and indicated significant differences between age group below or 20 years and age groups 31-40 ( $p = .036$ ), 51-60 ( $p = .010$ ) and 61 years or above ( $p = .003$ ). There were also significant differences between age group ≥61 years and age groups 21-30 ( $p < 0.001$ ), 31-40 ( $p < 0.001$ ), 41-50 ( $p < 0.001$ ) and 51-60 ( $p < 0.001$ ) years. Therefore, hypothesis H<sub>01</sub> ii that there is no significant relationship between the clients' adherence conformity to the recommended standards in exercise and age was rejected.

#### 4.6.5 Correlations between Conformity Status to the Recommended Standards and Level of Education

Table 4. 25: *Correlations between conformity status and level of education*

		Conformity Status	Level of Education
Spearman's rho	Correlation Coefficient	1.000	-.141**
	Sig. (2-tailed)	.	.006
	<i>n</i>	382	382
	Correlation Coefficient	-.141**	1.000
Level of education	Sig. (2-tailed)	.006	.
	<i>n</i>	382	382

\*\* .  $p \leq .01$

Results of Spearman rank difference correlation in table 4.25 did not indicate any relationship between conformity status and level of education at  $p \leq 5\%$  but indicated a weak negative relationship between conformity status and level of education at  $p \leq 1\%$  ( $r_s = -.14, n = 382, p = .006$ ).

#### 4.6.6 Comparing Conformity Status to the Recommended Standards across Levels of Education

Table 4. 26: *Conformity status and level of education Kruskal-Wallis test of significance*

	Level of Education	<i>n</i>	Mean Rank	$X^2$	<i>df</i>	<i>Sig.</i>
Conformity status	No schooling	11	271.55	14.99	4	.005
	Primary	15	213.67			
	Secondary	34	200.56			
	College	83	193.72			
	University	239	184.36			

Results of a Kruskal-Wallis H test that was conducted to determine if conformity status by clients was different for five groups that had different levels of education is presented in table 4.26. From the results, there was a statistically significant difference between conformity status and level of education ( $H(4) = 14.99, p = .005$ ). This means that hypothesis H<sub>01</sub> iii that there is no significant relationship between the clients' adherence conformity to the recommended standards in exercise and level of education was accepted. The mean ranks were 271.55, 213.67, 200.56, 193.72 and 185.36 for no schooling, primary, secondary, college and university respectively. This is interpreted to mean that education level influenced clients' conformity status. Post hoc tests were run using Bonferroni adjustment. The results indicated significant differences between the no schooling level of education and both college ( $p = .019$ ) and university ( $p = .003$ ) levels of education categories.

## 4.7 Relationship between the Clients' Constraints to Exercise Adherence and their Socio-demographic Characteristics

### 4.7.1 Correlations between Constraints to Exercise Adherence and Gender

Table 4. 27: *Correlations between constraints and gender*

		Gender	Structural Constraints	Intrapersonal Constraints	Interpersonal Constraints
Spearman's rho	Gender	1.000	.050	.046	.130*
	Correlation Coefficient				
	Sig. (2-tailed)	.	.328	.373	.011
	<i>n</i>	382	382	382	382

Note \*.  $p \leq .05$ .

Results of Spearman's rank difference correlation as shown in table 4.27 pointed towards a weak positive relationship between interpersonal constraints to exercise adherence and gender ( $r_s = .13$ ,  $n = 382$ ,  $p = .011$ ).

### 4.7.2 Comparing Perceived Constraints to Exercise Adherence across Gender

Table 4. 28: *Constraints and gender Mann-Whitney u test of significance*

Constraints Subscale	Gender	<i>n</i>	Mean Rank	Median	<i>U</i>	<i>W</i>	<i>Z</i>	<i>Sig.</i>
Structural Constraints	Male	94	186.05	3.63	17179.5	36094.5	-.979	.327
	Female	188	197.12					
Intrapersonal Constraints	Male	194	186.55	3.87	17275.5	36190.5	-.891	.373
	Female	188	196.61					
Interpersonal Constraints	Male	194	177.40	3.67	15500	34415	-2.545	.011
	Female	188	206.05					



Table 4.28.1: *Frequencies of constraints subscales by gender (report)*

Constraints Subscales		Gender	
		Male	Female
Structural constraints	> Median	91	90
	≤ Median	103	98
Intrapersonal constraints	> Median	87	98
	≤ Median	107	90
Interpersonal constraints	> Median	84	106
	≤ Median	110	82

Table 4.28 presents mean ranks and test statistics while table 4.28.1 presents the medians. Mann-Whitney U tests for various constraints on the variable of gender. Whereas the two subscales (structural and intrapersonal) did not yield significant difference for gender, interpersonal constraints subscale reported significant difference ( $Mdn = 3.67$ ),  $U = 15500$ ,  $Z = -2.545$ ,  $p = .011$ ,  $r = .13$ . Therefore, hypothesis H<sub>02</sub> i that there is no significant relationship between the clients' perceived constraints to exercise adherence and gender was rejected. The number of females above the median was higher than males whereas the number of males at less than or at the median was greater than that of females; an indication that gender influenced clients' interpersonal constraints.

### 4.7.3 Correlations between Constraints to Exercise Adherence and Age

Table 4. 29: *Correlations between constraints and age*

		Age	Structural Constraints	Intrapersonal Constraints	Interpersonal Constraints
	Age	1.000	-.164**	-.099	-.096
	Correlation Coefficient				
Spearman's rho	Sig. (2-tailed)	.	.001	.052	.062
	<i>n</i>	382	382	382	382

The results in table 4.29 are of Spearman's rank difference correlation. They did not indicate any relationship between constraints to exercise and age at  $p \leq 5\%$  but pointed towards a strong negative relationship between structural constraints and age at  $p \leq 1\%$  ( $r_s = -.16$ ,  $n = 382$ ,  $p = .001$ ).

#### 4.7.4 Comparing Perceived Constraints to Exercise Adherence across Age

##### Category

Table 4. 30: *Constraints and age Kruskal-Wallis test of significance*

	Age groups	<i>n</i>	Mean Rank	$X^2$	<i>df</i>	<i>Sig.</i>
Structural Constraints	≤20	26	217.94	10.96	5	.052
	21-30	109	207.16			
	31-40	100	199.79			
	41-50	91	176.38			
	51-60	29	158.34			
	>61	27	158.69			
Intrapersonal Constraints	≤20	26	174.38	7.81	5	.167
	21-30	109	209.98			
	31-40	100	196.64			
	41-50	91	186.00			
	51-60	29	162.21			
	>61	27	164.33			
Interpersonal Constraints	≤20	26	194.42	4.97	5	.420
	21-30	109	203.27			
	31-40	100	197.03			
	41-50	91	186.31			
	51-60	29	159.66			
	>61	27	172.37			

Kruskal- Wallis H test was conducted to establish whether there were differences for various subscales of constraints across various age groups. The results as shown in table 4.30 indicated that there were no significant differences for the interpersonal and

intrapersonal constraints subscales according to age. This is interpreted to mean that the interpersonal and intrapersonal constraints were not in any way affected by the age of individual clients. However, the test results indicated significant differences for the structural constraints subscale according to age ( $H(5) = 10.96, p = .052$ ) with mean ranks of 217.94, 207.66, 199.79, 176.38, 158.34 and 158.69 for age's below or 20 years, 21-30 years, 31-40 years, 41-50 years, 51-60 years and 61years or above respectively. Therefore, hypothesis H<sub>02</sub> ii that there is no significant relationship between the clients' perceived constraints to exercise adherence and age was rejected.

#### 4.7.5 Correlations between Constraints to Exercise Adherence and Level of Education

Table 4. 31: *Correlations between constraints and level of education*

		Level of Education	Structural Constraints	Intrapersonal constraints	Interpersonal constraints
	Level of Education	1.000	.115*	.102*	.158**
Spearman's rho	Correlation Coefficient				
	Sig. (2-tailed)	.025	.047	.002	
	<i>n</i>	382	382	382	382

Note \*  $p \leq .05$ .

\*\*  $p \leq .01$ .

Results of a Spearman's rank difference correlation in table 4.31 indicates a weak positive relationship between both structural and intrapersonal constraints and level of education at  $p \leq 5\%$  ( $r_s = .12, n = 382, p = .025$ ) and ( $r_s = .10, n = 382, p = .047$ ) respectively. A weak positive relationship between interpersonal constraints and level of education at  $p \leq 1\%$  was also observed ( $r_s = .16, n = 382, p = .002$ ).

#### 4.7.6 Comparing Perceived Constraints to Exercise Adherence across Levels of Education

Table 4. 32: Constraints and level of education Kruskal-Wallis test of significance

Constraints Subscale	Level of Education	<i>n</i>	Mean Rank	$X^2$	<i>df</i>	<i>Sig.</i>
Structural Constraints	No schooling	11	180.18	12.54	4	.014
	Primary	15	199.00			
	Secondary	34	196.85			
	College	83	154.41			
	University	239	203.67			
Intrapersonal Constraints	No schooling	11	165.59	7.76	4	.101
	Primary	15	206.23			
	Secondary	34	187.15			
	College	83	164.92			
	University	239	201.62			
Interpersonal Constraints	No schooling	11	196.91	13.92	4	.008
	Primary	15	194.10			
	Secondary	34	158.72			
	College	83	160.78			
	University	239	206.42			

Results of a Kruskal-Wallis H test that was conducted to determine if constraints perceived by clients were different for five groups that had different levels of education is presented in table 4.32. The results showed that there was a significant difference in structural ( $H(4) = 12.54, p = .014$ ) and interpersonal constraints ( $H(4) = 13.92, p = .008$ ) subscales between the five groups. The mean ranks for structural constraints subscale were 180.18, 199.00, 196.85, 154.41, 203.67 for no schooling, primary,

secondary, college and university respectively while those for interpersonal constraints subscale were 196.91, 194.10, 158.72, 160.78 and 206.42 respectively and in the same order as structural education level groups. Therefore, hypothesis H<sub>02</sub> iii that there is no significant relationship between the clients' constraints to exercise adherence and level of education was rejected. There was no significant difference for the intrapersonal subscale. This is interpreted to mean that education level influenced clients' structural and interpersonal constraints. To identify exactly where the differences were, multiple Mann-Whitney U test were run between all possible pairs. Holm's Sequential Bonferroni adjustment was conducted on all significant results in order to control for type 1 error. There was a significant difference between college and university levels of education groups ( $U = 7323, p < 0.001$ ) for structural constraints, secondary and university education ( $U = 3000.5, p = .013$ ) and college and university ( $U = 7581.5, p = .001$ ) levels of education groups for interpersonal constraints subscale.

#### 4.8 Relationship between the Clients' Exercise Adherence Negotiation Strategies and their Socio- demographic Characteristics.

##### 4.8.1 Correlations between the clients' exercise adherence negotiation strategies and Gender

Table 4. 33: *Correlations between negotiating strategies and gender*

		Gender	Social Skills	Financial Resources	Time Management	Skills Acquisition
Spearman's rho	Gender	1.000	-.125*	.020	-.024	-.044
	Correlation Coefficient					
	Sig. (2-tailed)	.	.015	.694	.643	.388
	<i>n</i>	382	382	382	382	382

\* $p \leq .05$ .

A Spearman's rank difference correlation coefficient results presented in table 4.33 indicated a weak negative relationship between social skills negotiation strategy and gender ( $r_s = -.13$ ,  $n = 382$ ,  $p = .015$ ).

#### 4.7.2 Comparing Negotiation Strategies to Exercise Adherence across Gender

Table 4. 34: *Negotiation strategies and gender Mann-Whitney u test of significance*

Negotiation Strategies	Gender	<i>n</i>	Mean Rank	Median	<i>U</i>	<i>W</i>	<i>Z</i>	<i>Sig.</i>
Interpersonal coordination	Male	194	205.01	3.00	15615.5	33381.5	-2.43	.015*
	Female	188	177.56					
Financial resources	Male	194	189.32	3.67	17814	36729	-.394	.693
	Female	188	193.74					
Time management	Male	194	194.08	3.45	17735	35501	-.465	.642
	Female	188	188.84					
Skills acquisition	Male	194	196.28	3.50	17309.5	35075.5	-.865	.387
	Female	188	186.57					

\*  $p \leq .05$ .

##### 4.34.1: *Frequencies of negotiation strategies subscales by gender (report)*

		Gender	
		Male	Female
Interpersonal	> Median	98	74
Coordination	≤ Median	96	114
Financial Resources	> Median	80	81
	≤ Median	114	107
Time Management	> Median	99	86
	≤ Median	95	102
Skills Acquisition	> Median	82	74
	≤ Median	112	114

Table 4.34 presents mean ranks and test statistics for negotiating strategies compared to Gender. Mann-Whitney U tests for various negotiating strategies subscales on the variable of gender were run to test mean differences. Whereas the three subscales



(financial resources, time management and skills acquisition) did not yield significant difference for gender, interpersonal coordination subscale reported significant difference ( $Mdn = 3.00$ ),  $U = 15615.5$ ,  $Z = -2.43$ ,  $p = .015$ ,  $r = .12$ . Thus, hypothesis H<sub>03</sub> i that there is no significant relationship between the clients' negotiation strategies and gender was rejected. The results in table 4.34.1 indicated that the number of males above the median was higher than females whereas the number of females at less than or at the median was greater than that of males; an indication that gender influenced social relations.

#### 4.8.3 Correlations between the clients' exercise adherence negotiation strategies and Age

Table 4. 35: *Correlations between negotiation strategies and age*

		Age	Social Skills	Financial Resources	Time management	Skills Acquisition
Spearman's rho	Age	1.000	-.162**	.073	-.019	-.145**
	Correlation Coefficient	.	.001	.157	.718	.004
	Sig. (2-tailed)					
	<i>n</i>	382	382	382	382	382

\*\* $. p \leq .01$ .

Spearman's rank difference correlation coefficient results in table 4.35 did not indicate any relationship between negotiating strategies and age. Both social skills and skills acquisition negotiation strategies and age had weak negative relationship at  $p \leq 1\%$  ( $r_s = -.16$ ,  $p = 382$ ,  $p = .001$ ) and ( $r_s = -.15$ ,  $n = 382$ ,  $p = .004$ ) respectively.

#### 4.8.4 Comparing Negotiation Strategies to Exercise Adherence across Age

##### Category

Table 4. 36: *Negotiation strategies and age Kruskal-Wallis test of significance*

	Age groups	<i>n</i>	Mean Rank	$X^2$	<i>df</i>	<i>Sig.</i>
Interpersonal Coordination	≤20	26	241.92	23.761	5	.000
	21-30	109	214.72			
	31-40	100	183.65			
	41-50	91	150.92			
	51-60	29	198.74			
	>61	27	207.26			
Financial Resources	≤20	26	231.02	13.083	5	.023
	21-30	109	166.18			
	31-40	100	197.87			
	41-50	91	187.04			
	51-60	29	220.66			
	>61	27	215.80			
Time Management	≤20	26	226.60	7.962	5	.158
	21-30	109	191.23			
	31-40	100	181.05			
	41-50	91	182.43			
	51-60	29	231.09			
	>61	27	185.56			
Skills Acquisition	≤20	26	243.02	23.310	5	.000
	21-30	109	206.56			
	31-40	100	181.08			
	41-50	91	173.82			
	51-60	29	234.76			
	>61	27	132.83			

A Kruskal-Wallis H test was conducted to determine if negotiating strategies used by clients were different for clients' across six different age groups. The results in table 4.37 showed that there was a significant difference for interpersonal coordination ( $H(5) = 23.761, p < 0.001$ ), financial resources ( $H(5) = 13.083, p = .023$ ) and skills acquisition ( $H(5) = 23.310, p < 0.001$ ) subscales between the six groups. Accordingly, hypothesis  $H_{03}$  ii that there is no significant relationship between the clients' negotiating strategies and age was rejected. The mean ranks are also shown in the same table. There was no significant difference for the time management subscale. Therefore, age influenced clients' interpersonal coordination, financial resources and skills acquisition negotiation strategies. Multiple Mann-Whitney U tests were run between all possible pairs to identify exactly where the differences were. Holm's Sequential Bonferroni adjustment was conducted on all significant results in order to control type 1 error and only the significant pairs were reported. There was a significant difference between the following age groups for interpersonal coordination: below or 20 years and 41-50 years groups ( $U = 646.0, p < 0.001$ ) and between 21-30 years and 41-50years groups ( $U = 3368.0, p < 0.001$ ) and for skills acquisition: 51-60years and 61years or above ( $U = 131, p < 0.001$ ); below or 20 years and 61years or above ( $U = 122, p < 0.001$ ); 41-50years and 51-60years ( $U = 889, p = .001$ ); 21-30years and 61years or above ( $U = 885, p = 0.001$ ).

#### 4.8.5 Correlations between the clients' exercise adherence negotiation strategies and Level of Education

Table 4. 37: *Correlations between negotiation strategies and level of education*

		Level of Education	Social Skills	Financial Resources	Time Management	Skills Acquisition
Spearman's rho	Level of Education	1.000	-.111*	-.006	.002	.063
	Correlation Coefficient					
	Sig. (2-tailed)	.	.030	.912	.975	.216
	<i>n</i>	382	382	382	382	382

\*.  $p \leq .05$

Spearman's rank difference correlation coefficient results presented in table 4.37

indicate a weak negative relationship between social skills negotiation strategies and

level of education ( $r_s = -.11$ ,  $n = 382$ ,  $p = .030$ ).

#### 4.8.6 Comparing Negotiation Strategies to Exercise Adherence across Levels of Education

Table 4. 38: *Negotiation strategies and education level Kruskal-Wallis test of significance*

Negotiation Strategies	Level of Education	<i>n</i>	Mean Rank	$X^2$	<i>df</i>	<i>Sig.</i>
Interpersonal Coordination	No Schooling	11	221.23	14.798	4	.005
	Primary	15	229.43			
	Secondary	34	250.18			
	College	83	175.36			
	University	239	185.01			
Financial Resources	No Schooling	11	158.27	1.342	4	.854
	Primary	15	201.23			
	Secondary	34	199.50			
	College	83	193.09			
	University	239	190.73			
Time Management	No Schooling	11	167.55	8.245	4	.083
	Primary	15	209.83			
	Secondary	34	229.47			
	College	83	169.86			
	University	239	193.57			
Skills Acquisition	No Schooling	11	168.91	8.245	4	.062
	Primary	15	229.40			
	Secondary	34	198.00			
	College	83	163.38			
	University	239	199.00			

Kruskal- Wallis H test was conducted to establish whether there was difference for various subscales of negotiating strategies between various education levels. The results

in table 4.38 indicated that there was a significant difference between interpersonal coordination subscale according to education level ( $H(4) = 14.798, p = .005$ ). The mean ranks were 221.23 for no schooling, 229.43 for primary, 250.18 for secondary, 175.36 for college and 185.01 for university. This means that hypothesis H<sub>03</sub> iii that there is no significant relationship between the clients' negotiation strategies and level of education was rejected. However, the test results indicated that there were no statistically significant differences for the financial resources, time management and skills acquisition subscales according to education level. This meant that the means for clients' education level were not having significant differences. Thus, the later negotiation strategies subscales were not in any way affected by the education level of individual clients. To identify exactly where the differences were, multiple Mann-Whitney U tests were run between all possible pairs. Post hoc analyses using the Bonferroni post hoc criterion for significance indicated that there were differences between secondary and college ( $U = 874, p = .001$ ); secondary and university ( $U = 2660, p = .001$ ) levels of education groups respectively.

## CHAPTER FIVE: DISCUSSIONS

### 5.1 Exercise Adherence Conformity

Exercise adherence refers to the strength of a client's commitment to performing physical exercise for at least six months. Adherence to exercise by individuals who enrol for exercise programmes is important to achieve both health and sports related fitness. The current study used frequency of participation per week, duration of training per session, intensity of training per session, accumulated years of exercising experience and a minimum time frame of six months to define exercise adherence.

Numerous standards have been recommended for frequency, intensity and duration specifically in relation to participation in exercise programmes. American College of Sports Medicine (2010) states that an adult should have no less than 30 minutes of moderate intensity 5 days a week or 20 minutes of vigorous intensity 3 days for each week (CDC, 2007). World Health Organization (2010) recommends exercising for at least 150 minutes of moderate intensity throughout the week or no less than 75 minutes of vigorous intensity exercises throughout the week or a proportional mix of both for adults aged 18–65 years or more. In addition, WHO (2015) recommends exercise standards for adolescents to be 60 minutes of moderate to vigorous intensity exercise per day. These international standards set the way and baseline upon which participants in exercise programmes and those who seek to adhere and maintain their regimens would and should meet with regards to frequency, intensity and duration. In the opinion and observation of the researcher, there tends to be a mentality and practice in most fitness centres in Nairobi County where people believe in exercising on alternate days

and thus unknowingly find themselves adhering to the recommended standards by ACSM and WHO. Further, looking at the design of fitness classes at most local fitness centres; they are programmed in a manner that configures and conditions clients to alternate training days.

The current study revealed that majority of the respondents had been participating in exercise for the past 1-5 years with almost equal numbers participating for the past 6-10 years and for more than 10 years. This could be associated with the increased awareness among urban residents in Kenya in the recent years. More people have adopted active lifestyles and are engaging in exercise activities. Generally, results showed that according to FID, more than half of the respondents participated in exercise for 3-4 days per week, at a moderate intensity per session and for one hour per session respectively. On the other hand, results showed that less than 15% of the respondents participated in exercise for less than or two days per week, at a low intensity and for less than one hour per session or more than 3 hours per session. About 27-34% of the respondents participated in exercise for 5-6 days per week, at a high intensity per session and for 2-3 hours per session. The overall conformity rate was 78%.

The need to ensure adherence to exercise programmes can never be overlooked considering previous research which have indicated that individuals who start an exercise programme stop within six months (Dunn, Marcus & Kampert, 1999; Marcus & Forsythe, 2003; Weinberg & Gould, 2007; Wilson & Brookfield, 2009; Kelli & Miriam, 2010). Likewise, this cannot be ignored in the wake of an old study by Troiano et al. (2008) that found adult adherence to the recommended exercise levels at least 150



minutes of moderate intensity throughout the week was below five percent. Buckworth and Dishman (2002) observe that regularity and consistency lasting more than 6 months is key in ensuring adherence to exercise regimens in spite of pressures and opportunities to withdraw.

Incorporation of a timeframe between the initiation and maintenance phases of adherence is imperative because elements of exercise activities at initiation and maintenance vary (Lippke & Ziegelmann, 2006). Studies have advocated a period of 6 months and anything below six months of regular exercise is not enough to draw extensive health benefits from the physical exercise (Dishman, 1994; Bock et al., 2001). The current study excluded those who had fitness membership lasting less than half a year. As such, individuals who take up and initiate exercise for one month for instance, can be separated from those who adhere to regular exercise beyond six months. The study further established that most Nairobi County fitness centres were in compliant with these standards.

### **5.1.1 Exercise Adherence Conformity across Gender**

Results of the correlations between gender and conformity status indicated a weak positive relationship between conformity status to the recommended standards and gender ( $r_s = .10$ ,  $n = 382$ ,  $p = .043$ ). The comparison of respondents' exercise adherence conformity across gender indicated that there was a statistically significant difference between males and females for conformity status ( $Mdn = 1$ ),  $U = 16679$ ,  $Z = -2.020$ ,  $p = .043$ ,  $r = .10$ . The number of females above the median was higher than males whereas the number of males at less than or at the median was greater than that of females; an

indication that gender had an influence on clients' conformity status with more males (42%) than females (36%) conforming.

These results implied that the rates of participation for both males and females were different. Male respondents had a higher participation frequency for all elements of exercise adherence conformity compared to their female counterparts. This meant that males had higher participation rates compared to females. Though times are changing and the gap between males and females in terms of participation is reducing, males are still the majority taking part in exercise activities. A majority of fitness centres are well equipped with more male dominant equipment like very heavy dumbbells. Until recently when there seems to be some shift, almost every facility had male instructors only. What is happening in Kenya is transition and it might not come as a surprise that in few years' time, females might be more involved and highly conforming than males.

The gender effect is similar in several studies. There is relative unanimity in studies that males devote more time in exercise and sport regularly than females (Downward et al., 2014; Mutter & Pawlowski, 2014a). Similarly, Murtagh et al., (2014) report that women are on average 75% less likely to be sufficiently active and less in number probably than men to be getting enough exercise. Other studies found that men achieved a higher adherence level to recommended levels of physical activities more frequently than women (Eberth & Smith, 2010; Meseguer et al.; 2011; Garcia et al., 2011). Health and Social Care Information Centre (2011) survey of England reported males (39%) as attaining a higher percentage of recommended levels of physical activity compared to females (29%). Findings from studies by Robertson and Emerson (2010) and Mozafari

et al. (2010) also support the current study findings that female generally engage less often than men.

Some previous studies related to sports and physical recreational activities had similar findings to this study. They contend that the effect of gender is similar where males are considerably more likely to take part in exercises than females (Taks & Scheerder, 2006; Downward & Riordan, 2007; Humphreys & Ruseski, 2007; Seabra et al., 2007; Attarzadeh & Sohrabi, 2007; Berger et al., 2008). Compared to females, males tend to be more involved in physical activities (Riddoch et al., 2007; Olds et al., 2009) and spend more time in activity-enhancing environments (Bailey, Wellard & Dismore, 2004). The findings of this current study are consistent with deductions of some much earlier studies that reported men to be more physically active and with a higher participation in exercise and PA than women (Shaw et al., 1991; Casperson & Merritt, 1992; Casperson, Merritt & Stephens, 1994; Stanley & Freysinger, 1995; Alexandris & Carroll, 1997b; Farrell & Shields, 2002; Trost et al., 2002; Ampofo-Boateng et al., 2003; Son, Kerstetter & Mowen, 2008).

In contrast, the findings of the present study differed with a previous study by Fourie et al. (2011), which found that women participated in LTPA more than men. Similarly, females are more likely to perform daily walking and biking activities (Abel, Graf & Niemann, 2001). The current study reported higher activity levels for females in terms of moderate intensity exercises than males. This is departs with an earlier study that observed males to have activity levels in terms of moderate intensity than females (Azevedo et al., 2007).

### 5.1.2 Exercise Adherence Conformity and Age

Results of the correlations between conformity status and age did not indicate any significant relationship. Results for the test conducted to establish whether there were significant differences for exercise adherence conformity across different age groups of the study indicated significant differences ( $H(5) = 65.66, p < 0.001$ ).

Further tests also revealed significant differences between age group 61 years or above and age groups 21-30 ( $p < 0.001$ ), 31-40 ( $p < 0.001$ ), 41-50 ( $p < 0.001$ ) and 51-60 ( $p < 0.001$ ) years. This meant that age generally affected exercise adherence conformity. Results showed that frequency, duration, intensity and accumulated years of exercising experience were low for the youngest (below or 20 years) and the oldest (51-60 years and 61 years or above) respondents and higher for the young - middle (21-30 years, 31-40 years and 41-50 years) aged respondents. Majority of those who were conforming were in the age groups of 31-40 (23%) followed by 21-30 (23%) then 41-50 (20%). The least conforming were in the age groups of 61 years or above (2%) and below or 20 years (4%).

Those in late 20's and late 40's are at a prime stage in their life meaning they have jobs, hence they can afford to pay gym membership and a means of transport in instances where they travel to the fitness centres. The findings of the present study agree with those of a few other studies. Some most recent studies indicate that physical activity, function and adherence declines with age meaning that old age is related to lower exercise levels (Meseguer et al., 2011; Minhat et al., 2012; Murtagh et al., 2014). Similarly, Caspersen et al. (1990), Stanley and Freysinger (1995), Ampofo-Boateng et

al. (2003), as well as Wilcox et al. (2003) studies report that participation in regular activity declines with age. Still consistent with the current study findings, several authors indicate a decline in the duration taken on participation in sport with age (Eberth & Smith, 2010; Humphreys & Ruseski, 2011; Ruseski et al., 2011). Conversely, others have reported a positive or U-shape relationship between the frequency or duration of practice and age (Garcia et al., 2011; Lera-López & Rapun-Gárate, 2011; Downward et al., 2014).

However, these findings are in contrast with some previous studies. For example, the study by McArthur et al. (2014) found that females decrease consistent exercise amid middle-age by up to 40%. A study by Balaska and Kouthouris (2014) though related to participation in sports, showed a significant decrease after the age of forty years. An earlier study had highlighted younger individuals as being more active than older individuals (Dishman & Buckworth, 1996). Gomez et al. (2004) noted that middle-aged women (30–49 years) manifest the larger proportion of inactivity. Women aged below 40 years demonstrate a lower exercise attendance rate than women aged 50 or above (Surakka et al., 2009). In the current study, the middle aged respondents represented the category of the most active and conforming respondents.

The findings of the present study differ in parts with some findings of previous studies. For example, a report by Australian Sports Commission (2012) on participation of Australians and Tasmanians in exercise, recreation and sport of 2010 found that ages 25-34 had the lowest regular participation while ages 35-44 had highest regular participation. Likewise, a study on women by Scharff et al. (1999) indicate an

engagement rate in regular physical activity for those aged 30 and under at 59% as compared with those aged 60 and older at 33%. Also Campbell et al. (2001) highlight the least involvement rate by age group of 15- 24 years over all age bunches. The present study reported 21-30 years, 31-40 years and 41-50 years age groups as the ones with the highest levels of involvement and the most conforming.

### **5.1.3 Exercise Adherence Conformity and Level of Education**

The current study assessed exercise adherence conformity across education level by respondents with membership at fitness centres in Nairobi County Kenya. The test indicated that there was significant difference for conformity to exercise adherence across various levels of education ( $H(4) = 14.99, p = .005$ ). Significant differences were reported between the no schooling level of education category and both college ( $p = .019$ ) and university ( $p = .003$ ) levels of education categories. This is interpreted to mean that education level influenced clients' conformity status, with higher level of education associated with higher conformity and adherence levels whereas lower education levels were associated with low conformity and adherence levels.

Results showed that for the frequency, duration and intensity, accumulated years of exercise experience; no schooling level of education had the lowest number of respondents followed by primary, secondary and college while the university level of education comprised the highest number of respondents. Going by conformity status, those with university level of education were the most conforming (51.3%), followed by college level (16.8%), secondary level (6.5%) then primary level (2.6%) while the no

schooling level category were the least conforming (1.0%). This therefore means that adherence to conformity is influenced by the level of education of the respondents.

These findings concur with some previous studies on exercise, LTPA, sports and physical activity that adherence is higher among more educated individuals. Those with higher education levels like the university level were more likely to meet the recommended standards of adherence. For instance, a study by Meseguer et al. (2011), in a southern European Mediterranean country found that less educated individuals have lower adherence levels. Individuals with higher education levels are indicated to have higher sport involvement and having a better understanding of participation benefits (Balaska & Kouthouris, 2014). The findings of the current study are further in agreement with earlier findings by Van Bottenburg et al. (2005) and Downward et al. (2009).

Ordinarily, higher education is associated with information. With the paradigm shift towards a more active lifestyle among the Kenyan population, there has been an increased uptake of fitness activities and especially at fitness centres since most people who are educated, live and work in urban centres and because of lack of free space, most prefer to subscribe for exercise sessions at fitness centres. It is therefore expected that those with higher education would have higher exercise activities uptake and subsequently stick with them than those with low education levels or none.

Some other studies suggest that maturity and abilities to overcome hindrances and constraints by looking for solutions leading to participation in exercise and sports improves with education level especially up to the university level (Fathi, 2010; Azizi,

Farahani & Khabiri, 2011). Studies by Louveau (2004) and Tallen (2011) observed that participation rates increase with the increase in study period and the education level achieved. Similarly, Minhat et al. (2012) contend that exercise participation is influenced by education level, with those with a higher and better level of education attaching the importance of associated exercise to health. To a large extent, the current study findings concurred with these observations.

Nonetheless, the findings of this study are not in unison with a few other previous studies. For instance, studies by Eberth and Smith (2010), Humphreys and Ruseski (2011), Lera-López and Rapun-Gárate (2011) and Downward et al. (2014) found a negative relationship or no relationship between education level and frequency of participation. Similarly, Calfas, Sallis and Lovato, (1994) and Kilpatrick, Hebert and Bartholomew (2005) state that the proportion of physical exercise decreases with transition from high school to college. In addition, contrary to the findings of the current study, Oliver and Cronan (2002) note that women with lower levels of education (high school and lower) maintain their exercise conduct after taking part in an exercise class.

## **5.2 Constraints to Exercise Adherence**

The current study sought to establish the respondents' perceived constraints to exercise adherence. The findings were consistent with earlier studies that classified constraints into intrapersonal, structural and interpersonal subscales (Adam et al., 2014; Casper et al., 2011; Jung-Woong et. al., 2009). Respondents reported the highest levels of constraints in the subscale of intrapersonal ( $M = 3.84$ ,  $SD = 0.75$ ), followed by interpersonal ( $M = 3.66$ ,  $SD = 0.96$ ) and lastly the structural constraints were the lowest



( $M = 3.60$ ,  $SD = 0.71$ ). This suggests that these clients considered factors within oneself the biggest hindrance. Interpersonal constraints came next, which suggests that relationships and connections with significant other somehow constrained the participants' taking part in exercise. Structural constraints had the lowest mean scores, implying that factors beyond their control were not a hindrance to their participation in exercise. Generally, respondents were more restrained by intrapersonal constraints than either interpersonal or structural constraints.

By implication, intrapersonal constraints had the greatest impact while structural constraints had the least impact that shaped participation and subsequent adherence. Intrapersonal constraints affect an individual's general perceptions and capacity to negotiate; thereby, a small decrease in intrapersonal constraints could provide significant motivation, increasing the ability of clients to negotiate greater amounts of structural constraints, thus resulting to increased participation levels.

These findings concurred with previous research studies that intrapersonal constraints are experienced first-hand with the structural ones being the most distant (Crawford & Godbey, 1987; Crawford et al., 1991; Jackson, 1991; Alexandris et al., 2001; Alexandris et al., 2002; Little, 2002; Raymore, 2002; Alexandris et al., 2003; Alexandris & Stodolska, 2004; Mannell & Loucks-Atkinson, 2005; Tsai & Coleman, 2009; Ridinger et al., 2012). Most of these studies provide evidence to support the power of intrapersonal constraints in shaping participation levels. This means that intrapersonal constraints are the most pressing factors that condition individuals' will to act or their motivation to participate in exercise. However, the results are partially in

accordance with some previous constraints related studies. Alexandris et al. (2003) infer that intrapersonal and structural constraints are the strongest predictors whereas Sawrikar and Muir (2010) study reveal six recreation and sport constraints: affective, physiological, sociocultural, access, resources, and interpersonal issues. As for Palen et al. (2010), they report intrapersonal constraints as the most frequently mentioned by participants with interpersonal being mentioned at roughly the same frequency as structural constraints.

On the other hand, the findings of this study contrasted those of several previous studies. For example, Ehsani (2003), Anaza and McDowell (2013), Marwat et al. (2016) and Stensland et al. (2017) found structural constraints to be the most prominent followed by intrapersonal then interpersonal constraints as the least prominent. Bolla et al. (1993), Alexandris and Carroll (1997) and Walker, Jackson and Deng, 2007; Kara and Demirci (2010), Cai (2015), Wood and Danylchuk (2015) and Alahmad (2016), cite structural constraints as the most influential, followed by interpersonal and intrapersonal constraints as the least influential. This suggests that respondents in these studies considered factors that were auxiliary or beyond their control as having the greatest impact in their participation in exercise. Further, Aminuddin and Mohd (2001), Arab-Moghaddan et al., (2007), Koca, Henderson, Asci, and Bulgu (2009) and Öcal (2014) studies cite structural constraints as the main constraint. Gürbüz and Henderson (2014) and Emir et al. (2015) in their studies found structural constraints related to facilities as the major constraints encountered by the participants. Wilhelm Stanis et al. (2009) and Masmanidis et al. (2015) studies indicate interpersonal as the greatest constraints followed by structural and intrapersonal constraints respectively. These

contrasting observations could be associated to development status in different facets. Kenya is a developing country and most of these studies has been conducted in Europe and Western parts of the world which are developed including in many areas including the fitness industry.

Several previous studies proposed and others have empirically supported the categorization of constraints into intrapersonal, interpersonal and structural constraints taking into account the way in which they influence inclinations and participation in exercise, leisure or sports (Crawford et al., 1991; Jackson, 1999; Alexandris et al., 2002; Anaza & McDowell 2013). Similarly, the scale that the present study adopted and modified classified constraints into these three categories.

Intrapersonal constraints refer to an individual's beliefs and psychological state and attitude, which prevail in interacting with preferred activity rather than interfere with preference and participation (Crawford et al., 1991; Carroll and Alexandris, 1997; Seong, Chi-Ok & Hoon, 2013). The results indicated that this class of constraints influenced participation in exercise and consequent effect on adherence the most. Some of the strongest intrapersonal constraints identified in the current study included lack of enjoyment in exercise activities, exercise activities being too stressful and lack of social skills. Others were the perception of being physically inappropriate to participate in exercise, cultural limitations and fear of failure and that of injury. In addition, lack of information about the benefits of exercise and inadequate nutrition were also reported as strongest intrapersonal constraints. On the hand, some of the intrapersonal constraints were observed as least restrictive to participation in exercise.

These were: lack of information about offered exercise activities at the fitness centres, lack of participating skills and lack of time due to other leisure activities. The others were lack of motivating adverts, excessive attention to studies and not knowing where and how to participate.

Consequently, some differences and similarities exist between the present study findings and some relevant findings from previous studies on the experience of intrapersonal constraints. The results of a study by Mirsafian (2014) indicate that intrapersonal constraints did have a reducing effect on the participation of the Iranian students in sports. However, results of the same study indicate that these constraints did not have a significant effect on the participation of the Hungarian students and did not reduce their participation. A study by Anaza and McDowell (2013) deduced injury and safety fears, lack of passion or interest as the intrapersonal constraints influencing recreational sport participation. Alexandris et al., (2003) inferred lack of confidence and fear of getting hurt while Alexandris and Carroll (1997) and Bolla et al. (1993) cite psychological constraints and lack of interest as intrapersonal constraints. A study by Marwat et al. (2016) reported parental barriers and physiological problems as the intrapersonal constraints. Tsai and Coleman (2009) observed perceived intrapersonal constraints (physical constraints and competence constraints) as factors that tend to reduce students' interest in participation. Notably, physical constraints moderately reduced Australian students' interest in active recreation though their influence on Hong Kong students was weak. A research by Little (2002) indicated sociocultural factors, such as gender role expectation, guilt or remorse for deserting family, especially

children and fear of injury or health concerns as the most limiting intrapersonal constraints.

Interpersonal constraints can impact people's exercise inclinations and decisions or cut-off collaborated exercise involvement when intrigued companions are hard to get (Hudson, 2000). Crawford et al. (1991) and Seong et al. (2013) observe that this type of constraint emerge out of social connections or collaboration and correspondence between people. The findings of this study reported excess attention of family to studies of the respondents, inappropriate social environment and friends or partners not liking to participate; no one to participate with and friends not having time to participate as the most experienced interpersonal constraints in that order. Lack of social encouragement was the least experienced interpersonal constraint. These concurs with a previous research only that the order of the strongest interpersonal constraints differ. A study by Mirsafian (2014) reported lack of partner for engaging in sports and lack of appropriate social environment as the strongest interpersonal constraints. These findings were similar to those of previous research findings by Ehsani (2002), Szabó's (2006), Ehsani (2007) and Anaza and McDowell (2013). Though not in a fitness centre setting, findings of a study by Samdahl and Jekubovich (1997) concur with those of the present study that family responsibilities, lack of a partner to exercise with and varying exercise preferences are some of the most constraining interpersonal factors. The similarities in findings of the current study in Kenya with those highlighted from earlier studies in other countries could be due to the worldwide human culture of people marrying and living together but on the other hand being in different career paths, different work stations or towns and as such they may find themselves not having somebody to

participate with or not having time to engage together or because their partners or friends choice of exercise preferences differs.

Structural constraints are factors that intervene between exercise preference or choices and resultant participation in a given exercise activity (Crawford & Godbey, 1987; Taylor & Doherty, 2005; Tsai & Coleman, 2009). This study reported structural constraints as the least limiting compared to both interpersonal and intrapersonal constraints. A number of studies indicate that structural constraints affect participation in sports, leisure and recreation among others. The current study also indicated that indeed structural constraints do influence participation in exercise and subsequent adherence. The findings of the current study reported major structural factors that served to inhibit participation in exercise. These were inappropriate exercise programmes to gender, more availability of fitness facilities for one gender and lack of transportation to the fitness facility. The others were inappropriate behaviour of fitness instructors or other staff in exercise programmes, poorly organized exercise programmes, low quality of fitness services and lack of necessary and modern exercise equipment at fitness centre. On the other hand, lack of time due to work and family obligations, too crowded fitness facilities and inadequate instructing services in the exercise programmes; high cost of participating in some exercise programmes and lack of time due to study obligations were reported as structural factors that constrained participation in exercise to a lesser degree.

However, differences do exist between the most constraining structural factors in the current study and some previous studies. Kara and Demirci (2010), Anaza and

McDowell (2013) as well as Wood and Danylchuk (2015) reported factors such as inadequate facilities, financial constraints, lack of time, cultural norms and traditional expectations as major factors that influence respondents' preference and participation in recreational sport activities. A study by Mirsafian (2014) found that the Iranian students did not prefer to engage in sports because sport programmes were poorly organized, lack of coordination between the existing sport facilities and the participation of students in sports and that sport programmes at the universities were not held in appropriate times. These findings were also related to other studies (Azabdaftaran, 1999; Dadashi, 2000; Ehsani, 2002; Szabó, 2006; Ehsani, 2007; Masmanidis et al., 2015). In other studies, Alexandris et al. (2003) and Marwat et al. (2016) reported facility accessibility and financial barriers as the most effective structural constraints.

The findings by Tsai and Coleman (2009) differed with the findings of the current study in that financial barriers and facility accessibility did not influence the active recreation participation process. Besides, the findings were also inconsistent with other studies like that of Alahmad (2016) who observed inadequate and crowded facilities to be the highest rated structural factors while Drakou et al. (2008) report that the lack of facilities was the second highest constraint cited by university students. However, it is important to note that these two studies involved high school and university students respectively and therefore their experience of constraints could have been related to what their institutions had or did not have.

Alexandris and Carroll (1997) in their study cited time constraints due to work, school, and family, social commitments, poorly kept crowded facilities, accessibility and

transportation as the strongest structural constraints. Work and raising children, lack of time due to family and work responsibilities and lack of money were the three structural constraints cited by Bolla et al. (1993) and Koca et al. (2009).

In conclusion, many studies have been carried out focusing on different constraints. Majority of these studies focused on leisure and participation in sports and also undertaken in developed countries while the current study was very specific to exercise adherence and was done in a developing country. Thus, some interesting differences and similarities have been established.

### **5.2.1 Constraints to Exercise Adherence and Gender**

The comparison of constraints to exercise adherence across gender indicated that there was a significant difference between male and female for the interpersonal constraints but not between intrapersonal and structural constraints that were studied. Structural constraints were not significant to gender because of the existence of many fitness centres across the county and most of them were well equipped with postmodern facilities and flexible operating hours. Intrapersonal constraints emanate from an individual's exercise preferences and tastes which may have led to an individual making a decision or decisions and maybe when viewed separately, males and females are in a position to make independent choices to participate.

The findings of the current study indicated a positive relationship between interpersonal constraints and gender. The hypothesis that there is no significant relationship between the clients' interpersonal constraints to exercise adherence and gender was not supported and thus rejected. This could be due to partners having different career paths



and as such, timings failed to match or they rarely found time to exercise together or the workstations were far away from each other thus by the time one arrives home it is already past fitness centre hours. This coupled with lack of a buddy system could have led to low social encouragement. However, some could be in different stages of behavioural change.

The number of female above the median was higher than male whereas the number of male at less than or at the median was greater than that of female. These findings are similar to some previous studies. For instance, a study by Balaska and Kouthouris (2014) reported significant higher scores in the interpersonal and intrapersonal dimensions where females had higher sport participation rates than males without the difference being statistically significant. Khan (2011) found that women remain relatively more constrained by responsibilities related to family which is an interpersonal constraint. Women demographics in this study, represent a modern trend where they are employed, run their own business; making them financially independent and can make own independent choices about their exercise. Khan (2011) further confirms these study findings by highlighting that modern women cannot be listed as the disadvantaged gender in exercise participation.

Findings from other research linked gender to being constrained by lack of partner (an interpersonal constraint) and fear of crime (an intrapersonal constraint). These two constraints have been identified more frequently among women than men (Henderson & Bialeschki, 1993; Shaw, 1994; Whyte & Shaw, 1994; Aitchison, 2003; Shores et al., 2007). The results of this study partly agrees with some previous studies that reported

significant differences in all perceived constraints between male and female while the current study only found this difference in interpersonal constraints. These studies are also similar to the current study by indicated that women experienced all the intrapersonal, interpersonal and structural constraints more than men except that the current study reported almost same experiences of structural constraints for both male and female (Dadashi, 2000; Beirami, 2009; Hoden, 2010; Mirsafian, 2014). Comparisons between the two group's scores in all constraints subscales indicated that females were generally more constrained than males and this might explain females lower participation rate.

The results of the current did not show any significant difference for structural constraints between male and female. In fact, female respondents scored roughly the same as their male counterparts. This finding failed to support earlier findings by Alexandris and Carroll (1997) as well as Shaw and Henderson (2005) that gender has a major influence on structural constraints (decreased opportunities, time and financial constraints); with women perceiving more structural constraints than men as greater resources are put into these activities for men. Gürbüz and Henderson (2014) also found that males are less constrained by structural constraints than the females.

In contrast, Öcal's (2014) study found that structural constraints on LTPA differ according to gender with males being more affected (by a lack of or limited infrastructure and facilities) than females. Compared to females, males tend to be more involved in physical activities (Riddoch et al., 2007; Olds et al., 2009) and spend more time in activity-enhancing environments (Bailey et al., 2004). Given male involvement

in greater variety of exercises in comparison to female, they could be expected to experience a greater level and variety of constraints. Whereas the results of the current study did not show any significant difference for intrapersonal constraint between male and female, Wiley, Shaw and Havitz (2000) in a study though not directly linked to constraints discovered that the particular sources of personal relevance or the involvement profiles for sport involvement, varied by gender. Further, in contrast from the current study, studies by Raymore, Godbey and Crawford (1994) and Alexandris and Carroll (1997) deduced that intrapersonal constraints significantly constrain female more than male whereas Ampofo-Boateng et al. (2003) found that males perceived constraints the same way as females. In the current study, female respondents scored higher in intrapersonal constraints than males.

The current study did not confirm some findings from earlier studies. A number of these studies have been conducted on female gender only thus making it hard to make comparisons and draw inferences on the cause effect relationship between gender and constraints (Harrington, 1991; Bolla et al., 1993; Aminuddin & Mohd Suffian Omar Fauzee, 2001; Little, 2002; Pelak, 2005; Arab-Moghaddam et al., 2007; Asihel, 2009; Koca et al., 2009; Sawrikar & Muir, 2010 and Anaza & McDowell, 2013). However, these studies report structural constraints as the most experienced constraints by women. In contrast, on the other hand, studies by Azabdaftaran (1999) and Ehsani (2007) observed that female perceived all of the intrapersonal, interpersonal and structural constraints.

Going with the results of the median in the current study which showed which group experienced each type of constraints more than the other, females experienced intrapersonal and interpersonal constraints more than males whereas structural constraints were experienced by both gender almost with the same frequency. Similar findings are reported by Jackson and Henderson (1995) as well as Harrington and Dawson (1995) that women are more constrained overall in their physical activity than men. This study used mean sub-scale scores for intrapersonal, interpersonal and structural constraints in comparing these two genders. Use of a different conceptualization of constraints or individual item scores could have given a deeper comparison. The only difference that existed in these studies emanate from the current study reporting both the mean subscale scores for the overall constraints dimensions (intrapersonal, interpersonal and structural constraints) whereas the earlier studies report individual items of all constraints subscales.

### **5.2.2 Constraints to Exercise Adherence and Age**

Results of the correlations between constraints to exercise adherence and age did not indicate any significant connection. There were no significant differences for constraints across various age categories. The hypothesis that there is no significant relationship between constraints to exercise adherence and age was supported and thus not rejected. Constraints affect everyone regardless of age basically because the provision of services dwells on the court of fitness centre proprietors, managers and instructors of these facilities. These findings differ with the findings of a few other researches. For example, a study by Mirsafian (2014) on one hand reported that the youngest age group

experienced structural constraints more than the other age groups. The youngest age group for that study was 18-21 years while the present study was 20 years and below. On the other hand, the same study reported a significant difference between students in various age groups in all of the constraint dimensions whereas in the current study there existed no differences. The results of the current study are inconsistent with some studies of physical activity and sport participation, which suggest that the more significant the structural constraint, then all other things being equal, the lower the level of participation (Casper et al., 2011; Kowalski & Lankkford, 2011; Flood & Parker, 2014).

Conversely, Alexandris et al. (2003), Ampofo-Boateng et al. (2003) and Kleiber et al. (2008) found that all constraints are regularly time strengthened and their increment occur with age without reporting on the statistical significance. McGuire et al. (1986) found that younger adults experience constraints more than middle-aged and older adults. Structural financial and accessibility constraints decreased with age (Jackson, 1993). These could be interpreted to mean that maybe the older age group may develop coping skills to deal with constraints hindering participation. In contrast from the findings of the current study, Wang, Norman and McGuire (2005) and Shores et al. (2007) indicate that structural constraints increased with age generally without giving specific age groups.

Intrapersonal and interpersonal constraints were also not affected by the age of individual clients according to the results of the current study. These findings are in contrast with a previous study that indicated a statistically significant difference in

constraints based on different age groups (Alahmad, 2016). In general, constraints are not similarly experienced by all ages according to indications of research findings. The findings of the present study and some previous studies though not directly connected reported conflicting findings. For example, a study by Alexandris et al. (2003) among older adults report both intrapersonal and structural constraints as the strongest predictors. Interpersonal constraints are found to be more strongly experienced by younger and older respondents than by middle age respondents (Jackson, 1993). O'Brien Cousins (2000), Murphy et al. (2002) and McGuire and Norman (2005) document intrapersonal constraints related to health problems as being key constraints among older adults. Ehsani (2002) shows that participants aged between 18 and 25 years encounter at least a constraint from each of the three categories of constraints (intrapersonal, structural and interpersonal). Alexandris & Carroll (1997) study reveal that intrapersonal constraint increases with age. Tekin (2011) while studying females aged 18-24years observed socio-cultural variables (intrapersonal constraints) to be the most constraining factors.

A study by Casper et al. (2011) which was closely related to participation in exercise reported significant differences in constraints to physical activity and sport participation among different age subgroups. Biddle et al. (2011) find that different categories of constraints are associated to individual psychological (intrapersonal) factors among different age groups. This particular challenge was also identified by Son, Kerstetter and Mowen (2008) where they advanced a proposition for future research on specific constraints and constraint sub-scales using more diverse age groups. They speculated that, while there are no differences between older and younger groups, the exact nature

of the constraints which each group faces would differ. The current study categorised age into six groups (below or 20 years, 21-30, 31-40, 41-50, 51-60 and 61 years or above).

### **5.2.3 Constraints to Exercise Adherence and Level of Education**

The results of the current study indicate positive correlations between level of education and both structural and interpersonal constraints to exercise adherence. The findings of the current study also indicated that there was significant difference for the structural and interpersonal constraints subscales. The hypothesis that there is no significant relationship between the clients' structural and interpersonal constraints to exercise adherence and level of education was not supported and thus rejected. University level of education returned the highest mean rank while college level of education returned the lowest mean rank for the structural constraints subscale. On the other hand, university level of education also had the highest mean rank whereas secondary level of education had the least mean rank for interpersonal constraints subscale. There was no significant difference for the intrapersonal subscale.

The current study concurs with a previous study by Mirsafian (2014) that university educational level respondents experienced more interpersonal constraints. It is observed that peer influence especially at college and university levels of education could be a key factor influencing participation. Poor state or lack of facilities and equipment could also limit participation in exercise. Moreover, lack of information especially among those with low level or no education about fitness and benefits of exercise make

individuals think they are fit and need not exercise could be a significant constraining factor to participation in exercise.

The findings of the current study did not support some previous studies. For instance, studies by Kay and Jackson (1991) and Alexandris and Carroll (1997) reported that more educated individuals experience a lower level of constraints as opposed to the less educated who experience more constraints. A much earlier study by Searle and Jackson (1985b) examined education at four levels; that is, less than high school, high school, some-post secondary and university. They found that increasing levels of education were associated with a decrease in the perception of constraints. The current study, in contrary to these studies indicate a higher structural constraint experience for university level of education and a lower experience for the college level of education. Interpersonal constraints were experienced more by university level of education respondents and less by secondary level of education respondents.

On the other hand, inconsistent findings are reported by Kelly (1996) who inferred that education triggers participation more than other factors such that those with higher education are more likely to pursue participation frequently than those of lower education levels. Mirsafian (2014) further concludes that university education level respondents also experience intrapersonal constraints contrary to the present study which found no significant difference for this category of constraints. Moreover, in the current study, those with no schooling and primary levels of education had the lowest levels of participation in exercise as they represented the lowest frequency. This was in similar with an earlier study by Ampofo-Boateng et al. (2003) which had categorized



primary level of education as the lowest level that reported lowest levels of participation albeit in recreational sport.

### **5.3 Constraints Negotiation Strategies**

Negotiation is the process by which clients ameliorate and alleviate the effects of constraints or actively respond to encountered constraints through the use of personal and social resources referred to as strategies in this study (Jackson, Crawford, & Godbey 1993). The results implied that respondents used financial or monetary resources more as negotiating strategies to exercise than skills acquisition, time management and social skills or interpersonal relations strategies. The current study's application of time management, skill acquisition, financial strategies and interpersonal coordination negotiation strategies on participation in exercise is consistent with previous research studies on participation in leisure on one hand (Samdahl & Jekubovich, 1997; Hubbard & Mannell, 2001; Little, 2002; Son et al., 2008) and intramural sports on the other hand (Beggs et al., 2005; Elkins et al., 2007). These studies reported that efforts aimed at minimizing constraints and promoting usage of negotiation strategies stood to increase overall participation levels. The main methods of negotiating constraints from these studies were friends' willingness to participate with them, followed by planning things ahead, arrangement of soccer training with friends and finishing assignments or studying early to have time to participate in soccer. The least utilized methods were attending games that fitted their schedule of activities, followed by participating in soccer when aware they won't be there every week and

reminder from team mates about games; sometimes, dropping other things to participate in the game that day and saving money to do soccer activities.

With regard to the present work, the main methods of financial negotiation strategies utilized were saving money to do exercises and money budgeting. The least used method was improvisation with the available equipment and/or clothes. In terms of skills acquisition, the most used strategies were participating in exercises that meet abilities of the individual, asking for help with to the required skills and swallowing of self-pride. Practice of the required skills by oneself was the least used skills acquisition strategy. The main employed time management negotiation strategies in the present study were: Setting aside time for exercise, trying to plan ahead of things and making exercise a priority. Others were; trying to be organized, doing more physical activities closer to an individual residence and trying to participate in exercise that fit with the person's class or work schedule. On the other hand, the least employed time management negotiation strategies were participating in exercises when one knew they don't have to be there every week, sometimes dropping other things to participate in the exercises that day and only attending certain exercise sessions that fit personal schedule. The others were finishing assignments or studying early to participate and getting up earlier or staying up late to make time for exercise. The most employed interpersonal coordination negotiation strategies were exercise buddies assisting with skill development, trying to meet people with similar interests and encouragement from exercise buddies to stick with exercise programmes. In addition, willingness to participate in exercises together by one's friends, trying to find people to do exercise with and reminders from exercise buddies about our exercise programmes were utilized

too. The least used interpersonal coordination negotiation strategies were; participating in exercises that meet the interests of friends more than self, arranging rides with friends and participating in exercise activities with people of the same gender. Generally, time and financial resources management were the most utilized interventions by the respondents in the current study.

These results of the present undertaking are in harmony with the findings of a previous study by Kay and Jackson (1991) that found management of finances as the most used negotiation strategy and a few other studies which reported time management as the most common negotiation strategy utilized (Jackson & Rucks, 1995; Samdahl & Jekubovich, 1997; Beggs et al., 2005). Wood and Danylchuk (2015) reported time management as the most often used strategy, followed by skills acquisition while interpersonal coordination was the least used strategy. In another study by Elkins et al. (2007), interpersonal relations and skill acquisition were identified as being the most commonly used strategies while time management and financial management were the least used strategies. The current study promoted the relevance and role of negotiation strategies in promoting the provision of exercise-based health programmes in developing countries as suggested in an earlier research (Son et al., 2008).

### **5.3.1 Constraints Negotiation Strategies and Gender**

The findings of the current study indicate an inverse relationship between interpersonal coordination negotiating strategy and gender. There was no relationship between gender and financial resources, time management and skills acquisition negotiation strategies. The comparison of negotiation strategies across gender indicated that there were

significant differences between male and female for the interpersonal coordination strategies and no significant difference for the financial resources, time management and skills acquisition strategies that were studied. The number of male above the median was higher than that of female whereas the number of female at less than or at the median was greater than that of male; an indication that gender influenced clients' interpersonal coordination strategies. The hypothesis that there is no significant relationship between the clients' interpersonal coordination negotiation strategy and gender was not supported and thus rejected. This could be linked to emergence of single gender fitness centres, the concept of corporate wellness and buddy systems where groups celebrate, party and have social gatherings together have served to encourage participation. The aspect of personal training in fitness centres presently has served as a strong tool to overcome participation constraints and enhance skills acquisition. It might be that majority of fitness centres established in Nairobi County are businesses and in the mission of making profit thus retention is necessary for them and as such they have follow up programmes and systems for their members. These could be the reasons for the relationship between interpersonal coordination and gender.

This current research supported in part the findings of a previous study by Hua and Chiu (2013) which found that Malaysian female sports tourists used interest as the negotiation component of interpersonal coordination with strategies that allowed them to do the best with what they have by focusing on events suitable to their skills, besides preference to participate along with partners who shared the same interest that are able to help them with the skills required for the event. In contrast, a study by Emir et al.

(2015) found that generally male participants are more successful in overcoming constraints by developing negotiation strategies.

The results of the current did not show any significant difference for financial resources, time management and skills acquisition strategies between males and females. However, in the current study, the number of male respondents above the median for financial resources strategies was almost the same as their female counterparts. With regards to time management and skills acquisition, the number of male respondents above the median was greater than of female respondents. On the other hand, the number of female respondents below or at the median was more than that of male respondents for time management and skills acquisition while the number of male respondents below or at the median was more than that of female for financial management.

The present work was not able to clearly state if some findings from earlier studies agreed with the results of this study with regard to gender and negotiation strategies. A number of these studies have been conducted on female gender only thus making it hard to make comparisons and draw inferences on the cause effect relationship between gender and negotiation as the results can only be interpreted with reference to the female gender only. For instance, Hua and Chiu (2013) reported that Malaysian female sports tourists utilized several strategies (sixteen) related to financial resources, time management, social skills and skill acquisition with the choice of doing the best in their effort to maintain, continue, or create participation in event-based sports tourism being the most preferred strategy of them all. This was similar to the observation by Little

(2002) that females do their best to participate as emanating from females' resources, viewpoints and understanding of leisure barriers and their inspirations as well as opportunities for involvement.

A research by Anaza and McDowell (2013) on Nigerian women participation in recreational sports activity corroborated the findings of an earlier study by Little (2002) on Australian women that negotiation techniques minimize the negative effects of constraints, allowing the women the ability to modify, adapt, change and restructure activities in order to participate in their preferred activity. These similar negotiation strategies employed were prioritizing, compromising and anticipating recreational sport barriers. Hubbard and Mannel (2001) constraints effects mitigation applies to these studies. Other studies found that continued involvement in physical recreation activities by some women was through the use of negotiation strategies that enabled women to resist gender role expectations (Henderson & Bialeschki, 1993; Jackson & Henderson, 1995; Samdahl & Jekubovich, 1997; Hudson, 2000; Shaw & Henderson, 2005).

A conclusion from the results of the median in the current work is that males utilized interpersonal coordination, time management and skills acquisition more than females. However, the use of financial resources as a negotiation strategy was employed at roughly the same frequency. Mean sub-scale scores for social skills, financial resources, time management and skills acquisition were used in this study rather than being based on scores of individual item in each subscale. Thus, an examination of the individual items against gender might have demonstrated a deeper distinction as to which particular factors were more potent for male or female.

### **5.3.2 Constraints Negotiation Strategies and Age**

Results of the current study indicated that age influenced three out of the four negotiation strategies subscales by showing that there were significant differences for interpersonal coordination, financial resources and skills acquisition subscales. There was no significant difference for the time management subscale. However, post hoc tests for interpersonal coordination showed that the statistical difference was specifically between below or 20 years and 41-50 years groups and between 21-30 years and 41-50 years groups whereas for skills acquisition the specific difference was between 51-60 years and 61years or above groups; below or 20 years and 61 years or above groups; 41-50 years and 51-60 years groups; 21-30 years and 61years or above groups. This means that in terms of all the significant negotiation strategies subscales, all the respondents in various age groups utilized these strategies except for the 31-40 years age group which did not return a specific statistical difference with any other age group. The hypothesis that there is no significant relationship between the clients' negotiating strategies and age was supported and was not rejected. Fitness centres are available in both the formal and informal settings in Nairobi County. This trend is replicated in educational and business institutions creating opportunities for persons of all ages to take part.

The result of the median showed differences on categorical variables for various age groups. In relation to interpersonal coordination, three groups were above the median and the other different three groups below or at the median. In terms of financial resources strategies only one group (below or 20 years) was above the median with the

rest of the five groups being below or at the median. As for skills acquisition, two groups were above the median with four groups at or below the median.

However, the age effect on negotiation strategies in this study showed that there was no statistically significant difference between different age groups for the time management subscale meaning that this category of negotiation strategies was not in any way affected by the age of individual clients. Specific literature on the negotiation strategies for various age groups is scarce. Some previous studies though not directly connected to the current study reported various findings and suggestions. For instance, Son et al. (2008) indicated that perhaps individuals' above or 50 years old have already gone through the process of identifying and utilizing negotiation strategies to go through some of the specific constraints they faced earlier in their lives. Hence, the constraints that continue to limit participation may be unrelated to the negotiation strategies utilized. McGuire et al. (1986) observed that fewer middle-aged and older adults experience constraints than younger adults. They suggested that the older age demographic may develop coping skills to deal with constraints on participation. Studies by Balaska and Kouthouris (2014) and Alexandris and Carroll (1998) proposed the need to develop specific negotiation strategies for removal of both intrapersonal and interpersonal constraints to enhance increased participation.

There is also lack of specific research on negotiation strategies and exercise adherence in the context of age, gender, education level and the specific sub-dimensions of exercise for example frequency, intensity, duration and accumulated years of exercise experience. Specifically, there appears to be no studies examining negotiation strategies



related to exercise adherence for people of various age groups. The present undertaking contributes to the literature in regards to this area.

### **5.3.3 Constraints Negotiation Strategies and Level of Education**

The results of a Spearman's rank difference correlation indicated a significant negative relationship between interpersonal coordination negotiating strategy and level of education. Financial resources, time management and skills acquisition negotiation strategies did not have any relationship with level of education. The findings of the current work indicated that there was significant differences for interpersonal coordination strategy according to education level. The hypothesis that there is no significant relationship between the clients' interpersonal coordination negotiation strategy and level of education was not supported and thus was rejected. This could be due to the fact that higher education levels are associated with independent mindedness therefore able to intentionally trigger participation by overcoming exercising barriers and hindrances that come their way. They are able to make rational choices and maybe also find solutions using fitness applications and also use social media to share their exercising experiences.

Post hoc analyses tests indicated that there were differences between secondary and college and between secondary and university levels of education groups respectively. This could be an indication that the strength of utilizing negotiation strategies was higher in individuals with higher education levels; that is those with secondary, college and university levels of education as opposed to those at the primary and no schooling levels. This was in agreement with the findings of a study by Fathi (2010) which

indicated that maybe, the students' abilities for finding solutions and overcoming the constraints to participating in sports improve during their education at the universities. They found that generally, students enrolled in master programmes are more mature than bachelor students. Perhaps, the university education level respondents are more innovative, creative and stronger mentally in finding ways to overcome encountered constraints in their effort to participate and adhere to exercise programmes than respondents at other levels of education.

## **CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **6.1 Summary of the Findings**

The purpose of the study was to evaluate the constraints and the negotiation strategies to exercise adherence by clients at selected fitness centres in Nairobi County. It evaluated exercise adherence conformity status to the recommended standards, respondents' perceived constraints to exercise adherence and negotiation strategies commonly used. It also explored the relationship and differences between the respondents' exercise adherence conformity status, constraints to exercise adherence and negotiation strategies against socio-demographic characteristics. The results of the study indicated that male respondents (50.8%) were slightly more respondents than female (49.2%). Majority of the respondents were aged between 21-50 years (cumulative 78.5%) while the rest were aged below or 20 years and above 51 years. Over half of the respondents had a university level of education (62.6%), followed by college level (21.7%), then secondary level (8.9%). Those with primary level and no schooling represented (3.9%) and (2.9 %) respectively.

#### **Exercise Adherence Conformity**

The conformity rate was high at 78.3% and the non- conformity rate was 21.7%. Gender influenced and was also directly correlated with conformity status. Males were more conforming (41.9%) compared to females (36.4%). Those who had university level of education conformed most (51.3%) whereas those with no schooling level of education conformed the least (1%). In terms of age, conformity rate was high for those aged 31-40 and 21-30 and lowest for those aged 61 years or above and below or

20years. Age influenced conformity status. Specific differences were present between those aged below or 20 years old and both those aged 31-40 years and 51-60 years. Differences also existed between those aged 61years or above and all other age groups.

### **Exercise Constraints**

The evaluation of constraints by use of constraints scale gave results which indicated that generally respondents' encountered constraints. Intrapersonal constraints were the most encountered, followed by interpersonal constraints and structural constraints were the least experienced. There was direct correlations between gender and interpersonal constraints; level of education and both structural and intrapersonal constraints. Gender influenced interpersonal constraints whereas level of education influenced both structural and interpersonal constraints. Specific differences by level of education for structural constraints were observed between those who had attained university and college education levels. With regards to interpersonal constraints, differences were reported between those who had achieved university education and both college and secondary education levels.

### **Negotiation Strategies**

Respondents' negotiation strategies were evaluated using the constraints negotiation scale. Results indicated that they employed use of negotiation strategies. Financial resources and skill acquisition negotiation strategies were the most utilized with time management and interpersonal coordination being the least utilized. Interpersonal coordination was inversely connected with gender and level of education. Gender, age and level of education influenced interpersonal coordination. Age further influenced

financial resources and skill acquisition negotiation strategies. Specific differences for interpersonal coordination by age were reported between those aged 41-50 years and both those aged below or 20 years and 21-30 years. For skills acquisition, the differences were observed between those aged 61 years or above and those aged below or 20 years, 21-30 years and 51-60 years. Further differences existed between those aged 41-50 years 51-60 years. In terms of interpersonal coordination, differences were observed between those who had attained secondary level of education and both those who had attained college and university education levels.

## **6.2 Conclusions of Findings**

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

- Exercise adherence conformity rate to the recommended standards was high with males conforming more than females.
- Generally clients' encounter all types of constraints considered by this study with intrapersonal constraints being the most limiting.
- Employment of negotiation strategies can alleviate the effects of constraints and thus promote exercise adherence.
- Gender, age and level of education likely to influence exercise adherence conformity to the recommended standards.
- Interpersonal constraints are likely to be influenced by gender and level of education whereas structural constraints are likely to be influenced by level of education. Age not likely to influence experience of constraints.

- Gender, age and level of education predicted interpersonal coordination. Age further predicted use of financial resources and skill acquisition negotiation strategies.

### **6.3. Recommendations for Policy and Practice**

Based on the results and implications of the study, some recommendations for policy and practice are given:

- Understanding factors that influence fitness centre based exercises across various groups may improve fitness centre provider's ability to address dropout and enhance adherence. The service providers ought to configure their facilities, programmes and activities to emphasize on creating an all-inclusive, adjustable and accommodative workout environment for their clients.
- Service providers should pay attention to intrapersonal constraints. They are consistently the most constraining factors across gender, age and level of education. Managers should be aware of and acknowledge such constraints even though onsite actions to reduce them maybe limited. They can improve centre's setting by including motivational messages on fitness centre signs, boards and materials.
- Managers should emphasise on enjoyment of exercise and health benefits. They should change clients' intention to exercise. Make exercise not to be sole need for fitness centre based activities.
- It is imperative that service providers enrich and market their programmes to take advantage of semiprivate or group trainings. These forms of packages

would help to improve social relations that are a great rider to adherence. Also, a reward policy for the most consistent group would increase adherence. Groups can have a competition format which can run for months and this would go a long way to not only improving adherence but motivation and increased membership.

- That service providers can also have single gender facilities to accommodate the group that is gender sensitive. The trainers must be competent, certified and capable of upholding the highest standards of professional ethics.
- Also, service providers should endorse and appreciate the constraints in order to effectively facilitate the implementation of programmes related policies and strategies to enhance adherence by their members. They should introduce the trending fitness routines and activities to not only encourage their clients to keep with the programmes or renew their membership but also ensure they enjoy. They can have feedback forms for clients to give their suggestions, complaints or compliments. Changing and washrooms should be maintained with the highest level of cleanliness to exhibit attractiveness.
- Service providers can also partner with community, suppliers and county governments to organize programmes that would encourage and enhance togetherness. They can have their clients attend marathons and walks as certain fitness centre team. Interpersonal constraints increase with age. Coordination efforts benefit all and may impact participation and adherence Managers and instructors of fitness centres can organize occasional outdoor trips, excursions

and camping or hikes for their clients to challenge their fitness; this will grow social interactions and group cohesiveness.

- Fitness instructors of fitness facilities should have or introduce classes or sessions for beginners to equip them with the necessary skills to enjoy exercise activities. This would encourage retention and in turn adherence by members.
- The study presents implications for proprietors, managers and supervisors, instructors and personal trainers. It is necessary that the service providers develop, design and run activities and programmes whose primary intention is meeting the need of their clients. Fitness centres should aim to reduce constraints to exercise adherence and improve parameters of negotiation in order to organize interventions to raise the clients' level of adherence like qualified staff and friendly charges. They should take advantage of key negotiation strategies in exercise education and training. Keeping abreast with up to date routines and trends in the ever evolving and dynamic fitness industry is key to enhance their clients' adherence.

#### **6.4 Recommendations for Further Research**

The following recommendations for research are made based on the findings of the current study:

- This present study was cross-sectional. Longitudinal studies on exercise adherence conformity, constraints and negotiation strategies can be carried out over time to fully understand differences across all these variables.



- The present research was quantitative. Deeper inquiry through qualitative investigations for groups and individuals would shed more light on the relationship between exercise adherence conformity, constraints and successful negotiation strategies.
- The results of the study indicated that financial resources were the most utilized negotiation strategy; it's imperative that a further study be done to indicate the source of income. For instance, from formal, informal or self-employment; also the accumulated years of exercising experience can be split further to one year interval instead of five to clearly show the patterns of exercising experience as past experience is a factor in exercise adherence.
- Further research ought to be done to make meaning on the relationship between specific constraint dimension and corresponding negotiation strategy dimension. From the results of the study for example, structural constraints related to finances could have translated to financial resources negotiation strategy yet in terms of constraints, structural constraints including those of finances are the least encountered and on the other hand financial resources are the most utilized negotiation strategy.
- The current study stratified facilities in Nairobi County based on constituencies; additional research with varied samples in terms of locations and nature of facilities for example commercial, recreational and private member health clubs, hotel and spa facilities among others would elucidate these findings further. The association of gender and age and that of education and age should be examined.

## REFERENCES

- Abbie O. Beacham , Barbara A. Stetson , Kathlyn C. Braekkan , Chelsea L. Rothschild , Andrew G. Herbst & Kenneth Linfield (2011). Causal attributions regarding personal exercise goal attainment in exerciser schematics and aschematics. *International Journal of Sport and Exercise Psychology*, 9(1), 48-63. DOI: 10.1080/1612197X.2011.563126.
- Abel, T., Graf, N., & Niemann, S. (2001). Gender bias in the assessment of physical activity in population studies. *Soz Praventiv Med*, 46, 268–72.
- Adam, I., Hiamey, S. E. & Afenyo, E. A. (2014). Leisure constraints in the university setting in Ghana. *Annals of Leisure Research* (ahead-of-print), 1,14.
- Aitchison, C. (2003). *Gender and leisure: Social and cultural perspectives*. London: Routledge.
- Alahmad, E. M. (2016). *Constraints and motivations on the participation of Saudi Arabian High School students in physical activity and sport*. Unpublished PhD thesis. Victoria University.
- Alexandris, K., Barkoukis, V., Tsorbatzoudis, H., & Groulos, G. (2003). A study of perceived constraints on a community based physical activity program for the elderly in Greece. *Journal of Aging and Physical Activity*, 11, 305–318.
- Alexandris K., Tsorbatzoudis H., Grouios G. (2002). Perceived constraints on recreational sport participation: Investigating their relationship with intrinsic motivation, extrinsic motivation and amotivation. *Journal of Leisure Research*, 34 (3), 233–252.
- Alexandris, K., Grouios, G., Tsorbatzoudis, H., & Bliatsou, P. (2001). Relationship between perceived constraints and commitment to recreational sport participation of University students in Greece. *International Journal of Sport Management*, 2, 282-297.
- Alexandris, K. & Carroll, B. (1997). An analysis of leisure constraints based on different recreational sport participation levels: Results from a study in Greece. *Leisure Sciences*, 19, 1–15.
- Alexandris, K., & Stodolska, M. (2004). The influence of perceived constraints on the attitudes toward recreational sport participation. *Society and Leisure*, 27(1), 197-217.
- Aminuddin Yusof, & Mohd Soffian Omar Fauzee (2001). Perceptions of UPM students regarding sport participation constraints. Paper presented at Seminar Pengurusan Kemudahan Sukan Kebangsaan 2001, Shah Alam, Selangor, Malaysia

- Anaza, E., & McDowell, J. (2013). *An Investigation of Constraints Restricting Urban Nigerian Women from Participating in Recreational Sport Activities*. JLR, 45(3). Doi: 10.18666/jlr-2013-v45-i3-3154
- Arab-Moghaddam, N., Henderson, K. A., & Sheikholeslami, R. (2007). Women's leisure and constraints to participation: Iranian perspectives. *Journal of Leisure Research*, 39(1), 109–126.
- Arensman, E., Wall, A., McAuliffe, C., Corcoran, P., Williamson, E., McCarthy, J.Perry, I. J. (2013). *Second report of the suicide support and information system*. Cork.
- Asihel, S. G. (2009). *Perception of constraints to recreational sport participation: The case study of female undergraduate students in Tertiary Institution*. Lambert Academic Publishing.
- Asihel, S. G. (2005). *Perceptions of constraints to recreational sports participation: A case study of the University of the Western Cape (UWC) Undergraduate Female Students*. Master thesis. Western Cape University.
- Attarzadeh, H. and Sohrabi, M. (2007). Negaresh VA Gerayesh Mardom Shahr Mashhad Be Varzesh VA Faliathai Badani, Iran: Attitudes and tendency to exercise and sport activities in people of Mashhad). *Olympic*, 15(1), 38-47.
- Azabdaftaran, M. (1999). *Baresi Avamel Bazdarandeh Faaliathai Varzeshi Dokhtaran Daneshjo Dar Daneshgah Azad Eslami Vahed Khorasgan (Iran: Study the constraints toward participation of female students in sports in Islamic Azad University Khorasgan Branch)*. Unpublished Master thesis. Islamic Azad University Khorasgan Branch.
- Azevedo, M. R., Araújo, C. L., Reichert, F. F., Siqueira, F. V., Da Silva, M. C., & Hallal, P. C. (2007). Gender differences in leisure-time physical activity. *International Journal of Public Health*, 52(1), 8-15. Doi:10.1007/s00038-006-5062-1
- Azizi, B., Farahani, M.J., Khabiri, M. (2011). *Survey of the attitudes of students living in university of Tehran dormitories towards sport for all/*. Sport Management, 2(8), 75-91.
- Bailey, R., Wellard, I., & Dismore, H. (2004). *Girls' participation in physical activities and sports: Benefits, patterns, influences and ways forward*. Centre for Physical Education and Sport Research. United Kingdom: Canterbury Christ Church University College.
- Balady, J. G., Berra, A. K., Golding, A. L., Gordon, F. N., Mahler, A. D., Myers, N. J., & Sheldahl, M. L. (2000). *ACSM's guidelines for exercise testing and prescription*, 6th edition, Lippincott Williams & Wilkins: Baltimore, Md.a

- Balaska, P., and Kouthouris, C. (2014). Promoting Sport Participation in Greece: Issues and Challenges. *International Journal of Sport Management Recreation & Tourism*, 13, 63-84, 2014 DOI: 10.5199/ijsmart-1791-874X-13d
- Beggs, B.A., Elkins, D.J. & Powers, S. (2005). Overdoing barriers to participation in campus recreational sports. *Recreational Sports Journal*, 29, 143- 155.
- Beirami, S. (2009) *Moghayese Mavane Mosharekat Varzeshi Daneshamozan Dore Motavasete Dar Shahrestanhay Isfahan Va Oromiyeh (Iran: Comparison the Effective Constraints toward Participation of High School Students in Sports in Isfahan and Oromiyeh)*. Unpublished Master thesis. University of Isfahan.
- Berger, I. E., O'Reilly, N., Parent, M. M., Se'guin, B. and Hernandez, T. (2008) Determinants of sport participation among Canadian adolescents. *Sport Management Review*, 11(3), 277–307.
- Best, J.W., & Kahn, J.V. (2006). *Research in Education*. New York: Pearson.
- Biddle, S. J. H., Atkin, A. J., Cavill, N. & Foster, C. (2011). Correlates of physical activity in youth: A review of quantitative systematic reviews. *International Review of Sport & Exercise Psychology*, 4(1), 25–49
- Bock, B. C., Marcus, B. H., & Pinto, B. M. & Forsyth, L.H. (2001). Maintenance of physical activity following an individualized motivationally tailored intervention. *Annals of Behavioral Medicine*, 23(2), 79-87.
- Bolla, P., Dawson, D., & Harrington, M. (1993). Women and leisure: A study of meanings, experience, and constraints. *Recreation Canada*, 51 (3), 22-26.
- Buckworth, J., & Dishman, R.K. (2002). *Exercise Psychology*. Champaign, IL: Human Kinetics
- Buckworth, J. & Nigg, C. (2004). Physical activity, exercise, and sedentary behavior in college students. *Journal of American College Health*, 53, 28-35.
- Bülent Gürbüz & Karla A. Henderson (2014) Leisure activity preferences and constraints: perspectives from Turkey, *World Leisure Journal*, 56:4, 300-316, DOI:10.1080/16078055.2014.958195
- Cai, S. (2015). *Leisure patterns and constraints reported by selected Chinese University Students*. Unpublished Masters thesis, University of Waterloo , Ontario, Canada
- Calfas, K. J., Sallis, J. F., Lovato, C. Y. (1994). *Campbell J. Physical activity and its determinants before and after college graduation. Medicine, Exercise, Nutrition & Health*, 3, 323–334
- Campbell, P. G., MacAuley, D., McCrum, E. and Evans, A. (2001). Age differences in the motivation factors for exercise. *Journal of Sport and Exercise Psychology*.23: 191-199

- Casper, J., Bocarro, J.N., Kanters, M.A., Floyd, M.F. (2011). "Just let me play!"- Understanding constraints that limit adolescent sport participation. *Journal of Physical Activity and Health*, 8(1), S32-S39
- Caspersen, C.J., Merritt, R.K., Heath, G.W., & Yeager, K.K. (1990). Physical activity patterns of adults ages 60 years and older. *Medical Science Sports Exercise*, 22, 79-85.
- CDC. (2007). *Physical activity for everyone: How much physical activity do children need?* National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity and Obesity, Atlanta: CDC.
- Cooper, A. A., & Conklin, L. R. (2015). Dropout from individual psychotherapy for major depression: A meta-analysis of randomized clinical trials. *Clinical Psychology Review*. Epub ahead of Print. doi:10.1016/j.cpr.2015.05.001
- Crawford, D. W., & Godbey, G. (1987). Reconceptualizing barriers to family leisure. *Leisure Sciences*, 9(2), 119-127.
- Crawford, D. W., Jackson, E. L., & Godbey, G. (1991). A hierarchical model of leisure constraints. *Leisure Sciences*, 13(4), 309-320.
- Dadashi, M. (2000). *Study the Constraints toward Participation of Students to Sport in Leisure Time at Isfahan University of Technology*. Unpublished Master thesis. Isfahan University of Technology.
- Dishman, R.K. (1994). *Advances in exercise adherence*. Champaign, IL: Human Kinetics.
- Dishman, R.K. (1994). The measurement conundrum in exercise adherence research. *Medicine and Science in Sports and Exercise*, 26(11), 1382-1390
- Dishman, R. K., & Buckworth, J. (1996). Increasing physical activity: A quantitative synthesis. *Medicine and Science in Sports and Exercise*, 28, 706-719
- Dishman, R.K., Sallis, J.F. & Orenstein, D.R. (1985). The determinants of physical activity and exercise. *Public Health Reports*, 100(2), 158-171.
- Downward, P., Dawson, A. and Dejonghe, T. (2009). *Sport economics, theory, evidence and policy*. Oxford: Butterworth-Heinemann.
- Downward, P., Lera-López, F., & Rasciute, S. (2014). The correlates of sports participation in Europe. *European Journal of Sport Science*, 14(6), 592-602.
- Downward, P. and Riordan, J. (2007). Social interactions and the demand for sport: An economic analysis. *Contemporary Economic Policy*, 25(4), 518-537.
- Drakou, A., Tzetzis, G. and Mamantzi, K. (2008). Leisure constraints experienced by University students in Greece. *The Sport Journal*, 11(1), 107-115.
- Dunn A.L., Marcus B.H., & Kampert J.B. (1999). Comparison of lifestyle and structured interventions to increase physical activity and cardiorespiratory

- fitness: A randomized trial. *Journal of the American Medical Association*. 281, 327–334.
- Eberth, B., & Smith, M. D. (2010). Modelling the participation decision and duration of sporting activity in Scotland. *Economic Modelling*, 27(4), 822–834.
- Ehsani, M. (2007). Level of sport participation for women in iran and leisure constraints. *Humanities*, 12(3), 15-27.
- Ehsani M, 2003. *Leisure Constraints and Levels of Sport Participation for Women in Iran Sport, Leisure and Social Inclusion: Potential, Participation and Possibilities*. LSA (Leisure studies Association) Publications, No, 82, pp: 55-56.
- Ehsani, M. (2002) *Frequency of Participation and Leisure Constraint Factors on the Recreational Sporting Activities of Iranian Students*. Paper presented in 10th Canadian Conference on Leisure Research, Alberta, CA.
- Elkins, D.J., Beggs, B.A. & Choutka, E. (2007). The contribution of constraint negotiation to the leisure satisfaction of college students in campus recreational sports. *Recreational Sports Journal*, 31:107-118.
- Emir E, Gürbüz B, Öncü E, (2015). *Differences in Leisure Constraints and Negotiation Strategies: A Turkish Perspective*. ERPA International Congresses on Education, 4-7 June, Athens/Greece.
- Eva Hiu-Lun Tsai & Denis J. Coleman (2009). The influence of constraints and self-efficacies on participation in regular active recreation. *Leisure Sciences*, 31:4, 364-383, DOI:10.1080/01490400902988309
- Fathi, S. (2010). Tabeen jame shenakhti mosharekat varzeshi daneshjooyan /A sociological explanation of athletic participation of university students/. *Social Sciences Bulletin*, 3(4), 145-173.
- Flood, J. P., & Parker, C. (2014). Student awareness of university adventure programs: understanding motivations and constraints. *Recreational Sports Journal*, 38(2), 104-117
- Fourie J, Slabbert E, Saayman M, 2011. The leisure and sport participation patterns of high school learners in Potchefstroom. *South African Journal for Research in Sport, Physical Education and Recreation* 33, 65 - 80.
- Garber, C. E., Blissmer, B., Deschenes, M. R., Franklin, B. A., Lamonte, M. J., Lee, I. M., ... & Swain, D. P. (2011). American College of Sports Medicine position stand. Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: guidance for prescribing exercise. *Medicine and Science in Sports and Exercise*, 43(7), 1334-1359.

- Garcia, J., Lera-Lopez, F., & Suarez, M. J. (2011). Estimation of a structural model of the determinants of the time spent on physical activity and sport: Evidence for Spain. *Journal of Sports Economics*, 12(5), 515–537.
- Geoff, P. L., Walid, E.A, and John, K. P. (2012). Perceived exercise benefits and barriers of non-exercising female University students in the United Kingdom. *Int. J. Environ. Res. Public Health*, 7, 784-798; doi: 10.3390
- Godbey,G., Crawford,D.W. & Shen, X.S. (2010). Assessing hierarchical leisure constraints theory after two decades. *Journal of Leisure Research*, 42:111-134.
- Godbey, G., & Mowen, A. (2010). *The benefits of physical activity provided by park and recreation services: The scientific evidence*. Ashburn, VA: National Recreation and Park Association.
- Gomez LF, Mateus JC, Cabrera G (2004). *Leisure-time physical activity among women in a neighborhood in Bogota, Colombia: prevalence and socio-demographic correlates*. *Cad Saude Publica*, 20: 1103–9.
- Grieser, J. D., Gao, Y., Ransdell, L., & Simonson, S. (2012). Determining intensity levels of selected Wii Fit activities in College aged individuals. *Measurement in Physical Education and Exercise Science*, 16(2), 135-150. doi:10.1080/1091367x.2012.665268
- Hall, C. R., Rodgers, W. M., Wilson, P. M., & Norman, P. (2010). Imagery use and self-determined motivations in a community sample of exercisers and non-exercisers. *Journal of Applied Social Psychology*, 40(1), 135-152.
- Hallam, J. S., & Petosa, R. (2004). The long-term impact of a four-session work-site intervention on selected social cognitive theory variables linked to adult exercise adherence. *Health Education & Behavior*, 31(1), 88-100.
- Harrington, M. A. (1991). Time after work: Constraints on the leisure of working women. *Loisir et Société*, 14(1), 115-132.
- Harrington, M.&Dawson, D. (1995). Who has it best? Women’s labor force participation, perceptions of leisure and constraints to leisure. *Journal of Leisure Research*, 27, 4–25.
- Healthy Active Kids Kenya. (2011). *Kenya’s 2011 Report card on the physical activity and body weight of children and youth*. Nairobi: Healthy Active Kids Kenya, & Active Healthy Kids Canada.
- Hernderson,K.A. & Bialeschi ,M. D. (1993). Negotiating constraints to women’s physical recreation. *Society and Leisure*,16, 389-412.
- Hoden, M. (2010). *Constraints to participation in an outdoor orientation program*. Unpublished Master thesis, West Virginia University.

- Hovell, M.F., Sallis, J., Hofstetter, R., Barrington, E., Hackley, M., Elder, J., Castro, F., & Kilbourne, K. (1991). Identification of correlates of physical activity among Latino adults. *Journal of Community Health*, 16(1), 23-26.
- Hua, K. P., & Chiu, L. K. (2013). Multiculturalism: Issues of Malaysian Female Sport Tourists' In Event-based Sport Tourism. *Procedia - Social and Behavioral Sciences*, 91, 270-287. doi:10.1016/j.sbspro.2013.08.424
- Hubbard, J., & Mannell, R. C. (2001). Testing competing models of the leisure constraint negotiation process in a corporate employee recreation setting. *Leisure Sciences*, 23(3), 145-163.
- Hudson, S. (2000). The segmentation of potential tourists: Constraint differences between men and women. *Journal of Travel Research*, 38(4), 363-368.
- Humphreys, B., & Ruseski, J. (2011). An economic analysis of participation and time spent in physical activity. *The B.E. Journal of Economic Analysis & Policy*, 11 (1). doi:10.2202/1935-1682.2522
- Humphreys, B. R. and Ruseski, J. E. (2007) Participation in physical activity and government spending on parks and recreation. *Contemporary Economic Policy*, 25(4), 538–552.
- Iwasaki, Y. (2007). Leisure and quality of life in an international and multicultural context: What are major pathways linking leisure to quality of life? *Social Indicators Research*, 82(2), 233–264.
- Izquierdo-Porrera, A. M., Powell, C. C., Reiner, J., & Fontaine, K. R. (2002). Correlates of exercise adherence in an African American church community. *Cultural Diversity and Ethnic Minority Psychology*, 8(4), 389-394.
- Jackson, E.L. (1991). Leisure constraints/constrained leisure: special issue introduction. *Journal of Leisure Research*, 23, 279–85.
- Jackson, E.L. (1993). Recognizing patterns of leisure constraints: Results from alternative analyses. *Journal of Leisure Research*, 25:129-149.
- Jackson, E. L. (2000). Will research of constraints still be relevant in the twenty-first century? *Journal of Leisure Research*, 32(1), 62-69.
- Jackson, E. L., & Henderson, K. A. (1995). Gender-based analysis of leisure constraints. *Leisure Sciences*, 17(1), 31–51.
- Jackson, E. L. & Rucks, V. C. (1995). Negotiation of leisure constraints by junior high and high school students: *An exploratory study. Journal of Leisure Research*, 27, 85–105.
- Jackson, E. L. (2005). *Impacts of life transitions on leisure and constraints to leisure*. In E.L.



- Julie S. Son, Andrew J. Mowen & Deborah L. Kerstetter. (2008). Testing Alternative Leisure Constraint Negotiation Models: An Extension of Hubbard and Mannell's Study. *Leisure Sciences*, 30:3, 198-216, DOI: 10.1080/01490400802017308
- Jun, J., Kyle, G., & O'Leary, J. T. (Eds.). (2006). *Proceedings from NRRS '06: Perceived constraints to art museum attendance*. Bolton Landing, NY: Sagamore.
- Jung-Woong, N., Min-Haeng, C. & Kang-Bon, G. (2009). The perceived constraints, motivation, and physical activity levels of South Korean youth. *South African Journal for Research in Sport, Physical Education & Recreation*, 31(1), 37-48.
- Kaleth, A. S., McIlrath, K., & Keith, N. R. (2011). Disparities in physical fitness between fitness center and safety net community health center members. *Medicine & Science in Sports & Exercise*, 43(1), 938. doi:10.1249/01.mss.0000402621.86292.78
- Kara, F. and Demirci, A. (2010). An Assessment of outdoor recreational behaviors and preferences of the residents in Istanbul. *Scientific Research and Essay*, 5(1), 93-104.
- Kay, T. & Jackson, E. (1991). Leisure despite constraints: the impact of leisure constraints on leisure participation. *Journal of Leisure Research*, 23, 301- 313.
- Kelli, A. & Miriam C. (2010). *Physical Activity and Adherence: Improving Patient Treatment Adherence*, H. Bosworth (ed.), 9DOI 10.1007/978-1-4419-5866-2\_2, C\_Springer Science Business Media, LLC 2010.
- Kelly, J. (1996). *Leisure* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Kenya Business Directory (2016). *Gyms in Nairobi*. Retrieved from <http://www.softkenya.com/directory/gyms-in-nairobi> (2016, August 31)
- Khan, S. (2011). Gendered leisure: Are women more constrained in travel for leisure? *International Multidisciplinary Journal of Tourism*. 6(1), 105-121.
- Kilpatrick, M., Hebert, E., & Bartholomew, J. (2005). College students' motivation for physical activity: differentiating men's and women's motives for sport participation and exercise. *Journal of American College Health*, 54(2), 87-94.
- King, A. C., Haskell, W. L., Young, D. R., Oka, R. K., & Stefanick, M. L. (1995). Long-term effects on varying intensities and formats of physical activity on participation rates, fitness, and lipoproteins in men and women aged 50 to 65 years. *Circulation*, 91, 2596-2605.
- Kleiber, D., McGuire Aybar- Damali, B. & Norman, W. (2008). Having more by doing less: The paradox of leisure constraints' in later life. *Journal of Leisure Research* 40 (3): 343-360.

- Koca, C., Henderson, K.A., Asci, F.H., Bulgu, N. (2009). Constraints to leisure-time physical activity and negotiation strategies in Turkish women. *Journal of Leisure Research*, 41(2), 225-251.
- Kowalski, C. L. & Lankford, S. V. (2011). A comparative study examining constraints to leisure and recreation opportunities for youth living in remote and isolated communities. *World Leisure Journal*, 52(2), 135-147.
- Kulavic, K., Cherilyn, Hultquist, C., & McLester, J. R. (2013). A comparison of motivational factors and barriers to physical activity among traditional versus nontraditional college students. *Journal of American College Health*, 61:2, 60-66. DOI:10.1080/07448481.2012.753890.
- Kwame Ampofo-Boateng, Mustafa Yen & Vincent Barnabas (2003).The influence of demographic variables on factors that constrain recreational sport participation in Malaysia. *Annals of Leisure Research*, 6:4, 362-375, DOI: 10.1080/11745398.2003.10600932
- Liechty, T., & Yarnal, C. M. (2010). The role of body image in older women's leisure. *Journal of Leisure Research*, 42, 443-467.
- Lippke S. & Ziegelmann J. (2006). Understanding and modeling health behavior: The multistage model of health behavior change. *Journal of Health Psychology*, 11(1), 37-50.
- Little, D. (2002) .Women and adventure recreation: Reconstructing leisure constraints and adventure experiences to negotiate continuing participation. *Journal of Leisure Research*, 34(2) 157-177.
- Louveau C., (2004). "Pratiquer une activité physique ou sportive: persistance des inégalités parmi les femmes", in *Recherches féministes*, 17 (1), 2004, pp. 39-76
- Mannell, R. C. (2007). Leisure, health and well-being. *World Leisure*, 49, 114–128.
- Mannell, R. C., & Loucks-Atkinson, A. (2005). Why don't people do what's "good" for them? Cross-fertilization among the psychologies of nonparticipation in leisure, health, and exercise behaviors. In E. L. Jackson (Ed.), *Constraints to leisure* (pp. 221–232). State College, PA: Venture.
- Manuel, G. Gallegos, A.G. and Extremera, A.B. (2010). Perceived barriers by university students in the practice of physical activities. *Journal of Sports Science and Medicine*, 9, 374-381 <http://www.jssm.org>
- Marcus, B.H. & Forsythe, L.H. (2003). *Motivating people to be physically active*. Champaign IL: Human Kinetics
- Martin, S. (2008). The science of compliance. *Practice Nurse*, 35(1), 38-39.
- Martin, W.H., and Mason, S. (2004). Leisure in an Islamic context. *World Leisure Journal*, 46 (1): 4-13

- Marwat, M.K., Zia-ul-Islam, S., & Khattak, H. (2016). Motivators, constraints and benefits of participation in sport as perceived by the students. *International Journal of Science Culture and Sport* Doi: 10.14486/IntJSCS517
- Masmanidis T, Tsigilis N and Costa G (2015). Perceived constraints of campus recreation sports program. DOI:10.5897/JPEM2015.0211.Research paper. *Journal of Physical Education and Sport Management*, 6(2), 9-18.
- McArthur, D., Dumas, A., Woodend, K., Beach, S. and Stacey, D. (2014). Factors influencing adherence to regular exercise in middle-aged women: a qualitative study to inform clinical practice. *BMC Women's Health*, 14:49.
- McAuley, E., Jerome, G. J., Marquez, D. X., Elavsky, S., & Blissmer, B. (2003). Exercise self-efficacy in older adults: Social, affective, and behavioral influences. *Annals of Behavioral Medicine*, 25(1), 1-7.
- McGuire, F. & Norman, W. (2005). The role of constraints in successful aging: Inhibiting or enabling? In E.L. Jackson (ed.), *Constraints to leisure*, (pp. 89–101). State College, PA: Venture.
- McGuire, A. F., Dottavio, D. and O'Leary, T. J. (1986). Constraints to participation in outdoor recreation across the life span: A nationwide study of limiters and prohibitors. *The Gerontologist*, 26, 538-544.
- Meseguer, C. M., Galán, I., Herruzo, R., Zorrill, B., & Rodríguez-Artalejo, F. (2009). Leisure-Time Physical Activity in a Southern European Mediterranean Country: Adherence to Recommendations and Determining Factors. *Res Esp Cardiol*, Vol 62(10), 1125-1133. Doi: 10.1016/s1885-5857(09)73327-4
- Minhat, H. S., Mohd Amin, R., & Shamsuddin, K. (2012). Late-life leisure constraints among Malaysian elderly: A qualitative approach. *Malaysian Journal of Public Health Medicine*, Vol. 12(2): 24-30
- Mirsafian, H. (2014). *Constraints to participation in physical activity and sport: A comparative study between Hungarian and Iranian Students*. Doctoral Dissertation, Semmelweis University, Hungary.
- Mohibullah Khan Marwat, Syed Zia-ul-Islam, Hazratullah Khattak (2016). Motivators, constraints and benefits of participation in sport as perceived by the students. *International Journal of Science Culture and Sport* Doi : 10.14486/IntJSCS517
- Monika S. & Kimberly J. S. (2010). Environmental constraints on leisure time physical activity among Latino urban residents. *Qualitative Research in Sport and Exercise*, 2:3, 313-335, DOI: 10.1080/19398441.2010.517038
- Mozafari, A., Ahani, K., Shajie, A. and Hadavi, F. (2010). Baresi Negares Va Gerayeshn Mardom Be Varzesh Va Faliathai Badani Dar Jomhori Eslami Iran (Iran: Attitude and Tendency of People toward Physical Activity and Sport in Islamic Republic of Iran). *Olympic*, 18(1), 69-81.

- Murphy, S. L., Williams, C. S., & Thomas, M. G. (2002). Characteristics associated with fear of falling and activity restriction in community-living older persons. *Journal of the American Geriatric Society*, 50, 516–520.
- Murtagh, E., Murphy, M., Murphy, N., Woods, C., & Lane, A. (2014). *Stay Active: the physical activity, ageing and health study*. Dublin: CARDI and Mary Immaculate College.
- Mutter, F., & Pawlowski, T. (2014a). The monetary value of the demonstration effect of professional sports. *European Sport Management Quarterly*, 14(2), 129–152.
- O'Brien Cousins, S. (2000). My heart couldn't take it": Older women's beliefs about exercise benefits and risks. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 55, P283–P294
- Öcal, K. (2014). Constraints on leisure time physical activity at a public university. *International Journal of Human Sciences*, 11(2), 648-660. doi: 10.14687/ijhs.v11i2.3013
- Olds, T., Wake, M., Patton, G., Ridley, K., Waters, E., Williams, J., & Hesketh, K. (2009). How do school-day activity patterns differ with age and gender across adolescence? *Journal of Adolescent Health*, 44(1), 64-72.
- Oliver K, Cronan T. (2002). Predictors of exercise behaviors among fibromyalgia patients. *Preventive Medicine*, 35(4):383–9.
- Omondi, D.O. Walingo, M.K. Mbagaya, G.M. & Othuon, L.O.A. (2010). Understanding physical activity behavior of Type 2 Diabetics using the theory of planned behavior and structural equation modeling. *International Journal of Human and Social Sciences* 5:3
- Onywera, V. O., Adamo, K. B., Sheel, A. W., Waudu, J. N., Boit, M. K., & Tremblay, M. (2012). Emerging evidence of the physical activity transition in Kenya. *Journal of Physical Activity and Health*, 9, 554-562.
- Palen, L-A, Patrick, M.E., Gleeson, S.L., Caldwell, L.L., Smith, E.A., Wegner, L., Flisher A.J. (2010). Leisure constraints for adolescents in Cape Town, South Africa: A qualitative study. *Leisure Sciences*, 32, 434–452. DOI: 10.1080/01490400.2010.510975
- Pelak, C. F. (2005). Negotiating gender/race/class constraints in the new South Africa. *International Review for the Sociology of Sport*, 40, 53–70.
- Queensland Health. (2008). *The Health of Queenslanders: Prevention of chronic disease 2008. Second report of the chief health officer Queensland*; Queensland Health: Brisbane, Australia.
- Raymore, L. (2002). Facilitators to leisure. *Journal of Leisure Research*, 34(1), 37-51.
- Raymore, L., Godbey, G., Crawford, D., & von Eye, A. (1993). Nature and process of leisure constraints: An empirical test. *Leisure Sciences*, 15, 99-113.

- Raymore, L. A., Godbey, G. C., & Crawford, D. W. (1994). Self-esteem, gender, and socioeconomic status: Their relation to perceptions of constraint on leisure among adolescents. *Journal of Leisure Research*, 26, 99–118.
- Riddoch, C. J., Mattocks, C., Deere, K., Saunders, J., Kirkby, J., Tilling, K., & Ness, A. R. (2007). Objective measurement of levels and patterns of physical activity. *Archives of Disease in Childhood*, 92(11), 963-969.
- Ridinger, L., Funk, D., Jordan, J., & Kaplanidou, K. (2012). Marathons for the masses: Exploring the role of negotiation-efficacy and involvement on running commitment. *Journal of Leisure Research*, 44, 155-178.
- Rintaugu, E.G., Mwangi, F. M., Bailasha N.K. (2013). Negotiating constraints to sport participation of University soccer players. *Journal of Education and Practice*, Vol.4, No.23.
- Robertson, J. and Emerson, E. (2010). Participation in sports by people with intellectual disabilities in England: A brief report. *Journal of Applied Research in Intellectual Disabilities*, 23(6), 616–622.
- Ruseski, J. E., Humphreys, B. R., Hallmann, K., & Breuer, C. (2011). Family structure, time constraints, and sport participation. *European Review of Aging and Physical Activity*, 8(2), 57–66.
- Samdahl, D. M., & Jekubovich, N. J. (1997). A critique of leisure constraints: Comparative analyses and understandings. *Journal of Leisure Research*, Vol. 29 No. 4, pp. 430-452.
- Sawrikar, P., & Muir, K. (2010). The myth of a ‘fair go’: Barriers to sport and recreational participation among Indian and other ethnic minority women in Australia. *Sport Management Review*, 13, 355-367.
- Scharff, D., Horman, S., Kreuter, M., & Brennan, L. (1999). Factors associated with physical activity in women across the life span: Implications for program development. *Women Health*, 29, 115-134.
- Scott, D. (2003). ‘Constraints’, in ‘*Encyclopedia of leisure and outdoor recreation*’ (edited by J.M. Jenkins and J.J. Pigram) London: Routledge.
- Seabra, A. F., Mendonca, D. M., Thomis, M. A., Malina, R. M. and Maia, J. A. (2007) Sports participation among Portuguese youth 10 to 18 years. *Journal of Physical Activity and Health*, 4(4), 370–380.PA:
- Searle, M. S. and Jackson, E. L. (1985). Recreation non-participation and barriers to participation: Considerations for the management of recreation delivery systems. *Journal of Park and Recreation Administration*, 3, 23-36.
- Seong Ok, L., Chi-Ok, O., & Hoon, L. (2013). The influence of extraversion on leisure constraints negotiation process. *Journal of Leisure Research*, 45(2), 233-252.

- Shaw, S. M., & Henderson, K. (2005). Gender analysis and leisure constraints: An uneasy alliance. In E. L. Jackson (Ed.), *Constraints to leisure*, (pp. 23-34). State College,
- Shaw, S. M. (1994). Gender, leisure, and constraint: Towards a framework for the analysis of women's leisure. *Journal of Leisure Research*, 26(1), 8-22.
- Shaw, S. M., Bonen, A., & McCabe, J. (1991). Do more constraints mean less leisure? Examining the relationship between constraints and participation. *Journal of Leisure Research*, 23, 286-300
- Shores, K. A., Scott, D. and Floyd, M. F. (2007). Constraints to outdoor recreation: A Multiple hierarchy stratification perspective. *Leisure Sciences*, 29(3), 227-246.
- Son, J. S., Kerstetter, D. L., & Mowen, A. J. (2008). Do age and gender matter in the constraint negotiation of physically active leisure? *Journal of Leisure Research*, 40, 267-289.
- Son, J. S., Mowen, A. J., & Kerstetter, D. L. (2008). Testing alternative leisure constraint negotiation models: An extension of Hubbard and Mannell's study. *Leisure Sciences*, 30, 198-216.
- Stanley, D., & Freysinger, V. J. (1995). The impact of age, health, and sex on the frequency of older adults' leisure activity participation: A longitudinal study. *Activities, Adaptation and Aging*, 19, 31-42.
- Stensland, S., Aas, Ø., & Mehmetoglu, M. (2017). Understanding constraints and facilitators to Salmon angling participation: Insights from structural equation modeling. *Human Dimensions of Wildlife*, 22:1, 1-17, DOI: 10.1080/10871209.2016.1199073
- Stodolska, M., & Shinew, K. J. (2010). Environmental constraints on leisure time physical activity among Latino urban residents. *Qualitative Research in Sport and Exercise*, 2(3), 313-335. doi:10.1080/19398441.2010.517038
- Surakka, J., Alanen, E., Aunola, S., Karppi, S., & Lehto, P. (2004). Adherence to a power-type strength training programme in sedentary, middle-aged men and women. *Advances in Physiotherapy*, 6(3), 99-109. Doi: 10.1080/14038190310017138
- Szabó, Á. (2006) Egyetemisták szabadidősport-(szolgáltatás) fogyasztása (Hungary: *University Student Recreational Sport (Service) Consumption*). Published report. Budapesti Corvinus University. Hungary.
- Taks, M. & Scheerder, J. (2006). Youth sports participation styles and market segmentation profiles: Evidence and applications. *European Sport Management Quarterly*, 6(2), 85-121.

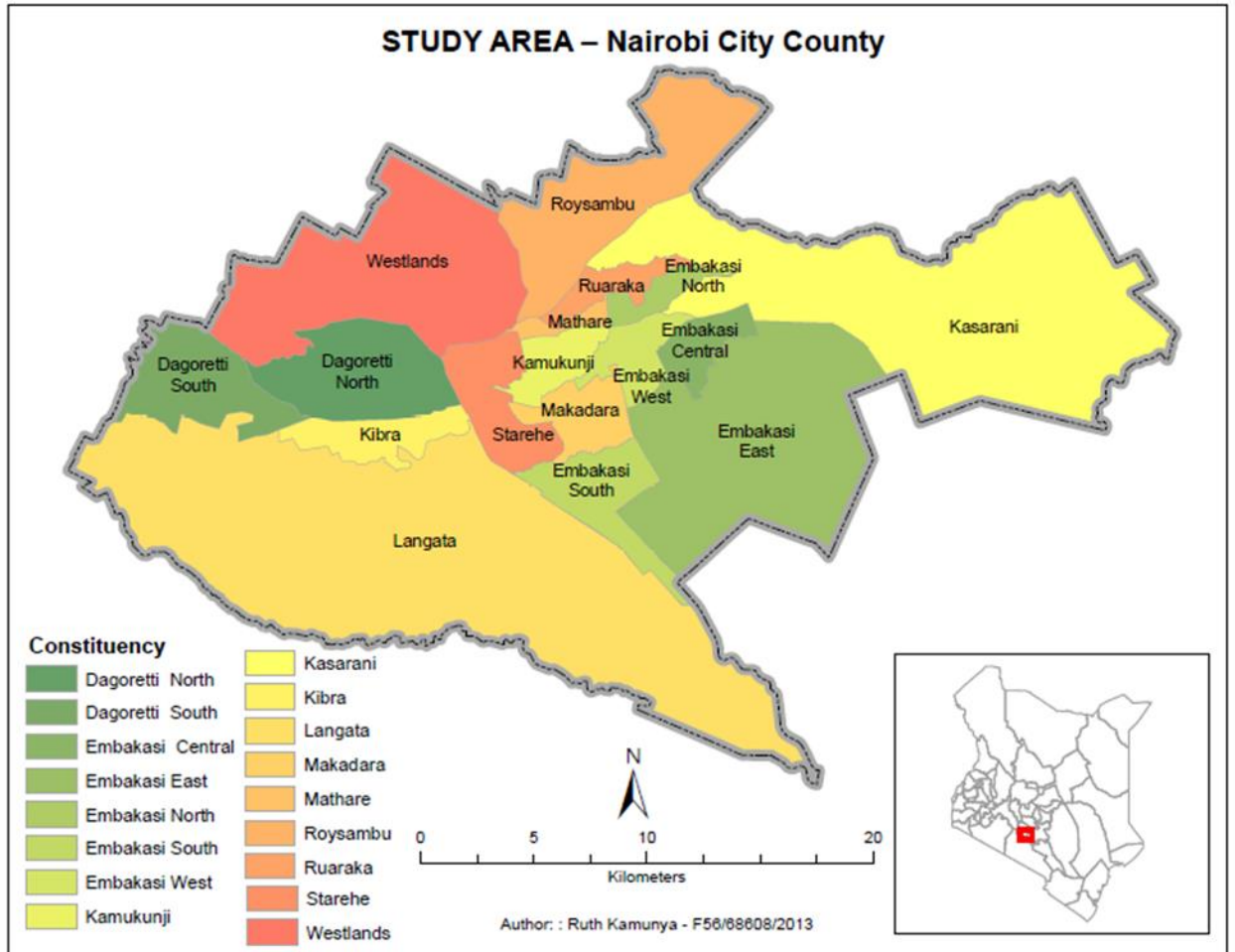
- Tallen, T. (2011). *Offshore Wind Turbines and Coastal Recreation Demand*. Available at SSRN1824397. Retrieved From: 119 [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1824397](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1824397)
- Taylor, T. & Doherty, A. (2005). Adolescent sport, recreation and physical education: experiences of recent arrivals to Canada. *Sport Education and Society*, 10, 211–238.
- Tekin, A. (2011). The influence of religious and socio-cultural variables on the participation of female University students in leisure activities. *Middle-East Journal of Scientific Research*, 8 (1), 77-84.
- Troiano RP, Berrigan D, Dodd KW, Masse LC, Tilert T, McDowell M.(2008). Physical activity in the United States measured by accelerometer. *Med Sci Sports Exerc.* 40:181–188.
- Trost, S.G., Owen, N., Bauman, A.E., Sallis, J.F. and Brown, W. (2002). Correlates of adults' participation in physical activity: review and update. *Medicine & Science in Sports & Exercise*, 34(12), 1996-2001
- Tsai, E. H., & Coleman, D. J. (2009). The influence of constraints and self-efficacies on participation in regular active recreation. *Leisure Sciences*, 31, 364–383. DOI: 10.1080/01490400902988309
- Wachira, L. J. M. (2014). *Physical activity, screen-based sedentary behaviour, dietary habits and adiposity of 9 to 11 year old school children in Nairobi County, Kenya*. Unpublished PhD thesis, Kenyatta University, Nairobi, Kenya.
- Walker, G. J., Jackson, E. L., & Deng, J. (2007). Culture and leisure constraints: A comparison of Canadian and Mainland Chinese university students. *Journal of Leisure Research*, 39(4)567–590.
- Wang, Y., Norman, W.C. and McGuire, F.A. 2005. A comparative study of leisure constraints perceived by mature and young travelers. *Tourism Review international*, 80:263-280.
- Weinberg, R.S., & Gould, D. (2007). *Foundations of sport and exercise psychology* (4th ed.). Champaign,IL: Human Kinetics.
- Whyte, L. B. & Shaw, S. M. (1994). Women's leisure: an exploratory study of fear of violence as a leisure constraint. *Journal of Applied Recreation Research*, 19, 5–21.
- Wicker,P., HallmannK., & Breuer, C. (2013). Analyzing the impact of sport infrastructure on sport, participation using geo-coded data: Evidence from multi-level models. *Sport Management Review*, 16, 54–67.
- Wilcox, S, Bopp, M, Oberrecht, L., Kammermann, S. K., & McElmurray, C. T. (2003). Psychosocial and perceived environmental correlates of physical activity in rural

- and older African American and white women. *Journals of Gerontology*, 58(6), P329-P337.
- Wiley CG.E, Shaw SM, Havitz ME, (2000). Men's and women's involvement in sports: an examination of the gendered aspects of leisure involvement'. *Leisure Sciences*, Vol, 22, pp: 19-31.
- Wilhelm Stanis, S. A., Schneider, I. E., & Russell, K. C. (2009). Leisure time physical activity of park visitors: Retesting constraint models in adoption and maintenance stages. *Leisure Sciences*, 31(3), 287-304. Doi: 10.1080/01490400902837886
- Wilson, K. and Brookfield, D. (2009). Effect of goal setting on motivation and adherence in a six-week exercise program. *International Journal of Sport and Exercise Physiology*, 7(1)
- Winett, A. R. & Carpinelli, N. R. (2001). Potential health-related benefits of resistance training. *Preventive Medicine*, 33,503-513.
- Wood, L., & Danylchuk, K. (2015).The impact of constraints and negotiation strategies on involvement in intramural sport. *Managing Sport and Leisure*, 20:3,157-173, DOI: 10.1080/23750472.2015.1010279
- Wood, Laura, "Continued Sport Participation and the Negotiation of Constraints" (2011). *University of Western Ontario – Electronic Thesis and Dissertation Repository*. Paper 175.
- WHO. (2010). *Global recommendations on physical activity for health*. Geneva, Switzerland: WHO Press
- Yellow Pages Directory (2016). *Fitness Centres in Nairobi Kenya*. Retrieved from [http://www.yellowpages.cybo.com/ KE/Nairobi/fitness centres](http://www.yellowpages.cybo.com/KE/Nairobi/fitness%20centres) (2016, August 31)



APPENDICES

APPENDIX A: MAP SHOWING CONSTITUENCIES IN NAIROBI COUNTY



## **APPENDIX B: FITNESS CENTRES IN NAIROBI COUNTY**

### **Fitness Centres in Starehe Constituency**

1. Maliah and Sasha Fitness Studio- Utalii Street.
2. Donz Gym- Kaxa
3. Ymca Fitness Centre- Ambira Rd
4. Piccentre Ltd Gym- Tubman rd, OFF MUINDI MBINGU- Kitamu House, 5th floor .
5. Muscle Tone Gym- Nkrumah road- Industrial area-
6. Milele Fitness- between Uhuru highway, University Way & Harry Thuku road.
7. Great Body Gym- IBEA House 2nd Floor – Above Heartz Restaurant-3rd Floor, Interfina House- Junction of Tom Mboya.
8. Premier Fitness Centre, 2nd Floor, Finance House- Koinange St Nairobi Kenya.
9. Hotel Central Park Health Club (CBD)- Sheikh Karume Rd, Between Ronald Ngala & Luthuli Av.
10. The Sarova Stanley- Kimathi Avenue.
11. Fairmont Norfolk Hotel- Harry Thuku road.
12. Hilton Hotel Gym-health Club- Mama Ngina St, Nairobi, Kenya.
13. Nairobi Safari Club- Koinange Street Nairobi. Figure 8 (CBD)- Tom Mboya (opp Post Office).

14. Creative Fitness Centre- Koinange Street
15. Workout Express- Twiga Towers, 1st floor. Moi Avenue, Opposite Meridian Hotel
16. University of Nairobi Gym- State House Rd
17. Hotel Accra Nairobi Health Club- Accra road
18. Rollin TOTAL Fitness- CBD ·
19. Body Edge Fitness Consultants.- Maendeleo House, Loita Street ·
20. Curves Republick Gym- Biashara Street.
21. InterFitness Center- InterContinental Hotel.
22. Fit O' Phat- Kenyatta Avenue, Kenya.
23. Flex Fitness place- Haile Selassie Avenue, Nairobi- Address: Flex Apartments, Ragati Road.
24. Oasis Fitness Gym- City Square, Nairobi
25. Nairobi Serena Hotel Maisha Health Club and Spa"- Kenyatta Avenue Processional Way Nairobi, Kenya.
26. Hilynlily, Loita street, Nairobi
27. Gold's Gym- Gathuru Road
28. Sports Club - Ngara Plaza, Ngara
29. Axion Gym- Ring Rd Ngara
30. Laurasam Fitness CentreDesai Road
31. Sir Ali Muslim Gym-Address- off Ngara road- Nairobi City, Kenya
32. Shaddys gym- Muslim road Ngara

33. The South Fitness Centre- South B, Nairobi City,
34. Gym- Melili Road, Nairobi City, Kenya South B near Mater Hospital
35. Penthouse Gymnasium and Health Centre; View Park Towers 21st floor. Off  
University Way Utalii Lane opposite Alliance Francaise Nairobi.
36. Xtrem Fitness Centre; Burhan Estate, Off Muratina Street, Mweni Rd, Nairobi,  
Kenya
37. Curves Health and Fitness Centre; 4<sup>th</sup> floor Mkoma road
38. Jogis Health Centre, Mkoma road Nairobi

#### **Fitness Centres in Westlands Constituency**

1. Fit4Life Gym- Parklands Limuru road opp Total Gas station.
2. Zealous Health Club - Highpark 2nd Flr, 3rd Parklands Avenue, Highridge-  
Parklands Nairobi, Kenya.
3. Workout Express Ltd- Diamond Plaza Annex, 4th Flr, Rm 16, Masari Rd.
4. Curves – Thigiri Branch- New Muthaiga Shopping Mall, Thigiri Rdg Rd
5. Nairobi Pilates Centre- Muthaiga Shopping Centre, Limuru Rd
6. Nirvana Gym & Spa- Village Market, Limuru Rd- next to Steers/Bowling Alley,  
Nairobi.
7. The Wellness Health Fitness Club- Village Market Next To Steers
8. Body Basics Fitness Studio- Muthaiga Shopping Centre, Limuru Rd, Muthaiga,  
Nairobi
9. Cross Fit Kwetu - Gigiri Lane
10. Racing Sport Gym Parklands- City Park Dr

11. TAUT BODY Fitness Studio-Village Market Shopping Center, Gigiri ·
12. Fama Gym Adventures- Limuru road-famaisbest1@gmail.com ·
13. Trends Gym & Fitness Centre- Ebenezer Building, Along Market Road, Limuru Town., Kenya
14. UN Recreation Centre
15. Nairobi Curves- New Muthaiga
16. Body By design Fitness Center”- Njema Court, No. 12, Rhapta Road, Westlands
17. Muscle ‘n’ Motion- Rhapta Road, Westlands.
18. King’s Gym & Spa- Westlands, opposite Pride Inn- Rhapta Road
19. Progressive Park Hotel- Mwanzi Rd Westlands.
20. Power Vibe Studio Westlands/Power Plate Studio- Almont Park, Church Rd.
21. The Arena Health & Fitness Centre- Lower Kabete Road -2nd Floor, Sarit Centre mall, Westlands, Nairobi.
22. Body wise Fitness Centre- St Michael’s Rd Off Waiyaki Way.
23. Bikram Yoga- 2nd Flr off James Gichuru Rd.
24. Revitalize Wellness Center- ICEA Center, Block 1A, Ground Floor, Chiromo Road, Westlands
25. Acacia studios- Viking House, Westlands ·
26. Shani Active- 3rd Floor, ABC PLace, Waiyaki Way, (above zucchini) ·
27. Classic Fitness & Leisure Centre- 48 Lower Kabete Rd, Lower Kabete ·
28. WestEnd Hotel Kenya- Lower Kabete Road ·
29. Reform Fitness Centre- Level 5 Western Heights, Karuna Street, Westlands ·

30. Ultra Equipment Ltd- 2nd Floor, Sound Plaza, Westlands, Woodvale Grove
31. Zen Cycle- The Pavilion, Westlands
32. Techsols Gym- Waruku, Musa Gitau road off-Waiyaki way
33. Dynamic Fitness- Westlands road
34. Nanchang Hotel- Westlands Road no. 21
35. Fitness Centre & Pool-Villa Rosa Kempinski
36. Holiday Inn Fitness Centre
37. Brahma Kumaris Raj Yoga Centre
38. Shark Fitness Centre and Gym is located in Lower Kabete.
39. Body Edge Fitness Gym- Safaricom House
40. Outdoor Recreation- Westlands Nairobi .
41. Zarnash Gym- James Gichuru road- El Molo Dr
42. Jaffery Sports Club. El Molo Dr- James Gichuru road
43. Lordz Gym- Opposite Roy Plaza, Church Road, Kenya .
44. Prime Executive Apartments- Property Rhapta Road
45. LIZA Apartments- Gym -Rhapta road.
46. Africa Yoga Project, Diamond Plaza Annex 4th floor, Masari Rd, Nairobi.
47. Nandiano Gym-Rhapta road- loreto msongari.
48. Racing Sport Gym- Bandari Plaza, Floor Mezz.3, Woodvale Grove
49. Fitness-one- Reliance Centre Woodvale Grv, Nairobi

50. New Image Fitness Centre- Mbuchia Hse, opp Sound Plaza, 2nd Flr, Woodvale Groove, Nairobi
51. Cama Physical Fitness Center- Woodvale groove; Mbuchia House
52. Pride Active Health Club -Prideinn Hotel, East Church Road, Westlands
53. Paradise GYM and Fitness, Kangemi
54. Kitisuru Holiday Resort- Kitisuru Estate

### **Fitness Centres in Langata Constituency**

1. Trojan Health and Fitness Gym- Langata
2. Langata Pilates and Fitness Centre- Rubia, Nairobi City, Kenya
3. Royale Hotel Karen- Ndalat Rd, off Langata South Road (Opp Kenya School of Law)
4. Sadili B & B Gym- Off Kitengela Road, Southern Bypass, Langata
5. Royale Healthy Fitness- Ndalat Rd, Off Langata South Rd, Nairobi
6. Esterina Fitness Place- Langata road- Nairobi dam estate
7. Parlisa Health and Fitness Studio- Otiende road; Langata.
8. Index Fitness Center- Langata
9. A.I.C. Lang'ata Fitness & Gym Centre
10. Just Gym It -Langata Nairobi
11. Karen Country Club Fitness Centre is located in Ongata Rongai
12. An - Nisaa Fitness & Spa Ltd.-Health Spa- South C, Mufulu Avenue Off Ole Shapara Av.
13. Veva Fitness Centre And Spa- South C Shopping Centre, Muhoho Avenue
14. Mazoezi Gym , Muhoho Avenue- Mugoya Estate Phase 4- South C

15. Zumba Dance South C –Muhoho Avenue-Nairobi
16. Salmer Fitness Centre Salon and Barber Shop-Second Floor of Karen Plains  
Arcade, Karen Plains Road, Nairobi City, Kenya
17. Power Yoga Palace- Madaraka- langata road- Nairobi, Kenya
18. KEBS Gym-KEBS HQ, Bellevue South C off Mombasa road
19. Evolve Fit and Fab, off Langata road behind Carnivore

#### **Fitness Centres in Dagoretti South Constituency**

1. WHIPS- Walters High Performance Studio- Uthiru
2. Uthiru Kenya MMA Gyms | Mixed Martial Arts Training and Coaching
3. Excquisite Styles Gym & Aerobics, Getathuru road Uthiru
4. Wazito Camp Gym, Getathuru Road, Nairobi, Kenya

#### **Fitness Centres in Dagoretti North Constituency**

1. Barracks Fitness Studio-Yaya Centre, 3rd Flr, Argwings Kodhek Rd
2. The Colosseum Fitness Centre- Ngong Road Nairobi Kenya
3. Fitness First- 2nd Floor, Prestige Plaza Ngong Road
4. Prestige Health and Fitness Centre -Woodley Estate- Ngong Road, Nairobi
5. Homeboyz Rugby Gym- L. G Ndugo Ground, Ngong Rd
6. Body World Gym-Jampark Plaza, Ngong Road
7. Gfitness and Spa- Argwings kodhek
8. 1More-Rep Fitness Physical fitness -Ngong Rd
9. Impala Club Nairobi, Kenya
10. Palmtree Fitness Centre- Ngong Rd, Adams Arc Shopping Centre



11. B Fitness Gym at Best Western Premier Nairobi-Arwing kodhek road,  
Hurlingham
12. Flex Fitness Place- community area Ngong road
13. Maxfit Gym and Fitness Centre- Gateway Arcade, 1st Floor, Juanco Shopping  
Center.
14. Senses Health Club and Spa- Ole Odume Road-off ngong road
15. Silver Springs Hotel- Address: Valley Rd, Nairobi City, Kenya
16. Oasis Hotel Ltd- Valley Road
17. Westgate Fitness- Mbazi Avenue- Gitanga road Thompson estate
18. Nairobi Gym House - Naivasha
19. Golds Gym 46- Kawangware ·
20. One Gym And Aerobics - Kawangware- Along Navasha Road ·
21. Ratna Fitness Studio- Gitanga Rd, Ratna Apartments
22. The Zoo Gym- Kawangware, Nairobi City, Kenya Amboseli road
23. Las Vegas Gym- Kawangware, Near Naivasha road and Braeburn theatre  
Nairobi City, Kenya
24. Colds Gym- Kawangware, Nairobi City, Kenya -Riara Rd
25. Gym Yetu- karandini ·
26. The Edge Fitness Champ Gym Nairobi - Naivasha Highway, ·
27. Sparkle Fitness- off gutanga road-Lavington ·
28. Heafit-life, NAIVASHA ROAD, Nairobi
29. Samto Fitness Centre- Kogo Star Plaza, Off Langata Road- Mai Mahiu Rd
30. TipwaTipwa Fitness- Elysee Plaza, 1st Flr, Kilimani Road ·

31. Ayatana Fitness- Elysee Plaza, Kilimani Road ·
32. Active Fitness Solution-Kenyatta Avenue, Nairobi,
33. Rudicci Fitness Lots- Kindaruma Road, Nairobi, Kenya
34. Zeal Fitness And Rehabilitation Centre - Riara Road- Gatura Gardens
35. Matis Kenya, Mara road, Nairobi
36. Eccentric Approach Fitness- Riara Corporate Suites ·
37. EA Fitness- Nakumatt junction riara roa
38. Salonika Villas-Condominium Complex- Muthangari Rd- kileleshwa/ lavington
39. Gracia Resort Centre- Dennis Pritt Rd Kileleshwa
40. Wentworth health and fitness center- githunguri road,-Kileleshwa.
41. Crown Plaza Fitness -Upper Hill, Nairobi
42. Ashton Court Gym. Ashton Court, Masanduku Lane, Kenya
43. Stacks Gym; Laikipia road

#### **Fitness Centres in Kasarani Constituency**

1. Kasarani Fitness Center & Gym- Eden Plaza 5th Floor opposite Kasarani Police Station. Kasarani Mwiki street, Thika ·
2. Blaklite Fitness Center- Ngumba estate, Thika Rd
3. Elite Fitness Centre- Kasarani, Seasons ·
4. Evib Sports Science – Gym- Evib House, Deliverance Road, Off Kasarani Road, Nairobi, Kenya
5. Safari Fitness Club-Safari park- Thika road
6. Usiu gym
7. Shacs Gym And Fitness Centre- Vision Plaza, Opposite Naivas Supermarket, Towards Icipe Ajnt to sports view estate- Kasarani Nairobi City, Kenya

8. Tae Kwon Do Gym- Thome, Nairobi City, Kenya.
9. Sportsview Hotel Nairobi Gymnasium, Kasarani along Thika road
10. Kasarani Gym; Clay Garden Estate off mwiki road
11. Massat Gym, Seasons Nairobi.
12. Kasarani Gymnasium, Kasarani- Nairobi
13. Kasarani Good Life Fitness Center & Gym; EDEN PLAZA Kasarani Mwiki Road Opposite Kasarani Police station, Nairobi, Kenya
14. Kasarani Gym: Off Kasarani - Mwiki Road, Opposite Danmac's Flats, Near Equity Bank, Nairobi, Kenya
15. Unisex Gym, kasarani

#### **Fitness Centres in Roysambu Constituency**

1. Blue Springs Hotel- Located close to Jambo grill Thika Road -Garden Estate.
2. Safara Gym- 2nd Floor, Next To Rosmak Court, Off Kamiti Road, Lumumba Drive, Nairobi, Kenya
3. Githurai Gym- Off kasarani near clay eden n sports view estates
4. Ebony Eye Gym - githurai 45
5. Acro Yoga Garden- Yoga & pilates -Mukima Drive, Garden Estate, House number 3 .
6. Zimmer Fitness Centre, Ground Floor, Zimmerman, Off Kamiti Road, Kamiti Road, Kenya
7. Golden Gym Kahawa West Kahawa West – Bima Road, Behind DJos Club , Kenya
8. Genesis Fitness Centre Kahawa West, Off Kahawa Station Road, Along Plaza Road, Kenya

9. Wab aerobics and Gym; Lumumba 1<sup>st</sup> Avenue- Nairobi
10. Ruflo Fitness Centre, Near Leens Supermarket, Zimmerman base road
11. Zimm Aerobis; ground floor, Engineer centre, Zimmerman, Kamiti road.
12. Genesis Fitness Centre; Kahawa West, Off Kahawa Station Road, Along plaza Road
13. Braeburn New Image Fitness Centre; Garden estate ,Nairobi
14. Shields Power House Gym, Githurai 44
15. Tae Kwon Do Club, Githurai 44

#### **Fitness Centres in Mathare Constituency**

1. Sir Yusuf Ali Gym Center- Survey, Nairobi City
2. Metro-Flex Gym huruma road new Mathare
3. Flato jim, huruma

#### **Fitness Centres in Ruaraka Constituency**

1. Unispan Ltd, Off Baba Dogo Rd, Nairobi, Kenya
2. Utalii Gym & Spa ,Ruaraka along Thika Road
3. Abdallagym Center and Profitness; Mathare North area 4, Nairobi
4. Muscle Base Gym; Mathare North road
5. Oilibya Babadogo; Electro Systems Ltd, Outering Road, Off Thika Road
6. Mathare Gym Fitness, Mathare area
7. Hardrock Gym,;Korogocho road, Korogocho, Nairobi.
8. KCA Gym- Near Ruaraka Thika road

#### **Fitness Centres in Embakasi Central Constituency**

1. Muscle Talk Gym- Donholm, Jogoo Road
2. Jaheca Health and Fitness Centre- Obama Estate-Saika, Kagundo Road- Nairobi, Kenya

3. Graka Health & Fitness Centre- Saika Estate- Komarock
4. Rollin Power Gym- Kayole, Kenya
5. Universal Gym Kayole, Nairobi City, Kenya
6. Royal Fitness Centre; Phase four, Royal around, Komarock, close to Viewpark Hotel
7. Iron Bag Gym, Mihango, Nairobi.
8. Phase II Gym; Komarock Phs II

### **Fitness Centres in Embakasi East Constituency**

1. Osaga Fitness Zone- Embakasi
2. Total Body Fitness- Cellion Plaza, 2nd Flr, Embakasi Rd, Nairobi
3. Classic Touch Fitness Center-Bahati City Nyayo Estate Embakasi
4. Fitness and FunGym- Off Kibiku Road
5. Kneex Sports Centre
6. Gym Plaza; Along Outer Ring Road, Nairobi, Kenya
7. Nameless Fitness Centre, Embakasi - Nairobi.
8. Seasons Gym, Nyayo Estate, Nairobi.
9. Heart & Soul Fitness Centre- Avenue Park 1-Stage Mpya-Outering
10. Gym Plaza- Along Outer Ring Road, Nairobi, Kenya
11. Texas Gym- Savannah, Nairobi City, Kenya Donholm near outering
12. Digital Fitness Centre Nyati Ln, Nairobi, Kenya
13. Fahari Gym & Sauna, Fahari Gardens Nairobi

### **Fitness Centres in Embakasi West Constituency**

1. Magic Touch Gym- Next To Horn Bill Club, Umoja 1 Estate, Moi Dr
2. Bee Centre- Kayole Spine Road, Nairobi City, Kenya-Near Umoja phase 2
3. Olympia Gym-Moi Drive, Nairobi City, Kenya Adjan to Manyaja road
4. Gym-Tena, Nairobi,Umoja Innercore

5. Flex and Flex Fitness Centre-Moi Drive, Nairobi City, Kenya
6. Southern Fitness Centre -Kariobangi South
7. South Gym and Aerobic Centre Nairobi Kariobangi South
8. Deens Fitness Gym Ltd -P.O. Box 31757 Northview Road, Nairobi, Kenya
9. Jaffery Sports Club, Next To Horn Bill Club, Umoja 1 Estate, Moi Drive, Nairobi, Kenya. City: Nairobi.
10. PCEA Gym Umoja
11. Flex and Tone Umoja-Innercore, Nairobi Kenya

#### **Fitness Centres in Embakasi South Constituency**

1. Creative Fitness Centre- 3rd Floor, Vinodeep Towers, Bungoma Road, Nairobi, Kenya- Near kwa Njenga Taj Mall Embakasi
2. Hood Gym- Embakasi near Airport South Road
3. Active Gym- Ground Floor, Kwa Njenga, Catherine Ndereba Rd
4. Health & Soul Fitness Centre- E.A.B.S Estate Stage- Mpya Railway Stop Fedha
5. Digital Fitness Centre-Fedha estate near East African School of Aviation
6. Iron Bag Gym- Pipeline Estate near Fedha Embakasi
7. MegaFlex Gym -Kwa Njenga on Catherine Ndereba Road in the Building opposite St. Bakhita School.

#### **Fitness Centres in Embakasi North Constituency**

1. Aim Global Fitness Ltd.- Airport North Road .
2. Power House Gym- Airport N Rd
3. Hardcore Gym-Dandora Phase 4 near Lucky Summer Gym
4. Ragos Gym Dandora Nairobi
5. Ceragem massanger, Dandora Phase 5, Nairobi
6. Lucky Summer Gym-Lucky Twin Plaza Road, Nairobi Dandora Phase 4
7. KickStart gym – Kariobangi; Stima Rd, Nairobi, Kenya

### **Fitness Centres in Kibra Constituency**

1. Urban Fitness Gym- Kibera Drive, Kibera near Ayany estate- Nairobi City
2. Hollywood Gym-Ayany Estate, Nairobi City, Kenya- Kibera
3. Children World & Fitness Center- Woodley Estate, Nairobi City, Kenya
4. Danwin Fitness Gym- Fairlane House, Kenyatta Market, Mtongwe Road, Nairobi, Kenya
5. Nairobi Fitness & Health- Nairobi– mbagathi round about
6. Fitness Icon Ltd- Ondiek Hwy, Woodley Estate.

### **Fitness Centres in Makadara Constituency**

1. Stop & Trend Fitness Centre- Mumias S Rd- Buru Buru shopping center
2. Lystra Gym & Spa-The Point Buruburu- The Point Buruburu .
3. Power Flex Gym- Mumias road Buruburu phase 2
4. Uncle Jims Gym-Major Kinyanjui Street- Kariokor, Nairobi City, Kenya
5. Bedrock Gym- Harambee Estate Off enterprise road
6. Sunrise Fitness Center, Sunrise Park, Imara Daima, Nairobi Industrial Area
7. RGIP Gym- Imara daima off mbsa road
8. Strathmore University Gym
9. Classique Gym- Off Mombasa Road
10. Muscle Health & Fitness (K) Ltd- Vision Plaza, 4th Flr, Mombasa Rd
11. View Park Health & Fitness Parkside Towers, 5th Flr, Mombasa Rd.
12. Ole Sereni Hotel- Health Club Service Centre.
13. Panari Hotel Gymnasium- Panari Sky Centre, Nairobi
14. Nautilus Health & Fitness Center Ltd- First Floor, Davies Building, Mombasa Road
15. Duma Health & Fitness- Mombasa Road
16. Gym & Tone - It Fitness Studio Ltd- Vimodeep Towers,Baricho Road
17. Dolphin Gym, Spa and Fitness Centre, Panari Nairobi.
18. Home family keep fit; Vision Plaza Nairobi

19. Palmtree Fitness Centre- United Complex, Ondiek Hwy.

**Fitness Centres in Kamukunji Constituency**

1. Body4life Fitness Gym-Eastleigh- adjan to park phase I
2. Fun and fitness Gym (FHOK)-Eastleigh near Juja road
3. Iron Man Fitness Center Kipande Athumani Street- Eastleigh
4. Recreation and fitness at Nairobi Eastleigh Mall Nairobi, Kenya
5. Extreme Gym And Fitness Centre, Juja road
6. Steel City Gym
7. Mennonites Gym, Eastleigh Nairobi.

**Source:-**

1. The Kenya Business Directory (2016) - SoftKenya.com
2. The Yellow Pages (2016) - cybo.com
3. The Fab gyms (2016)
4. The Quick fitness hub (2016)



### **APPENDIX C: INFORMED CONSENT FORM**

My name is Stanley Kagunda Kinuthia. I am a master's student from Kenyatta University. I am conducting a study on "Constraints to Exercise Adherence and Negotiation Strategies among Clients at Selected Fitness Centres in Nairobi County, Kenya".

#### **Procedure to be followed**

Participation in this study will require that you fill a self-administered questionnaire with 3 sections. You shall be required to provide a few of your minutes to fill this questionnaire. You have the right to refuse participation in this study. You are requested to fill as truthfully as possible and give it back once you are done.

Please remember the participation in this study is voluntary. You may ask questions related to the study at any time

You may refuse to respond to any questions and you may stop at any time. The decision to participate in this study is entirely up you. You may refuse to take part or withdraw from this study at any time without affecting your relationship with the investigator(s) of this study.

You have the right to ask questions about this research study and to have those questions answered by the investigator before, during or after the research. If you like, a summary of the results of the study will be sent to you.

**Discomfort and Risks**

There are no reasonable foreseeable or expected discomforts or risks associated with this study. The study is non- invasive. You may decline to answer any or all questions and you may terminate your involvement at any time if you choose.

**Benefits**

If you participate in this study you will help us come up with recommendations to stakeholders in fitness industry to facilitate uptake and adherence to exercise programmes by clients at fitness facilities as this will go a long way in offsetting lifestyle related conditions. There will be no direct benefit to you for your participation in this study. However, we hope that the information obtained from this study may assist you in enhancing or maintaining regularity and consistency in your exercise programme.

**Confidentiality**

The administration of the questionnaires will be done only at the fitness centre where you have membership. Research records will be kept in a locked cabinet for safe keeping, and all electronic information will be coded and secured using a password protected file. Everything will be kept private. Your responses will be assigned an identity number and you will not be required to write your names. Three (3) years after completion of this study, all paper materials will be shredded, all electronic media scrubbed after deletion of files and all physical tapes will be erased and physically destroyed.

**Contact Information**

If you have any questions you may contact my supervisors who are Dr. Mundia on 0722 761 379 or Dr. Muthomi on 0720862113 or the Kenyatta University Ethical Review Committee Secretariat on [chairman.kuerc@ku.ac.ke](mailto:chairman.kuerc@ku.ac.ke), [secretary.kuerc@ku.ac.ke](mailto:secretary.kuerc@ku.ac.ke), [ercku2008@gmail.com](mailto:ercku2008@gmail.com)

**Participant’s Statement**

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept confidential and that I can leave the study or not and my decision will not change the services that I will receive from the fitness centre or that I will get from any other fitness centre at any other time.

Name of Participant .....

\_\_\_\_\_

\_\_\_\_\_

Signature or thumbprint

date

**Investigator’s Statement**

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and benefits involved.

Name of

Interviewer

.....

\_\_\_\_\_

\_\_\_\_\_

Signature/ thumbprint

date

**APPENDIX D: LETTER OF INTRODUCTION AND CONSENT TO FITNESS**

**CENTRES MANAGEMENT**

Kenyatta University,  
Department of Recreation  
Management and Exercise Science.  
P.O Box 43844-00100,  
Nairobi.

The Manager,

.....  
.....

P.O Box ..... Nairobi.

Dear Sir/ Madam

**RE: REQUEST FOR RESEARCH DATA COLLECTION**

I am a postgraduate student taking a Master of Science degree in sports and recreation management in the department of Recreation management and Exercise Science. My M.Sc. research topic is, ““Constraints to Exercise Adherence and Negotiation Strategies among Clients at Selected Fitness Centres in Nairobi County, Kenya”.

It is through this letter that I am kindly requesting you to allow me use your facility and have access to your clients to enable me collect data through administration of questionnaires to get the relevant information. The results of this study will purely be for academic purpose and will be treated in confidence. The findings of study will assist towards development of the necessary strategies to promote participation and subsequent adherence to exercise and physical activity programmes in fitness centres in Kenya. For easier identification, co-operation and administration of questionnaires, I kindly ask you to allow your gym/ fitness instructor (s) to help in linking me and my research assistants to your clients while at your facility.

Thank you.

Yours Sincerely,

**Stanley Kagunda Kinuthia**

**APPENDIX E: CLIENT'S QUESTIONNAIRE****SECTION A****Dear client**

This survey is academic and aims at establishing the concept of exercise adherence conformity in fitness centres. We kindly request you to consent and to fill this questionnaire. Your input is very valuable and information gathered from your responses remains confidential and shall be for research purposes only. Tick (√) as appropriate

Thanks for your cooperation.

**1. Your Gender**

Male [  ] Female [  ]

**2. Your Age in years**

20 and below [  ] 21-30 [  ] 31-40 [  ] 41-50 [  ] 51-60 [  ] 61 and above [  ]

**Your highest level of education**

No schooling [  ] Primary [  ] Secondary [  ] College [  ] University [  ]

**3. How often have you been participating in exercise in an average week for the past 6 to 12 months?**

2days and less [  ] 3-4 days [  ] 5-6 days [  ]

**4. How long do you take in one fitness session?**

Less than one hour [    ] One Hour [            ] 2-3 Hours [    ] More than 3 hours [    ]

**5. How hard can you define your training intensity per session?** (In low intensity, the feeling is easy and there is no noticeable change in breathing patterns. In moderate intensity, your heart rate and breathing rate are mildly elevated but you can hold a conversation. In high intensity, you cannot hold a conversation as you exercise).

Low intensity [    ]            Moderate intensity [    ]            High intensity [    ]

**6. For how long have you been participating in fitness programmes?**

1-5 years [    ]            6-10 years [    ]            above 10 years [    ]

**SECTION B**

**The following are reasons that people often give for their level of involvement or lack of involvement in exercise.** Please read each of these reasons and on the 5-point scales provided, tick (✓) the number which best represents the extent to which each statement is true for you.

<b>To what extent does the below constraints reduce your participation to exercise at the fitness centre?</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Not sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>

1. Fitness services are of low quality.					
2. Lack of coordination between existing facilities and clients' participation in exercise activities.					
3. Exercise programmes are poorly organized					
4. Lack of proper managing in exercise programmes					
5. Equipment that I need is too expensive.					
6. High cost of participating in some exercise programmes.					
7. Exercise programmes are inappropriate to my gender.					
8. Lack of transportation to fitness facility.					
9. Exercise programmes not held in the appropriate times.					
10. Fitness facilities are too crowded.					
11. Inappropriate behaviour of fitness instructors or other staff in exercise programmes.					
12. Not well informed about offered exercise activities.					
13. Inadequate instructing services in the exercise programmes.					
14. Lack of time due to my studies obligations.					
15. Lack of time due to my family obligations.					

16. Lack of time due to my work obligations.					
17. Lack of time due to other leisure activities.					
18. Lack of participation due to social/cultural limitation.					
19. Lack of participation due to fear of injury.					
20. I do not know where and how to participate.					
21. Exercise activities are too stressful.					
22. Lack of skill for participating.					
23. Lack of participation due to lack of appropriate social environment.					
24. Lack of participation due to lack of social skills.					
25. Lack of participation due to fear of failure or fitness instructor's blames in doing activities.					
26. Lack of participation due to inadequate nutrition					
27. I have no one to participate with.					
28. Friends (partners) do not like to participate.					
29. Lack of necessary exercise equipment at fitness centre.					
30. Lack of modern exercise equipment at fitness centre.					
31. Lack of advertising to motivate me.					



32. Not well informed about the benefits of exercise.					
33. Physically inappropriate to participate in exercise					
34. Excessive attention to study and negligence to exercise activities					
35. Excessive attention of family to my study prevents me from participating in exercise activities.					
36. No money to participate.					
37. I do not enjoy exercise activities					
38. More availability of fitness facilities for one gender.					
39. My friends (partners) do not have enough time for participating.					
40. Lack of social encouragements					

### SECTION C:

**The following are some of the things that people do to overcome the constraints that they face in starting, continuing, or increasing their involvement in exercise.**

Please read each of these statements, and on the scales provided, tick (✓) the number that best represents how frequently you have done or are doing the following things to try to maintain, continue, or increase your participation in Exercise.

<b>How frequently have you done or are doing the following things to try to start, continue, or increase your participation in exercise?</b>	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>regularly</b>	<b>Very often</b>
--	--------------	---------------	------------------	------------------	-------------------

1. I try to find people to do exercise with					
2. I try to be organized					
3. I try to budget my money					
4. I arrange exercise sessions with friends					
5. I try to plan ahead for things					
6. I set aside time for exercise					
7. I save money to do exercises					
8. I do more physical activities closer to where I live					
9. I make exercise a priority					
10. I just swallow my pride and try my best					
11. I get up earlier or stay up late to make time for exercise					
12. I ask for help with the required skills					
13. Sometimes, if I need some recreation time, I just drop what I am doing and I will participate in the exercises that day					
14. I improvise with the equipment and/or clothes I have					
15. I only attend certain exercise sessions that fit with my schedule					
16. I try to meet people with similar Interests					

17. I participate in activities with people of the same gender					
18. I try to participate in exercise that fit with my class/work schedule					
19. I practice the required skills on my own					
20. I finish assignments/studying early so that I have time to participate					
21. My exercise buddies assist with my skill development					
22. I participate in exercises that meet my ability					
23. I participate in exercises that meet the interests of my friends more than mine					
24. I participate in exercises when I know I don't have to be there every week					
25. My exercise buddies remind me about our exercise programmes					
26. My exercise buddies give me encouragement to stick with exercise programmes					
27. My friends are willing to participate in exercises with me					

**Thank you for taking the time to complete this survey.**

**APPENDIX F: RESEARCH APPROVAL LETTER FROM GRADUATE**

KENYATTA UNIVERSITY  
GRADUATE SCHOOL

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

P.O. Box 43844, 00100

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

NAIROBI, KENYA

Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School

DATE: 17<sup>th</sup> February, 2017

TO: Stanley Kagunda Kinuthia  
C/o Recreation Management &  
Exercise Department.

REF: H60/24509/2013


SUBJECT: APPROVAL OF RESEARCH PROPOSAL  
=====

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the Graduate School Board of 08<sup>th</sup> February, 2017 entitled "Constraints and Negotiation Strategies to Exercise Adherence among Clients at Selected Fitness Centres in Nairobi City County, Kenya".

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage [www.ku.ac.ke](http://www.ku.ac.ke).

Thank you.

  
REUBEN MURIUKI  
FOR: DEAN, GRADUATE SCHOOL



CC. Chairman, Recreation Management and Exercise Science Department

Supervisors:

1. Dr. Nkatha Muthomi  
C/o Recreation Management and Exercise Science Department  
Kenyatta University
2. Dr. Francis Mundia Mwangi  
C/o Recreation Management and Exercise Science Department  
Kenyatta University

RM/rwm

## APPENDIX G: ETHICAL CLEARANCE



**KENYATTA UNIVERSITY  
ETHICS REVIEW COMMITTEE**

Fax: 8711242/8711575  
 Email: [kuerc.chairman@ku.ac.ke](mailto:kuerc.chairman@ku.ac.ke)  
[kuerc.secretary@ku.ac.ke](mailto:kuerc.secretary@ku.ac.ke)  
 Website: [www.ku.ac.ke](http://www.ku.ac.ke)

P. O. Box 43844,  
 Nairobi, 00100  
 Tel: 8710901/12

Our Ref: KU/ERC/APPROVAL/VOL.1 (41)

Date: 20<sup>th</sup> April 2017

Stanley Kagunda Kinuthia  
**Kenyatta University,**  
 P.O Box 43844,  
 Nairobi

Dear Stanley,

**APPLICATION NUMBER, PKU/646/I728 TITLE** “Constraints and Negotiation Strategies to Exercise Adherence among Clients at Selected Fitness Centers in Nairobi City County, Kenya”

**1. IDENTIFICATION OF PROTOCOL**

The application before the committee is with a research topic application Number **PKU/646/I728 with title** “Constraints and Negotiation Strategies to Exercise Adherence Among Clients at Selected Fitness Centers in Nairobi City County, Kenya” Received on 6<sup>th</sup> March 2017 and Approved on 11<sup>th</sup> April 2017

**2. APPLICANT**

Stanley Kagunda Kinuthia

**3. SITE**

Nairobi City County

**4. DECISION**

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (Section 7.2.1.3) and the Kenyatta University Review Committee Guidelines **AND APPROVED that the research may proceed for a period of ONE year from 20<sup>th</sup> April, 2017.**

**ADVICE/CONDITIONS**

- i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
- ii. Serious and unexpected adverse events related to the conduct of the study are reported to this committee immediately they occur.
- iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
- iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.  
 If you accept the decision reached and advice and conditions given please sign in the space  
 Provided below and return to KU-ERC a copy of the letter.

*[Handwritten signature]*



**DR. TITUS KAHIGA**  
**CHAIRMAN ETHICS REVIEW COMMITTEE**

I Stanley Kagunda Kimulia accept the advice given and will fulfill the conditions therein.

Signature..... [Handwritten Signature] ..... Dated this day of... 24<sup>th</sup> April .....2017.

cc. DVC: Research Innovation and Outreach

**APPENDIX H: INTRODUCTION LETTER NACOSTI**



**KENYATTA UNIVERSITY  
GRADUATE SCHOOL**

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 8710901 Ext. 57530

Our Ref: H60/24509/2013

DATE: 17<sup>th</sup> February, 2017

Director General,  
National Commission for Science, Technology  
& Innovation  
P.O. Box 30623-00100,  
**NAIROBI**

Dear Sir/Madam,

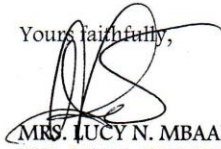
**RE: RESEARCH AUTHORIZATION FOR STANLEY KAGUNDA KINUTHIA – REG. NO. H60/24509/2013**

I write to introduce Mr. Stanley Kagunda Kinuthia who is a Postgraduate Student of this University. He is registered for M.Sc degree programme in the Department of Recreation Management and Exercise Science.

Mr. Kinuthia intends to conduct research for an M.Sc. Proposal entitled, “Constraints and Negotiation Strategies to Exercise Adherence among Clients at Selected Fitness Centres in Nairobi City County, Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,

  
**MRS. LUCY N. MBAABU**  
**FOR: DEAN, GRADUATE SCHOOL**

RM/rwm



**APPENDIX I: RESEARCH AUTHORIZATION LETTER FROM NACOSTI**

**NATIONAL COMMISSION FOR SCIENCE,  
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,  
2241349, 3310571, 2219420  
Fax: +254-20-318245, 318249  
Email: dg@nacosti.go.ke  
Website: www.nacosti.go.ke  
when replying please quote

9<sup>th</sup> Floor, Utalii House  
Uhuru Highway  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/17/63385/16000**

Date:

**3<sup>rd</sup> March, 2017**

Stanley Kagunda Kinuthia  
Kenyatta University  
P.O. Box 43844-00100  
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on "*Constraints and negotiation strategies to exercise adherence among clients at selected fitness centres in Nairobi City County, Kenya,*" I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **3<sup>rd</sup> March, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

**DR. M. K. RUGUTT, PhD, HSC, OGW  
DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County.

**COUNTY COMMISSIONER  
NAIROBI COUNTY  
P. O. Box 30124-00100, NBI  
TEL: 341666**

The County Director of Education  
Nairobi County.



**APPENDIX J: RESEARCH AUTHORIZATION LETTER FROM REGIONAL  
COORDINATOR OF EDUCATION**



**Republic of Kenya  
MINISTRY OF EDUCATION  
STATE DEPARTMENT OF BASIC EDUCATION**

Telegrams: "SCHOOLING", Nairobi  
Telephone; Nairobi 020 2453699  
Email: [rcenairobi@gmail.com](mailto:rcenairobi@gmail.com)  
[cdenairobi@gmail.com](mailto:cdenairobi@gmail.com)

REGIONAL COORDINATOR OF EDUCATION  
NAIROBI REGION  
NYAYO HOUSE  
P.O. Box 74629 – 00200  
NAIROBI

When replying please quote

Ref: **RCE/NRB/GEN/1/VOL. 1**

DATE: **16<sup>th</sup> May, 2017**

Stanley Kagunda Kinuthia  
Kenyatta University  
P O Box 43844-00100  
**NAIROBI**

**RE: RESEARCH AUTHORIZATION**

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on "**Constraints and negotiation strategies to exercise adherence among clients at selected fitness centres in Nairobi County, Kenya.**"

This office has no objection and authority is hereby granted for a period ending **3<sup>rd</sup> March, 2018** as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.


**JAMES KIMOTHO  
FOR: REGIONAL COORDINATOR OF EDUCATION  
NAIROBI**


c.c.

Director General/CEO  
Nation Commission for Science, Technology and Innovation  
**NAIROBI**

**APPENDIX K: RESEARCH PERMIT FROM NACOSTI**

THIS IS TO CERTIFY THAT: **Permit No : NACOSTI/P/17/63385/16000**  
**MR. STANLEY KAGUNDA KINUTHIA** **Date Of Issue : 3rd March,2017**  
**of KENYATTA UNIVERSITY, 43844-100** **Fee Received :Ksh 1000**  
**NAIROBI, has been permitted to conduct**  
**research in Nairobi County**  
**on the topic: CONSTRAINTS AND**  
**NEGOTIATION STRATEGIES TO EXERCISE**  
**ADHERENCE AMONG CLIENTS AT**  
**SELECTED FITNESS CENTRES IN NAIROBI**  
**CITY COUNTY, KENYA**  
**for the period ending:**  
**3rd March,2018**

*Stanley Kagunda Kinuthia*  
**Applicant's Signature**

  
*[Signature]*  
**Director General**  
**National Commission for Science, Technology & Innovation**