

**EXERCISE SELF-EFFICACY AND PHYSICAL ACTIVITY STATUS OF GYMS
AND OUTDOOR BASED GROUP FITNESS PROGRAM PARTICIPANTS IN
NAIROBI CITY COUNTY, KENYA**

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MARCH, 2022

DECLARATION

This thesis is my original work and has not been presented for a degree in any other University or award.

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DEDICATION

To the many fitness instructors and outdoor facilitators in Kenya, I dedicate this work to you all for the service you give to humanity trying to push them toward good health and well-being. I also dedicate it to the ever-inspired people who train and encourage others to do so. Lastly, I dedicate this work to my family for their continued support and push to ensure I complete my studies.

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Finally,

No man is limited and the more we dream the further we go.

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LIST OF ABBREVIATIONS & ACRONYMS

ACSM: American College of Sports Medicine

ANOVA: Analysis of Variance

CDC: Centre for Disease Control

GBGFs Gym Based Group Fitness Programs

NCDs: Non-communicable diseases

OBGFs: Outdoor Based Group Fitness Programs

PA: Physical Activity

PH: Physical Health

RPM: Reasonable Person Model

RPE: Rate of Perceived Exertion

SDGs: Sustainable Development Goals

SEE: Exercise Self-Efficacy

SPSS: Statistical Packages for Social Sciences

WHO: World Health Organisation

PAS: Physical Activity Status

OPERATIONAL DEFINITION OF TERMS

Exercise Self-Efficacy: Measure to which a participant in exercise programs believes in having the capacity to maintain his or her exercise program even on difficult scenarios.

Gym Based Group Fitness Programs: The fitness programs participated by more than two people and are based on a formally built facility with fitness equipment commonly known as a health club.

Outdoor Based Group Fitness Programs: The fitness programs participated by more than two people and are not based on a formally built facility rather experienced outside in the different changing natural environments.

Physical Activity: Any body movement deliberately conducted by participant skeletal muscles to produce energy as per an exercise programme or schedule provided at their worksite facility.

Physical Health: The most critical and visible dimension of health, overall well-being in the absence of serious illness to good physical fitness levels

Young Adults: These are generally individuals whose age bracket is ranging from late teens or early twenties to late forties or early fifties.

Physical Activity Status: The measure of any body movement deliberately conducted by participant skeletal muscles to produce energy as per an exercise programme or schedule provided at their worksite facility.

ABSTRACT

Health benefits of being physically active are well documented and accepted as a remedy for many non-communicable diseases (NCDs). Yet many people are reluctant to make lifestyle adjustments to adopt available fitness programs sustainably. This study assessed the Exercise Self-Efficacy (SEE) and Physical Activity (PA) status among young adults in Nairobi County who participate in Gym Based Group Fitness Programs (GBGFPs) and the Outdoor Based Group Fitness Programs (OBGFPs). Objectives were; to assess and compare SEE and PA status between gym and outdoor based group fitness program participants and to compare the efficacy of the two programs across socio-demographic characteristics. Reviewed research enlightens on health fitness components and physiological effects of the two programs but limited on PAS and SEE. A cross-sectional analytical survey research design was used. Stratified random sampling assisted obtain 341 respondents. The study used Global Physical Activity Questionnaire (GPAQ) and SEE questionnaire. SPSS version 22 analysed data. Individual scores were summarized into percentages means and standard deviations. Cross tabulations for analysis of nominal level data to establish the physical performance in relation to gym and outdoor program. Chi square tested the demographic relationship of participants in gym and outdoor program. SEE was computed for each participant as a mean of the 11 items responses provided under the 3 Likert scale questionnaire to obtain an interval scale index after which independent sample t- test was done to determine the difference between the gym and outdoor program participants. Descriptive statistics showed that the gender distribution was 37.6%, 62.4% male and female respectively with 45.6%, 54.4% outdoor and gym participants respectively. The age was categorical with 23.8% 26-30 year-olds being the highest and 18.2% 36-40 year-old being the smallest group. The marital status was marked by married respondents being highest at 47.9% and divorced respondents lowest at 1.8%. Independent sample t- test was run to compute the mean differences as well as to test the difference in relation to 0.05 significance level for the rest of interval data. The Mean \pm , Standard Deviation for exercise time for Outdoor and Gym based group fitness program was 2.42, \pm 0.459 and 2.18, \pm 0.485 respectively which showed more time was spent by outdoor participants than gym participants in PA. After assessing and comparing SEE using t-test a significance difference was observed between outdoor and gym participation on SEE at $t(338)=-4.527, p<.000$. Physical activity status first 3 categories namely (activity at work, travel/cycle and recreational activity showed a significant difference between outdoor and gym participation at $t(240)=-7.562, p<.000$, $t(313)=-6.176, p<.000$ and $t(295)=-6.273, p<.000$ respectively. However the fourth category sedentary behaviour showed no significant difference between the outdoor and gym participants at $t(338)=-109, p<.913$. Relationship between mode of training and social-demographic status showed a significant relationship between both gym and outdoor participants, age and marital status at $\chi(4) = 82.513, p<.000$, $\chi(3) = 9.158, p<.027$ respectively. Gender against mode of training showed a no significant relationship between outdoor and gym program participants at $\chi(1) = 0.280, p<.597$. The findings of this study inform and advocate for more efficacious fitness programs and bring more knowledge to the different socio-demographic classes on the need to indulge and sustain fitness. They will also greatly assist design more appropriate interventions in the world of fitness harnessing the benefits of outdoor and gym based programs.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Each year about 17 million people die from non-communicable diseases (NCDs) before the age of 65 years, 87% of these premature deaths occur to the low and the middle-income countries (Pryor, Silva & Melchior, 2017). Lack of, inadequate of and inconsistency of physical activity, tobacco use, harmful use of alcohol and unhealthy diets all increase the risk of dying from NCDs (Watts, 2015). Developing countries have a high low-income population who according to the world standards, have a daily spend or survival income of less than a dollar, have unhealthy diets and their living standards are below average (Wickford & Duttine, 2013). It is widely documented the health benefits of a longitudinal physical activeness in exercises yet many are still reluctant in lifestyle adjustment. Hence the question of whether there is enough awareness out there, and what other programs are on board to help curb the sedentary lifestyle on the young energetic adult population (Watts, 2015). The rapid industrialization has made gym fitness to be accessible to the urban population. This has brought a great wind of popularity, thus indoors are now designated as the primary source of physical fitness (Theofilou & Saborit, 2013). In the last one-decade outdoor fitness has had very few engagements worldwide yet it has recorded the least numbers of withdrawals in comparison with gym fitness programs (Kaleth, McIlrath & Keith, 2011). A total of 50% of the gym participants withdraw from their program within the first 6 months. Only 38% of the outdoor participants withdraw from their program in the same number of months thus lots of thoughts on the fitness practitioners (Theofilou & Saborit, 2013). Any program that works toward maintaining good health and well-being should be a priority to all. Eradicating poverty, zero hunger

and having good health and well-being of every human being are the top three major Goals by United Nations (Izutsu, Tsutsumi, Minas, Thornicroft, Patel, & Ito, 2015). Outdoor group fitness is of particular interest in achieving the first three UN goals following the high numbers of developing countries with low and middle-income young adults (Wickford & Duttine, 2013).

Global statistics on participation as outlined by Outdoor Recreation Participation Topline Report, (2016) shows that exercise self-efficacy on Outdoor running (jogging and trail running) is done by 14.9% adults while outdoor bicycling (road and mountain) is done by 12.3% adults globally. Nielsen Global Consumer Exercise Trends Survey, (2014) summated Indoor fitness in that, there are about 153000 health club facilities worldwide and they serve a membership of about 1.7% of the world population.

In Sub-Saharan Africa, the rate of low physical activity and low self-efficacy to exercise is the main contributor to poor physical health among the young adult population, more so those living on a low-income salary (Nwosu, 2017). The rapid rise in urbanization among the Sub-Saharan Africa countries has swiftly come with a baggage in lifestyle diseases and a way to curb it has been through new openings in indoor gyms which are not sustainable and cost friendly (Watts, 2015). Outdoor group fitness is a venture in the Sub-Saharan Africa regions which if explored to its fullest, will pave the way to in upgrading the living standards of the low-income persons in the communities indirectly (Scherrer, Sheridan, Sibson, Ryan & Henley, 2010). Research by Nielsen Global Consumer Exercise Trends Survey, (2014) showed that 80% of its January joined gyms members do not maintain their fitness programs (low self-efficacy to exercise past the five-month mark. Gym attendances vary with gender and women more likely to bail out than men. Laziness is not the only

reason members do not go to the gym, monotony and membership cost influences 46% of the gym member's attendance (Calogiuri & Elliott, 2017).

The world recommended physical activity levels which are paramount when participating in exercises in order to gain maximum healthy benefits World Health Organization, (2010). Recommend that an adult should train more than 30 minutes of high intensity 5 days a week or 20 minutes of high intensity movement 3 days for each week.

In Kenya about 82% children and youths engage in physical activities or any bodily movement generated by skeletal muscles and needs energy expenditure whereas 50% engage in sufficient physical activity practices which are activities tailored to enhance physical fitness and maintain overall good health and wellness (Onywera, Muthuri, Hayker, Wachira, Kyallo & Mang'eni, 2016). The other phase 68% of young adults engage in physical activity while 42% engage in sufficient physical activity practices geared to optimal good health (Kitur, 2010). According to Nielsen Global Consumer Exercise Trends Survey, (2014) 36% of males and 52% of females participate in group fitness exercise. According to Latham, (2013), Outdoor group training is more involving and mentally engaging due to the different scenery and terrain without forgetting the mood boost that comes from being outside. There has been numerous research on outdoor and indoor fitness in developed countries and a lot of upcoming knowledge in developing countries. Additional research is warranted to examine the young adult population in Nairobi County.

1.2 Statement of the Problem

Low physical activity and exercise self-efficacy is a lifestyle prone to mortality, reduced functional fitness capabilities, risk of cardiovascular diseases and overall poor well-being.

Sufficient physical activities that are geared toward overall good health and well-being have become expensive following the great rise of gyms to handle the physical health of the vast population. The relative high cost gym membership limits most middle and low income persons from assessing the facilities. The future fitness industry has been confined and turned into a business venture thus not accessible to every individual due to their financial requirements difference. This has led to laxity and increase of lifestyle diseases thus an overall strain in the health budget. Different outdoor and gym based fitness programs have been emerging and only very few have been studied to give optimal physical activity and are exercise self-efficacy sustainably to young adults in Kenya. This brought the need to test the efficacy of the outdoor and gym programs in a view of physical activity and exercise self-efficacy. The study researched the physical activity status and exercise self-efficacy to bring more knowledge and light on the other reliable and sustainable fitness options for all the young adult population.

1.3 Purpose of the Study

The purpose of the study was to assess the exercise self-efficacy and physical activity status of the gym and outdoor based group fitness program participants in Nairobi County, Kenya.

1.4 Objectives of the Study

- i. To assess exercise self-efficacy of participants in the gym and the outdoor based group fitness programs in Nairobi County, Kenya
- ii. To compare the exercise self-efficacy of the participants in the gym and the outdoor based group fitness programs in Nairobi County, Kenya.
- iii. To assess the physical activity status of the participants in the gym and the outdoor based group fitness programs in Nairobi County, Kenya.

- iv. To compare the physical activity status of the participants in the gym and the outdoor based group fitness programs in Nairobi County, Kenya
- v. To compare the efficacy of the different programs in the gym and the outdoor based group fitness across social-demographical characteristics in Nairobi County, Kenya.

1.5 Research Questions

- i. What is the exercise self-efficacy among participants in the gym and the outdoor based group fitness programs in Nairobi County, Kenya?
- ii. What is the physical activity status of the participants in the gym and the outdoor based group fitness programs in Nairobi County, Kenya?

1.6 Hypotheses

H₀₁ There is no significant difference between participant's exercise self-efficacy and the type of the fitness program in Nairobi County, Kenya.

H₀₂ There is no significant difference between participant's physical activity status and the type of the fitness program in Nairobi County, Kenya.

H₀₃ There is no significant relationship in the efficacy of the different programs and the different social-demographic characteristics in Nairobi County, Kenya.

1.7 Significance of the Study

The findings of the study may enrich the present knowledge in the field of outdoor and gym fitness across all social-demographic classes with an emphasis on good health, well-being and better chances of improving their living standards. The study will provide a baseline data for future studies in the area of outdoor and gym fitness thus contributing to

the existing literature. The results of the study will help the government, relevant proprietors, potential entrepreneurs, instructors, sports administrators and supervisors to pay close attention to the outdoor fitness for all different population as a way of advocating fitness on an affordable dimension and creating healthy communities. The findings of the study will help improve the likelihood of clients attempting to take part in bringing up ways to overcome limitations that hinder their participation in both the gym and the outdoor group fitness programs.

1.8 Delimitations of the Study

The study was delimited to;

- i. Outdoor group fitness participants with at least 6 months' continuity since the commencement of the group in Nairobi County.
- ii. Gym group fitness members with at least 6 months' membership at selected fitness centres in Nairobi County.

1.9 Limitations of the Study

The study relies on self-reported data which may contain bias. However, the participants were given appropriate guidelines on how to fill the questionnaire. They were assured of confidentiality to reduce biases.

1.10 Assumption of the Study

The study was carried on the assumption that the respondents were willing to take part in the study and they were to cooperate with the researcher. The researcher communicated the high level of confidentiality and the relevance of the study to the participant as a way

of encouraging them to take part in the study. The researcher used trained assistants to guide the respondent by clarifying items in the questionnaires.

1.11 Theoretical Framework

The study has employed a Social Cognitive Theory (SCT). The SCT focuses on individual's response consequences. The vicarious learning of others in their social situations and degree of attachment which result to cost benefit analysis to attempt a given behavior (Conner & Norman, 2007). The theory encompasses some varieties of models such as health belief model, theory of planned behavior, health locus of control and the theory of reasoned action on individuals (Conner & Norman, 2005). The study focuses on the health behavior from a social cognitive theory framework. The variables of the SCT such as exercise self-efficacy it's relation to the physical activity status of the gym fitness participants versus the outdoor fitness participants. According to SCT a reciprocal relationship exists, when the natural environment, behavior and internal factors of the outdoor fitness group participant are biologically, affective and cognitively influenced by his behavior (Bandura, 1997). According to Bandura, individual beliefs of self-efficacy are central to a process of decision making to participate in physical activity with greater levels of self-efficacy aiding to higher goal setting and great commitment to accomplish goals. Great physical activity status is denoted when a participant's levels of the exercise program self-efficacy is high thus obstacles are viewed less challenging and self-managed skills are relatively high to such exercise participants (Bandura, 2004). Thus health behavior research has demonstrated the SCT construct of self-efficacy having strong positive association with physical activity status thus this theoretical framework was most suitable for the study.

1.12 Conceptual Framework

NCDs have led to a lifestyle adjustment which in turn has necessitated engagement in exercises. The client will argue with themselves having the influence of the SCT to make a choice to enroll in a fitness program. The need to engage in exercise may also be affected by the workout routine which is either gym based or outdoor based. However, more factors may influence the engagement and maintenance of the workout program by the client this factors are (mastery experience, social modeling, improving emotional and physical states and verbal persuasion) which may on one end trigger use of self-efficacy theory to exercise and will encourage them to join and consistently adhere to an exercise program by use of the standards recommended by the GPAQ Physical activity status.

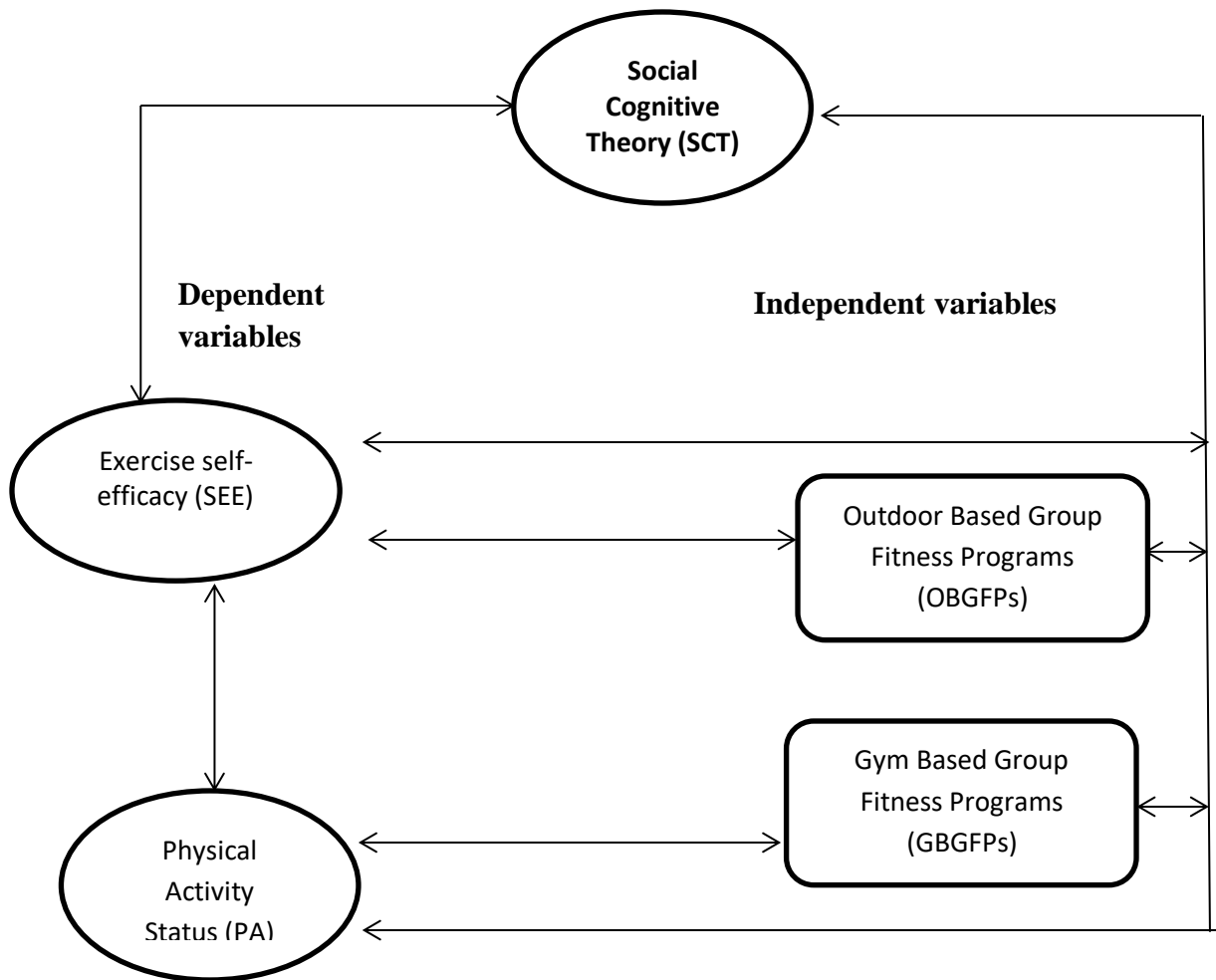


Figure 1. 1: Health promotion by social cognitive means (Adapted from Bandura 2004)

CHAPTER TWO: LITERATURE REVIEW

2.1 Adherence in both Gym and Outdoor Exercise Programs

Joining any fitness programs is not a challenge to many the challenge is the adherence of the program to the extreme end. Research by (Bock, Marcus, King, Borrelli & Roberts, 1999) shows that half of the population starting an exercise program withdraws within the first 6months. Self-efficacy to exercise can be seen among the participants who chose to start an exercise program and continues with the routine and maintains the program despite the external and internal pressures that may disrupt them (Schumann, Sibthorp & Hacker, 2014). There is no known survey of the Self-efficacy to exercise among the young adult participants in the two fitness programs in Nairobi County.

2.2 Comparison on Indoors and Outdoors Group Fitness

Every individual stands a chance to participate and benefit from exercises and physical activities in various capacities if you engage in them. Achieving good health is a global challenge and any program that can bring new knowledge on board is readily accepted.

A study by Giarmatzis, Jonkers, Wesseling, Rossom, & Verschueren, (2015) on the outdoor and laboratory walking and running showed that in as much as both walks led to improvement in affective (revitalization, arousal, physical exhaustion and total engagement) responses, the participant reported greater pleasant affective states of enjoyment and lots of intentions to future walking in outdoors. The self-selected speed was slightly higher in outdoors and there was less Rating on the Perceived Exertion (RPE) the research was strictly on the rating of perceived exertion thus did not address much. Ferro & Floria, (2013) on the other hand did a comparison between the outdoor and indoor fitness programs on the RPE- guided exercise, the findings were; speed, heart rate and also blood

lactates differed in these environments. Physiological responses were higher outdoors thus same exercise evaluated by perceived feeling and the guidance should be two RPE-units less for outdoors, similarly same effect- less RPE with same speed (Giarmatzis et al., 2015). Their findings were enclosed to the physiological changes of the participants in the outdoor and the gym environment thus no much knowledge on the other health components. The current study did not evaluate the fine variables, like the above study. However, we can deduce that there is an increased outdoor based group fitness program participating mean unlike the gym based group fitness program participant's mean in the respective programs.

A study on the restorative quality of indoors and outdoors exercise settings as a predictor of the exercise frequency in Swiss on a group of 320 subjects, found out that outdoor setting was more rated restorative. Each environment rated the predicament of; the frequency of the exercise the past 30 days, independence of socio-demographic characteristics, expectations of the participants to the benefits of the exercise (health & social) and the personal barriers (Impact of outdoor environment on fall incidences among older adults by frequency of outdoor use, 2016). The study did not bring out the efficacy of the participants to the different exercise settings. The current study had a section on the participants exercise self-efficacy to the two programs, the outdoor based group fitness program had a high mean rank in efficacy unlike the participants in gym based group fitness program.

Allen-Craig & Hartley, (2012) conducted a study on long term effect of physical outdoor education on women. The conclusion was that the physical education program with the outdoor activities gave significant results in fitness, body composition levels, great cardiovascular endurance, muscle strength and endurance and better flexibility than the indoor physical education. The study was limited to health related fitness components only

and did not enlighten on the descriptive perception of the participants. The current study was not limited to women only and it encompasses both the health benefits and rating of training.

2.3 Exercise Self-Efficacy on the Indoor and Outdoor Fitness Programs

The theory of Self-efficacy by Bandura, (1977), was an opener to an individual's belief about their capabilities. Self-efficacy can be formed and affected by personal accomplishments, vicarious experiences, verbal persuasion and physiological states. Exercise self-efficacy portrays the exercise mastery experience, personal accomplishments and success one has in the exercise program (McQuarrie & MacDonald, 2017). A study by Yun, (2016) on a population of the elderly who are over 60 years of age who participate in the outdoor recreation and the non-participant on their efficacy to exercises and their quality of life. He concluded that the participant in the outdoor looked healthier, younger more educated, married, happy and more likely to live longer than the others. The outdoor participants also loved their outdoor routine and longed for it with fewer problems with the outdoor facilities. The study concluded that there is more need for the outdoor program for the relatively poor, frail and the isolated elderly individuals. The study research did not compare the gym-based exercises and the population was the elderly.

A study in Australia by Kaplan, (1995) on the elderly showed that the Reasonable Person Model (RPM), which is a conceptual framework linking the human behavior and the environment factors. The model showed that people are reasonable, can work together, satisfied and helpful when the environment supports their basic necessities. According to the same RPM environment support is important in enhancing good health thus more elderly population was seen walking regularly on the footpaths and the parks as well. The

study failed to show the comparison and was restricted to elderly age bracket population. A similar research done in Japanese on a special role of nature by (Takano, 2002) where a cohort 5year study follow-up of old people perceived to access green parks found to predict longevity and able to control other aspects such as age, socioeconomic status, gender, marital status and health behavior. The study failed to consider the fitness programs used and was limited to the old population only. Our current study was not limited to the old but the young adult population and it did show the specificity of the different age brackets.

A Longitudinal Australian study on the attractiveness, street connectivity, access to outdoor facilities and places of interest significantly related with neighborhood use of the streets (Kaczynski, Koohsari, Stanis, Bergstrom & Sugiyama, 2014). The author reports that enhancing attributes and perceptions about environment is convincing while promoting physical activity. The participant's self-efficacy to the outdoor was also facilitated by the perceived safety, conditions of the sidewalks and the quality of the lighting systems. The gap that was not addressed by the study is the participant's self-efficacy to exercise and the physical activity status. Research by Kuo & Sullivan, (2001) showed that when there is high efficacy to the outdoor exercises by participants in a community it showed that the natural areas were related to reduce crime, aggression and violence. The much interaction among the residents in the natural environment increased the sense of pride in one's community and strengthened urban neighborhoods. The study failed to scientifically show the participants physical activity status in their natural environments and their consistency. The current study assessed the physical activity status for the different programs unlike the above study.

2.4 Sustainability and Future Perspectives of Outdoor Group Exercises

Sustainable development goals (SDG) by the UN create a new dimension in the kind of knowledge we ought to bring to the sports field. The programs that can be sustained to the future generations. The United States of America trends in participation in outdoor recreational activities has been studied by Krinski, Machado, Lirani, DaSilva, Costa, Hardcastle, & Elsangedy, (2017) and their analysis provided an interesting approach on how to predict development in participation. They go ahead to explain taking into consideration the populations growth that includes the birth, mortality and migration rates as well as the ethnic races origin the general findings were that the growth rate from 1990-2025 in recreational activities equals to the rate of population growth. They failed to show the specific population, future perspectives, internal and external motivation influence on a participant to participate in the group fitness programs.

2.5 Recommended Standards for Both Gym and Outdoor Group Fitness Programs.

The World Health Organization (WHO) has documented the health benefits of participating in physical activity and they have documented the recommended standards for the different age groups. The adults' age group should do at least 150minutes of moderate-intensity aerobic PA or at least 75min of vigorous-intensity aerobic PA or a combination of both in a week. Muscle strengthening should be done at least 2 or more days in a week (WHO, 2010). The American College of Sports Medicine (ACSM) recommends that an adult ought to have no less than 30minutes of moderate intensity exercise 5 days a week which is also equivalent to a 20minutes of vigorous intensity exercises 3days a week (CDC, 2007).

The training programs will suite everyone for both the indoor training and the outdoor training, the variations mostly for those on the programs is how you balance the time frequency and the intensity on their programs, pushing slightly more than our comfort always gives us results. According to Grieser, Gao, Ransdell, & Simonson, (2012) the persons with mobility issues should exercise more days to improve their coordination and balance so as not to fall. Inconsistency in the program and failure to balance the frequency, intensity and time will always create boredom thus withdrawal from the program.

2.6 Group Cohesion in Outdoor and Gym Exercise Programs

A group definition has shown to be a realm of controversy; exercise groups are often discussed if they are real groups or not (Burke, Carron & Shapcott, 2008). Burke et al. (2008) went ahead to explain college student exercise in group setting but they are not permanent while middle adults tend to appreciate exercising in organized group setting in a permanent way (Bammann, (2017).

Group cohesion is a scientific term used by sports psychologists to understand the processes that stimulate desirable outcomes of a certain group (Midtgaard, Rorth, Shelter & Adamsen, 2006). Many studies tested and observed the effects that a group oriented task of achieving a common goal can also have an individual reward, Midtgarrd et al., (2006) revealed that the relationship was one of the most crucial aspects since the unity in exercise brought a concrete bond of a family or a team. The cancer ailment was not the only commonality holding them together, physical exercise created togetherness among the participants and brought comradeship among the participants. But the study did not explain the efficacy of the participants to the program nor the physical activity measure used. The exercise self-efficacy for the integrated groups was characterized by feeling of mutual trust,

solidarity and acceptance of the participants (Mwisukha & Rintaugu 2009). The current study encompassed the PAs and the SEE of both the gym and outdoor group fitness programs and was not limited to cancer patients only.

2.7 Summary of Reviewed Literature

There is clear evidence of the many studies cutting across the indoor group fitness and the outdoor group fitness programs over exercise self-efficacy, physical activity and the differing populaces. But limited research has tried to assess the two among the young population, participants' PA status and SEE in Kenya.

An example of a comparison on both the outdoor and indoor fitness programs on the RPE-guided exercise which failed to show the SEE rather was specific on some physical activity components like speed, heart rate and also blood lactates differed in these environments. Physiological responses were higher in outdoors thus same exercise evaluated by perceived feeling and the guidance should be two RPE-units less for outdoors, similarly same effect-less RPE with same speed (Giarmatzis et al., 2015). Allen-Craig & Hartley, (2012) conducted a study on long term effect of physical outdoor education on women. The conclusion was that the physical education program with the outdoor activities gave significant results in fitness, body composition levels, great cardiovascular endurance, muscle strength and endurance and better flexibility than the indoor physical education. The study above was only restrictive to the health related physical components and does not give a light on the SEE and physical activity status which is limited to the knowledge being brought by the current study.

A study by Yun, (2016) on a population of the elderly who are over 60 years of age who participate in the outdoor recreation and the non-participant on their efficacy to exercises and their quality of life. The study was for the aged 60 and above but our current study is for young adults (20-45) years and does not bring any knowledge on physical activity status of this population. However, all in all it goes ahead to concluded that the participant in the outdoor recreation looked healthier, younger more educated, married, happy and more likely to live longer than the others. The participants also loved their outdoor routine and longed for it with fewer problems with the outdoor facilities unlike the other groups.

The above studies touched on the various components of our current study independently but not entirely what this current study did on assessing PA status and SEE across Outdoor and gym based group fitness programs. Thus the gaps in the field of outdoor and gym based group fitness in assessing the SEE and the physical activity status.

CHAPTER THREE: METHODOLOGY

3.1 Research Design

The study employed a cross-sectional analytical survey design to assess exercise self-efficacy and physical activity status among participants in outdoor and gym based group fitness programs in Nairobi County. The design allows the researcher to collect information on participants' demographics, PAS and SEE from several categories and strata which is a representation of a particular scenario at a point in time.

3.2 Measurement of Variables

The study's independent variable was mode of training and was measured at a nominal level. It included gym based group fitness programs, outdoor based group fitness programs and the demographic information of the respondents. The gym program includes aerobics, dances and circuit training. Outdoor programs will include running, cycling and boot-camps, while the dependent variables were physical activity status and exercise self-efficacy measured at an ordinal level.

3.3 Location of the Study

The study was conducted among clients with membership at the selected gyms with group fitness training centers and outdoor fitness group participants in Nairobi County. The outdoor study regions included partial Thika Superhighway, Karura Forest which is shared with Kiambu County, Nairobi arboretum, City Park, Spring Valley lower Kabete road, Chaka road in Hurlingham, partial Mombasa road, Outering road, Kasarani Mwiki, Jogoo road and Zimmerman Mirema. This follows the uneven distribution of the Outdoor groups in the County. The choice of the regions was guided by the groups' specific centers before embarking on the days chosen route. Nairobi being a cosmopolitan with great urbanization

and persons of different backgrounds made it great for study due to the wide range of information.

3.4 Target Population

The target population was guided by the client's membership at the fitness centers and the outdoor groups located in Nairobi County. The Nairobi Business Directory (2016) and the Yellow Pages Directory (2016) under the categories of 'Gyms and Fitness Centers in Nairobi' was used. The total number of the gyms were 279 but those with group fitness are 170 gyms, while Outdoor fitness groups were 15 as cited by the ("Running Groups in Kenya Archives – Jambonairobi", 2017) in (Appendix B). The minimum number per the indoor fitness facility needed to be at least 10 in the 170 indoor group fitness facilities in Nairobi County thus the target population was approximately $170 \times 10 = 1700$. The outdoor fitness group were 15 with a minimum of 100 thus an approximate population of $15 \times 100 = 1500$. This gives us a total target population of 3200 clients in both gym and outdoor based group fitness programs.

3.4.1 Inclusion Criteria

The sample for this study was drawn from both genders with at least an active membership of 6 months in a gym and outdoor based fitness group. Either program had to have at least 1-year of existence in service delivery and group trainings for the gyms based, were included in the study.

3.4.2 Exclusion Criteria

Any client with less than 6 months at the gym or outdoor group and a program with less than 1-year of service delivery.

Any client who was attending the session following a doctor's/physicians prescription for recovery from a chronic medical condition or injury rehabilitation.

3.5 Sampling Procedure

3.5.1 Stratified Random Sampling

The study covered 170 gym based group fitness centres and 15 outdoor fitness groups across Nairobi County. The 17 constituencies of Nairobi County were used as strata.

3.5.2 Simple Random Sampling

Through simple random sampling method, 10 gym centres were sampled from each strata. Each of the gym again had to give us a sample of 10 clients. Data collection was done to sampled participants who met the inclusion criteria. Participation to the study was done purely on voluntary basis.

3.6 Sample Size

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

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

this is 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 (approximation) proportion of the population (50%) and q is $1 - p$ ($1 - 0.5$)

Therefore;

$(n_0) = ((1.96)^2 (0.5) (0.5)) / (0.05)^2 = 384$. For population above 10,000 and thus correction for the Cochran Formula for sample size calculation was used to adjust the sample size below.

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

The target population for the study was 3200 where n_0 is Cochran's sample size, N is the population and n is the new adjusted sample size. Therefore;

Adjusted sample size (n) = $384 / (1 + (383/3200)) = 341$ respondents.

3.7 Research Instruments

3.7.1 Questionnaires

The study used a well-structured self-administered questionnaire. Which was structured as follows;

PART 1: sociodemographic factors of the participant.

PART 2: Adopted from the World Health Organizations Global Physical Activity Questionnaire (GPAQ) Hankins and Smith, (2007) to assess the level of PA participation of the gym and outdoor based fitness groups. The questionnaire has been validated Herrmann, Heumann, Der Ananian & Ainsworth, (2013) for use in WHO member countries where Kenya is a member. It consists of 16 questions collecting information on PA participation in 2 domains: activity at work, travel to and from places, and recreation activities.

1. PART 3: Third part was the Exercise Self-efficacy questionnaire which the respondents indicated the extent to which they experienced 11 SEE items on a scale of 1 to 3, where 1 = not confident and 3 = very confident (Appendix F).

3.8 Pre-Testing of Research Instrument

The pre-test was used to check for errors and veracity of the question in the data collection tool. The pre-test was conducted on Watalaam gym and Bypass Fitness Jaguars an outdoor based fitness group both in Roysambu Sub-County, Nairobi County with similar characteristics to the study. The pre-test data collection and keying was used to train research assistants.

3.9.1 Validity

Validity was ensured by having the draft questionnaires discussed and relevant comments synchronized by the experts and professionals to see the objectivity and clarity was adequate. This method of validity check ensured good judgement and determined the suitability of the tool for use this was done by the team of experts in the particular field according to (Mugenda & Mugenda, 2003)

3.9.2 Reliability

Reliability on the other hand refers to the measure of the degree of feasibility to which the research instruments yield consistent results (Mugenda & Mugenda, 2013). Reliability was tested by a test-retest method. The questionnaire was administered to the same groups twice with an interval of one-month, using the same population as in the pre-test. The results obtained from the two counts was be used to calculate the correlation between the two sets of results. Twenty (20) participants each from Watalaam gym and Bypass Fitness Jaguars

from Roysambu Sub-County, Nairobi County were used. The pre-test and post-test scores gave a reliability index of 0.92 which is considered adequate.

3.10 Data Collection Technique

Questionnaires were distributed among the selected gym based fitness centres. Data was collected via onsite questionnaires in the month of September till November 2019. The researcher wrote formal application to the relevant management of both the gym centres and the outdoor groups (Appendix D). Five research assistants trained to assist in data collection accompanied the main researcher to the gyms through the managers and after a request to participate in the study, and meeting the inclusion criteria, the respondents were to fill an informed consent form (Appendix E) and went ahead to complete the questionnaire. They filled and returned before leaving the facility.

For variability boosting, sampling was across the week with gyms assessment happening in the morning and evenings on a target of group trainings. The outdoors was commonly on Saturdays and Sundays and selected areas of training as advised by heads of the various groups.

3.11 Data Analysis and Presentation

The data obtained was coded as per the questionnaire guidelines and entered into a computer in MS Excel which was also used for data processing and cleaning. The Statistical Package for Social Sciences (SPSS) version 22.0 was used for data analysis. For individual scores data was summarized into percentages means and standard deviations.

Cross tabulations were done for analysis of nominal level data to establish the physical performance in relation to gym based and outdoor based program. Chi square was used to

test the relationship of participants social-demographic status among the two programs the gym based program and outdoor based program. Normality tests were run to establish the sample distribution.

Self-efficacy was computed for each participant as a mean of the 11 responses provided under the 3 scale Likert scale to obtain an interval scale index after which independent sample t- test was done to determine the difference among the gym program participants and outdoor program participants. Independent sample t- test was run to test the mean difference at $p < 0.05$ level of significance.

3.12 Ethical and Logistical Considerations

The study clearance was obtained from the Kenyatta University Graduate School and the Kenyatta University Ethical Review Board. Research authorization and permit was obtained from the National Council for Science, Technology and Innovation (NACOSTI). The authorization to collect data was obtained from Regional Coordinator of Education Nairobi City County. Permission to collect data from clients at selected gym based fitness centres (Appendix D) was obtained from managers and fitness instructors and (Appendix E) from outdoor fitness managers/coaches, and prior arrangements for the right time to access clients was arranged. The 5 research assistants were sports science undergraduate, and prior training both verbal and written information on interpersonal skills, socio-demographic items, inclusion and exclusion criteria happened before pre-test so as to help administer the questionnaires with utmost profession.

CHAPTER FOUR: FINDINGS

4.1 Demographics of the Respondents

Research data was collected from a total sample of 340 respondents out of the total number of 341 clients in both outdoor and gym based group fitness programs. Thus, the questionnaire respondents rate for the study was 99.7 percent. The remaining respondent was unwilling to respond to the study questionnaire.

4.1.1 Age of the Respondents

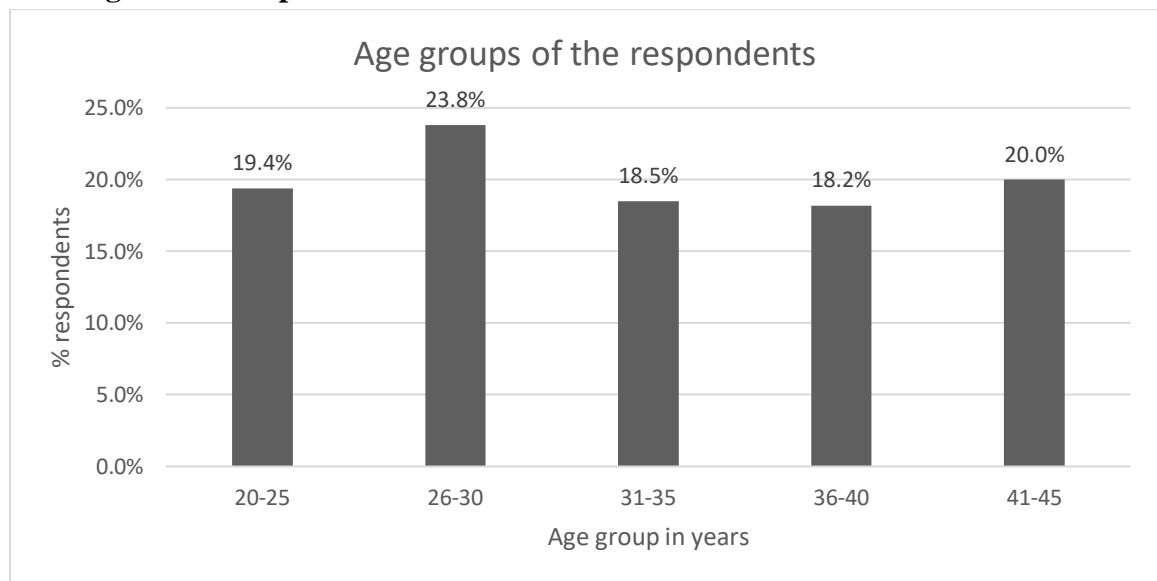


Figure 4. 1: Frequency by Age of the Respondents

Findings of the study as shown in figure 4.1 indicated that the largest portion of the sample (23.8%) were aged between 26-30 years, followed by those aged 41-45 years at 20.0% and then those aged 20-25 years at 19.4%. Those aged 31-35 years were 18.5% and those aged 36-40 years were 18.2% and represented the smaller portion of the sample.

4.1.2 Gender of the Respondents

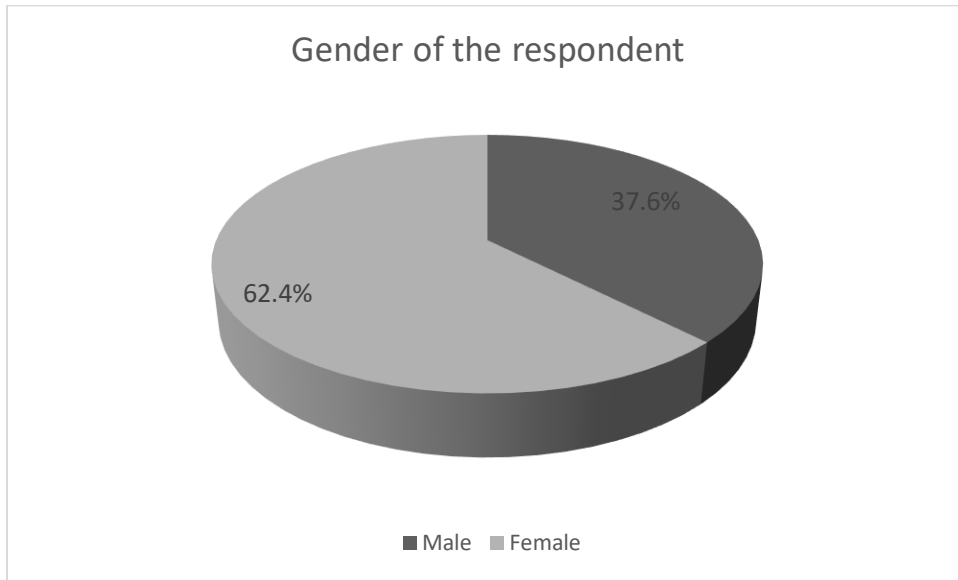


Figure 4. 2: Frequency by Gender of the respondents

The total number of respondents who agreed to participate in the study was 340 (100%).

The female population was higher than that of their male counterparts thus unequal distribution of male and female for the sample with male respondents being 128 (37.6%) and female respondents, 212 (62.4%).

4.1.3 Marital Status of the Respondents

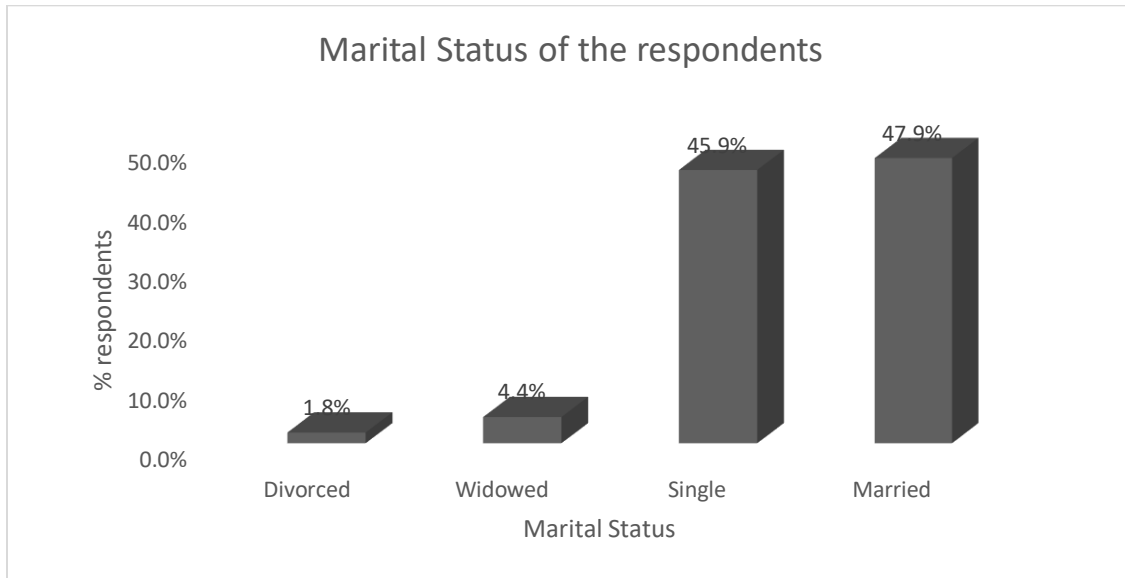


Figure 4. 3: Frequency by Marital Status of the Respondents

In general, the marital status population of the four categories are not evenly distributed. The married were the highest population with 163 (47.9%) followed by the single clients at 156 (45.9%). The widowed came second last with 15 (4.4%) while the divorced came last with a sample of 6 (1.8%).

4.1.4 Respondents Mode of Training

The mode of training was classified into two categories; the gym based group fitness program had the most participants at 185 (54.4%) while the outdoor based group fitness program had 155 (45.6%).

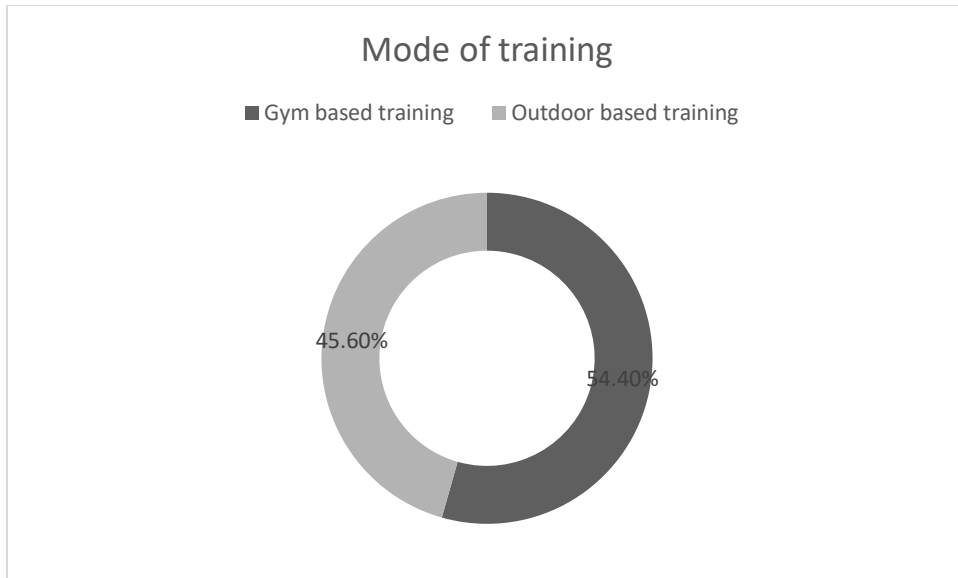


Figure 4. 4: Mode of Training

4.2 Exercise Self-Efficacy Among Participants in Outdoor Based Group Fitness Programs

The mean of the respondents in table 4.1 below, the outdoor based group fitness program was (2.42, SD 0.459, 95% C.I). The participants were confident they would exercise 3 times a week for at least 20 minutes.

Table 4. 1 Exercise Self-Efficacy on Outdoor Based Group Fitness Programs

<i>Exercise Self-Efficacy on Outdoor Based group fitness Programs</i>					
	N	Minimum	Maximum	Mean	Std. Deviation
Exercise Self - efficacy	155	1.09	3.27	2.4152	.45913
Valid N (list wise)	155				

4.3 Exercise Self-Efficacy among Participants in Gym Based Group Fitness Programs

The mean of the respondents in the gym based group fitness program was (2.18, SD 0.485, 95% C.I). The participants were confident they would exercise 3 times a week for at least 20 minutes. The study showed that the participants in the outdoor based group fitness program had a mean of (2.42, SD 0.459, 95% C. I) while gym based group fitness program had a mean of (2.18, SD 0.485, 95% C. I). thus both programs participants had confidence in participating in exercises for 3 times a week for at least 20 minutes daily.

Table 4. 2 Exercise Self-Efficacy on Gym Based group fitness Program

	N	Minimum	Maximum	Mean	Std. Deviation
Exercise Self-efficacy	185	1.45	3.27	2.1818	.48523
Valid N (list wise)	185				

4.4 Comparison Between the exercise self-efficacy of the participants in the gym and the outdoor based group fitness programs

From the results above the mean of the outdoor based group participants which is (M 2.42, SD 0.459, 95% C.I) and the one of the gym based group participants which is (M 2.18, SD 0.485, 95% C.I) from above table 4.1 and 4.2 respectively. We therefore establish the equality of the two means to find their significance level using the independent t-test at table 4.3 where our $t(338) = -4.527$, $p < .000$ which is less than 0.05, therefore we conclude there is a significant difference between the gym and outdoor based group fitness program on SEE. We therefore reject the hypothesis that “there is no

significant difference between participant's exercise self-efficacy and the type of the fitness program in Nairobi County, Kenya”

Table 4. 3 : Independent Test on the Means of Modes of Training for Exercise Self-Efficacy

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Self-efficacy	Equal variances assumed	2.992	.085	-4.527	338	.000	-.23343	.05156	-.33485	-.13201
	Equal variances not assumed			-4.549	333.011	.000	-.23343	.05131	-.33436	-.13250

4.5 Physical Activity Status among Participants in Gyms and Outdoor Based Group Fitness Programs

The assessment of the physical activity status was done in guidance to the categories provided by the GPAQ questionnaire. Every category will be analyzed individually and all of them will build up to the general hypothesis. These categories include; Activity at

work (vigorous and moderate), Travel/cycling to and from places, Recreational activities (vigorous and moderate) and lastly Sedentary behavior of the respondents

4.5.1 Activity at Work

4.4.1.1 Vigorous Activity at Work

The study showed that there were 112 and 131 participants in gyms and outdoor based fitness programs respectively who did vigorous activities at work. 42.9% (48) of the gym based fitness participants worked out for 0- 2 days in a week compared to 11.5% (15) in outdoor based fitness programs, 58.1% (58) in gym based fitness program worked out for 3- 5 days compared to 66.4% (87) in outdoor based fitness program with only 5.4% (6) and 22.1% (29) working out between 6- 7 days for gym and outdoor based fitness programs respectively. This implied that there were more outdoor based fitness participants engaging in vigorous activities at work for 3-7 days unlike the gym based fitness participants.

Table 4. 4: Cross Tabulation of Intensity of Activities for Gym and Outdoor Based Training

			Days of vigorous intensity activities			Total
			0-2	3-5	6-7	
Mode of training	Gym based training	Count	48	58	6	112
		% within Mode of training	42.9%	51.8%	5.4%	100.0%
		% within Days of vigorous intensity activities	76.2%	40.0%	17.1%	46.1%
		% of Total	19.8%	23.9%	2.5%	46.1%
	Outdoor based training	Count	15	87	29	131
		% within Mode of training	11.5%	66.4%	22.1%	100.0%
		% within Days of vigorous intensity activities	23.8%	60.0%	82.9%	53.9%
		% of Total	6.2%	35.8%	11.9%	53.9%
Total	Count	63	145	35	243	
	% within Mode of training	25.9%	59.7%	14.4%	100.0%	
	% within Days of vigorous intensity activities	100.0%	100.0%	100.0%	100.0%	
	% of Total	25.9%	59.7%	14.4%	100.0%	

4.4.1.2 Time Taken for Vigorous Activities at Work

The mean time for vigorous activities at work for gym based fitness program participants was M 1.03, SD 0.5965 while for outdoor based fitness program was M 1.68, SD 0.70961 as shown in the table 4.5. This implies that participants of the outdoor based fitness program worked out more hours than those who participated in gym based fitness program.

Table 4. 5 : Time Taken for Vigorous Intensity Activities at Work

Group Statistics					
	Mode of training	N	Mean	Std. Deviation	Std. Error Mean
Time for the vigorous intensity activities	Gym based training	111	1.0315	.59650	.05662
	Outdoor based training	131	1.6756	.70961	.06200

We can therefore say that from the results in the table 4.6 below, when an independent t-test was computed on the means of the time taken in the vigorous activities for both the gym and the outdoor based group fitness programs. The $t(240) = -7.562$, $p < .000$ which is less than our 95% confidence level showing there is a significance difference in duration of vigorous activities for gym and outdoor participants.

Table 4. 6: Time Comparison Between the Means of the Two Training modes in Vigorous Intensity

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time for the vigorous intensity activities	Equal variances assumed	1.770	.185	-7.562	240	.000	-.64404	.08517	-.81181	-.47627
	Equal variances not assumed			-7.671	239.987	.000	-.64404	.08396	-.80944	-.47865

4.5.1.3 Moderate Activities at Work

The study results in the table 4.7 below showed that there were 56 and 17 participants in gyms and outdoor based fitness programs respectively who did moderate activities at work. 48.2% (27) of the gym based fitness participants worked out for 0- 2 days in a week compared to 5.8% (1) in outdoor based fitness programs, 51.8% (29) in gym based fitness program worked out for 3- 5 days compared to 76.5% (13) in outdoor based fitness program with only 0.0% (0) and 17.6% (3) working out between 6- 7 days for gym and outdoor based fitness programs respectively.

Table 4. 7 : Cross Tabulation of Moderate Intensity Activities of the Modes of Training

			Days of moderate intensity activities			Total
			0-2	3-5	6-7	
Mode of training	Gym based training	Count	27	29	0	56
		% within Mode of training	48.2%	51.8%	0.0%	100.0%
		% within Days of moderate intensity activities	96.4%	69.0%	0.0%	76.7%
		% of Total	37.0%	39.7%	0.0%	76.7%
	Outdoor based training	Count	1	13	3	17
		% within Mode of training	5.9%	76.5%	17.6%	100.0%
		% within Days of moderate intensity activities	3.6%	31.0%	100.0%	23.3%
		% of Total	1.4%	17.8%	4.1%	23.3%
Total		Count	28	42	3	73
		% within Mode of training	38.4%	57.5%	4.1%	100.0%
		% within Days of moderate intensity activities	100.0%	100.0%	100.0%	100.0%
		% of Total	38.4%	57.5%	4.1%	100.0%

The Mean time taken for moderate intensity activities is M 1.09, SD 0.65544. for gym participants, while the mean time taken by outdoor participants was M 1.77, SD 0.92725. as shown in table 4.8 below

Table 4. 8: Time Taken for Moderate Intensity Activities at Work

Group Statistics					
	Mode of training	N	Mean	Std. Deviation	Std. Error Mean
Time for moderate intensity activities	Gym based training	139	1.0935	.65544	.05559
	Outdoor based training	139	1.7662	.92725	.07865

We can therefore say that from the results in the table 4.9 below, when an independent t-test was computed on the means of the time taken in the moderate activities for both the gym and the outdoor based group fitness programs. The $t(276) = -6.984$, $p < .000$ which is less than our 95% confidence level showing there is a significance difference in duration of moderate activities for gym and outdoor participants.

Table 4. 9 : Time Comparison of the Means of the Two Training modes in moderate Intensity

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time for the vigorous intensity activities	Equal variances assumed	17.758	.000	-6.984	276	.000	-.67266	.09631	-.86226	-.48306
	Equal variances not assumed			-6.984	248.354	.000	-.67266	.09631	-.86226	-.48297

4.5.2 Travel/Cycling to and from Places

Majority of the respondents 92.6% (315) participated in walking and cycling activities while 7.4% (25) did not participate in either walking or cycling as shown in the table 4.10 below.

There were 315 participants who walk or cycle for at least 10 minutes, 52.7% (166) do it in gyms while 149 do it outdoors. Among those who do cycling or walking exercises, majority 44.6% (74) and 47.0% (70) do so between 3-5 days in a week for both gym and outdoor based fitness program respectively. 41.6% (69) and 27.5% (41) do so between 0-2 days in a week for both gym and outdoor

based fitness program respectively. The minority 13,9% (23) and 25.5% (38) do so between 6-7 days in a week for both gym and outdoor based fitness program respectively.

Table 4. 10 : Cross Tabulation of Travel/Cycling of the Participants in Gym and Outdoor

			Days you walk or Cycle for at least 10minutes			Total
			0-2	3-5	6-7	
Mode of training	Gym based training	Count	69	74	23	166
		% within Mode of training	41.6%	44.6%	13.9%	100.0%
		% within Days you walk or Cycle for at least 10minutes	62.7%	51.4%	37.7%	52.7%
		% of Total	21.9%	23.5%	7.3%	52.7%
	Outdoor based training	Count	41	70	38	149
		% within Mode of training	27.5%	47.0%	25.5%	100.0%
		% within Days you walk or Cycle for at least 10minutes	37.3%	48.6%	62.3%	47.3%
		% of Total	13.0%	22.2%	12.1%	47.3%
Total		Count	110	144	61	315
		% within Mode of training	34.9%	45.7%	19.4%	100.0%
		% within Days you walk or Cycle for atleast 10minutes	100.0%	100.0%	100.0%	100.0%
		% of Total	34.9%	45.7%	19.4%	100.0%

The mean time taken by gym based fitness participants in walking and cycling is M 1.09, SD 0.61370 per day while for outdoor based fitness participants is M 1.66, 1,00748 as illustrated in the table 4.11 below.

Table 4. 11 : Time taken for Travelling /Cycling as per the Two Mode of Training

	Mode of training	N	Mean	Std. Deviation	Std. Error Mean
Time for walk or cycle	Gym based training	166	1.0904	.61370	.04763
	Outdoor based training	149	1.6644	1.00748	.08254

We can therefore say that from the results in the table 4.12 below, when an independent t-test was computed on the means of the time taken in travelling/cycling activities for both the gym and the outdoor based group fitness programs. The $t(313) = -6.176$, $p < .000$ which is less than our 95% confidence level showing there is a significance difference in duration of travel/cycling activity for gym and outdoor participants.

Table 4. 12 : Time Comparison of the Means of the Two Training modes in travel/cycling category

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time for walk or cycle	Equal variances assumed	33.601	.000	-6.176	313	.000	-.57407	.09296	-.75697	-.39117
	Equal variances not assumed			-6.024	239.203	.000	-.57407	.09529	-.76179	-.38634

4.5.3 Recreational Activities

4.4.3.1 Vigorous Intensity for Recreational Activities

An overall 84.7% (288) of all respondents participate in sports, fitness or recreational (leisure) activities while 15.3% (52) do not as illustrated in the table 4.13 below. In relation to the program that they participate, 87.6% of gym program participants were involved in vigorous intensity, sports, fitness or recreational (leisure) activities with only 81.3% of outdoor based program participating in such activities.

For gym based program participants 46.3% (75) did vigorous intensity sports and recreational activities for 0- 2days, 53.7% (87) for 3- 5 days and 0% for 6-7 days. On the other hand, 21.4% (27) of outdoor based training participated for 0- 2 days, 76.2% (96) for 3 to 5 days while 2.4% (3) did participate for 6- 7 days.

Table 4. 13 : Cross Tabulation of Vigorous Recreational activities of the Participants in Gym and Outdoor

Cross tabulation						
			Days you do vigorous intensity sports for recreation			Total
			0-2	3-5	6-7	
Mode of training	Gym based training	Count	75	87	0	162
		% within Mode of training	46.3%	53.7%	0.0%	100.0%
		% within Days you do vigorous intensity sports for recreation	73.5%	47.5%	0.0%	56.3%
		% of Total	26.0%	30.2%	0.0%	56.3%
	Outdoor based training	Count	27	96	3	126
		% within Mode of training	21.4%	76.2%	2.4%	100.0%
		% within Days you do vigorous intensity sports for recreation	26.5%	52.5%	100.0%	43.8%
		% of Total	9.4%	33.3%	1.0%	43.8%
Total		Count	102	183	3	288
		% within Mode of training	35.4%	63.5%	1.0%	100.0%
		% within Days you do vigorous intensity sports for recreation	100.0%	100.0%	100.0%	100.0%
		% of Total	35.4%	63.5%	1.0%	100.0%

For gym based goes the mean time is M 1.06, SD 0.55556 for outdoor participants, the mean time is M 1.47, SD 0.57225. as illustrated in the table 4.14 below.

Table 4. 14 : Mean Time Taken for Vigorous Intensity in Recreational Activities

Group Statistics					
	Mode of training	N	Mean	Std. Deviation	Std. Error Mean
Time for vigorous intensity sports for recreation	Gym based training	162	1.0586	.55556	.04365
	Outdoor based training	135	1.4704	.57225	.04925

We can therefore say that from the results in the table 4.15 below, when an independent t-test was computed on the means of the time taken in vigorous recreational activities for both the gym and the outdoor based group fitness programs. The $t(295) = -6.273, p < .000$ which is less than our 95% confidence level showing there is a significance difference in duration of Vigorous recreational activity for gym and outdoor participants.

Table 4. 15 : Time Comparison of the Means of the Two modes of Training in Vigorous Recreation Activities

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time for vigorous intensity sports for recreation	Equal variances assumed	.588	.444	-6.273	295	.000	-.41173	.06563	-.54090	-.28256
	Equal variances not assumed			-6.256	282.244	.000	-.41173	.06581	-.54127	-.28219

4.5.3.2 Moderate Intensity for Recreational Activities

Overall 48 of all the participants who indicated they did not participate in vigorous recreational activities participated in moderate intensity recreational activities as illustrated in the table 4.16. While 45.8% (22) participants of gym based training program were involved in activities of moderate intensity, 54.2% (26) of outdoor based training program participants were involved in moderate recreational activities. 36.4% (8) of gym based participants do moderate activities for 0- 2 days, 40.9% (9) do them in 3-5 days and 22.7% (5) do them for 6-7 days. In regard to outdoor based training participants, 30.8% (8) participated for 0- 2 days while the rest

69.2% (18) did so for 3-5 days. On the other hand, 30.8% (16) of respondents who do moderate intensity recreational sports do them for 0- 2 days in a week, 51.9% do them for 3- 5 days while 9.6% do them for 6-7 days. There were some missing 7.7% (4) participants who did not indicate the days they do moderate intensity exercises for recreation.

Table 4. 16 : Comparison of Training Mode and Moderate Intensity Sports for Recreation

Cross tabulation						
			Days you do moderate intensity sports for recreation			Total
			0-2	3-5	6-7	
Mode of training	Gym based training	Count	8	9	5	22
		% within Mode of training	36.4%	40.9%	22.7%	100.0%
		% within Days you do moderate intensity sports for recreation	50.0%	33.3%	100.0%	45.8%
		% of Total	16.7%	18.8%	10.4%	45.8%
	Outdoor based training	Count	8	18	0	26
		% within Mode of training	30.8%	69.2%	0.0%	100.0%
		% within Days you do moderate intensity sports for recreation	50.0%	66.7%	0.0%	54.2%
		% of Total	16.7%	37.5%	0.0%	54.2%
Total		Count	16	27	5	48
		% within Mode of training	33.3%	56.3%	10.4%	100.0%
		% within Days you do moderate intensity sports for recreation	100.0%	100.0%	100.0%	100.0%
		% of Total	33.3%	56.3%	10.4%	100.0%

The average time for gym based group participants is M 0.841, SD 0.6616 while the average time for outdoor based group participants was M 2.25, SD 0.8396. as illustrated in tables 4.17 below.

Table 4. 17 : Mean Time Taken by Moderate Activities by Participants in Gym and Outdoor

Group Statistics					
	Mode of training	N	Mean	Std. Deviation	Std. Error Mean
Time for moderate intensity sports for recreation	Gym based training	22	.841	.6616	.1411
	Outdoor based training	26	2.250	.8396	.1647

We can therefore say that from the results in the table 4.18 below, when an independent t-test was computed on the means of the time taken in moderate recreational activities for both the gym and the outdoor based group fitness programs. The $t(46) = -6.371$, $p < .000$ which is less than our 95% confidence level showing there is a significance difference in duration of moderate recreational activity for gym and outdoor participants.

Table 4. 18 : Test for Comparison of Means for Gym and Outdoor Program Participants for Moderate Recreational Activities

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Time for moderate intensity sports for recreation	Equal variances assumed	2.953	.092	-6.371	46	.000	-1.4091	.2212	-1.8543	-.9639
	Equal variances not assumed			-6.499	45.796	.000	-1.4091	.2168	-1.8456	-.9726

4.5.4 Sedentary Behavior

The average time for sedentary behavior of gym based group fitness participants is M 4.84, SD 1.4458 while outdoor based group fitness program is M 4.82, SD 1.6796 as shown in the table 4.19 below.

Table 4. 19 : Mean Time for Sedentary Behavior on the Two Modes of Training

Group Statistics					
	Mode of training	N	Mean	Std. Deviation	Std. Error Mean
How much time do you spend sitting on a typical day	Gym based training	185	4.8378	1.44582	.10630
	Outdoor based training	155	4.8194	1.67960	.13491

We can therefore say that from the results in the table 4.18 below, when an independent t-test was computed on the means of the time taken in moderate recreational activities for both the gym and the outdoor based group fitness programs. The $t(338) = -109, p < .913$ which is more than our 95% confidence level showing there is no significance difference in duration of moderate recreational activity for gym and outdoor participants.

Table 4. 20 : Independent Test of Sedentary Behavior Mean Times Across Modes of Training

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
How much time do you spend sitting on a typical day	Equal variances assumed	17.904	.000	.109	338	.913	.01848	.16951	-.31494	.35191
	Equal variances not assumed			.108	305.896	.914	.01848	.17176	-.31949	.35645

We can therefore say that from the results in analysis of the physical activity questionnaire which is divided and analyzed in its given 4 categories as stated; Activity at work, Travel/cycling activities, recreation activities and sedentary behavior.

The activity at work (vigorous or moderate), the travelling or cycling activities, the recreational activities (vigorous or moderate) all show that when an independent t-test was computed on the means of the time taken in the above activities for both the gym and the outdoor based group fitness programs. The p-value was 0.001 which is less than our 95% confidence level showing there is a significance difference in duration of above activities for gym and outdoor participants. Thus we can reject the hypothesis that “there is no significant difference between participant’s Physical activity status (activity at work, travelling/cycling and recreation activities) and the gym and outdoor based group fitness programs in Nairobi County, Kenya”

We also go ahead to state the last category of physical activity status the sedentary behavior had $t(338) = -109, p < .913$ which is greater than 0.05 thus fail to reject the hypothesis that ‘there is no significance difference between the physical activity status (sedentary behavior) and the gym and outdoor based group fitness programs in Nairobi County, Kenya”

4.6 Relationship in the Efficacy of the Different Programs and the Different Social-demographic Characteristics

The social-demographical characteristic in the study is age, gender and the marital status of the respondents. The relationship was determined through the cross tabulation and chi-square testing of the social-demographic status and the two modes of training the gym and the outdoor based group training programs.

4.6.1 Relationship Between Age and the Different Modes of Training

The table 4.21 below show the cross tabulation of the respondents age and the two mode of trainings. Age bracket 20-25years were 9 in gym and 57 in outdoor, 26-30years were 32 in gym and 49 in outdoors, 31-35years were 48 in gyms and 15 in outdoor, 36-40years

were 47 in gyms and 15 in outdoor and lastly 41-45years of age were 49 in gyms and 19 in outdoor programs.

Table 4. 21 : Age Cross Tabulation Across the Modes of Training

Cross tabulation

Count

		Mode of training		Total
		Gym based training	Outdoor based training	
Age	20-25	9	57	66
	26-30	32	49	81
	31-35	48	15	63
	36-40	47	15	62
	41-45	49	19	68
Total		185	155	340

We can see from the table 4.22 below that $\chi (4) = 83.513, p < .000$. This tells us that there is a statistical relationship association between Age and the two modes of training; that is, gym and outdoor based group fitness programs.

Table 4. 22 : Chi-Square of Age Across Modes of Training

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	83.517 ^a	4	.000
Likelihood Ratio	89.084	4	.000
Linear-by-Linear Association	64.687	1	.000
N of Valid Cases	340		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.26.

4.6.2 Relationship Between Gender and the Different Modes of Training

The table 4.23 below show the cross tabulation of the respondent's gender and the two mode of trainings. The study had 72 males and 113 female train in gym based group fitness program, while 56 males and 99 female train in outdoor based group fitness program.

Table 4. 23 : Gender Cross Tabulation Across the Modes of Training

Cross tabulation

Count

	Mode of training		Total
	Gym based training	Outdoor based training	
Gender Male	72	56	128
Female	113	99	212
Total	185	155	340

The table 4.24 below shows that $\chi (1) = 0.280, p < .597$. This tells us that there is no statistical relationship association between gender and the two modes of training; that is, gym and outdoor based group fitness programs.

Table 4. 24 : Chi-Square of Gender Across Modes of Training

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.280 ^a	1	.597		
Continuity Correction ^b	.173	1	.677		
Likelihood Ratio	.280	1	.597		
Fisher's Exact Test				.653	.339
Linear-by-Linear Association	.279	1	.597		
N of Valid Cases	340				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 58.35.

b. Computed only for a 2x2 table

4.6.3 Relationship Between Marital Status and the Different Modes of Training

The table 4.25 below show the cross tabulation of the respondent's Marital Status and the two mode of trainings. The table shows that divorced 5, single 73, married 96 and widowed 11 for gym based group training, while outdoor based group fitness had 1 divorced, 83 single, 67 married and 4 widowed respondents.

Table 4. 25 : Marital Status Cross Tabulation Across the Modes of Training

Cross tabulation

Count

		Mode of training		Total
		Gym based training	Outdoor based training	
Marital status	Divorced	5	1	6
	Single	73	83	156
	Married	96	67	163
	Widowed	11	4	15
Total		185	155	340

The table 4.26 below shows that $\chi(3) = 9.158, p < .027$. This tells us that there is a statistical relationship association between marital status and the two modes of training; that is, gym and outdoor based group fitness programs.

Table 4. 26 : Chi-Square of Marital Status Across Modes of Training

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.158 ^a	3	.027
Likelihood Ratio	9.486	3	.023
Linear-by-Linear Association	4.033	1	.045
N of Valid Cases	340		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.74.

We can conclude that from the results obtained, the three social-demographic status of the respondents and the relationship with the two modes of training gym and outdoors. This tells

us that there is a statistical relationship association between Age and marital status and the two modes of training. Therefore, reject the hypothesis ‘There is no significant relationship in the efficacy of the different programs and the social-demographic characteristics on basis of age and marital status in Nairobi County, Kenya.’

The other bit is there is no statistical relationship association between gender and the two modes of training; that is, gym and outdoor based group fitness programs. Therefore, fail to reject the hypothesis that ‘there is no significant relationship in the efficacy of the different programs and the social-demographic characteristics on basis of gender in Nairobi County, Kenya’.

CHAPTER FIVE: DISCUSSION

5.0 Introduction

This chapter presents a discussion of the above findings based on the objectives of the study as well as the available literature review. First the demographic characteristic of the respondents. The section will also discuss the status of participants in SEE and PAs among the respondents in gym and outdoor based fitness programs. The discussion chapter will also compare the demographic and social-demographic factor of respondents in the two modes of training.

5.1 Demographic Characteristics of the Respondents

The results of the study showed that there were more 26-30-year-old respondents making 23.8% of all respondents in the study. The other age brackets groups ranges between 18.2% which was 31-35-year-olds and 20% which was 41-45-year-old respondents. This indicated that 26-30 and 41-45 year-olds were mostly engaged in trainings either gym or outdoor based fitness programs. According to Cardone, (2019), the age bracket of 26-30-year-old have a tendency of going to the gym for a beauty and feel good effect while 41-45 year olds attend the gym due to recommended lifestyle adjustments by their physicians while the 31-35-year-old have the least attendance owing to the many midlife crises of starting up young family, finding stability at work and trying to balance their social life with other young families.

The gender of the respondents was unequally distributed with female more likely to participate in either gym or outdoor based group fitness programs. The female had 62.4% while the male had 37.6% of the total respondents. The study agrees with Wang, Zhang and Zhang, (2018) that women indulge more in group workouts exercises for weight loss and toning while male exercised for enjoyment, thus the reason for the high numbers

among women. It further explained that women are more cautious of how they look and the clothing they wear with just one option of maintaining shape unlike men who see exercises as fun for competition.

The study further explain that married and single respondents were the most in the study. Married respondents were 47.9% while single were 45.9%. In general population you expect few divorced or widowed categories according to the current study. Single people train more due to lack of companion at their homes thus spending more time at social places this aligns to research by (Gesselman, Franco, Brogdon, Gray, Garcia, & Fisher 2019). This study goes ahead to disagree on the same study by Gesselman et al., (2019) that married people spent less time exercising and more time working hard to provide for their families and spending more time with their family.

Having the study based on two modes of training that is the gym and outdoor group based fitness programs, it is worth noting that most respondents of the study are gym members. This showed that there was a lot of awareness of the gym based training to residents of Nairobi City County unlike outdoor based training. According to a study by Marchand & Russell, (2011) on field instructors in outdoor healthcare program noted that gyms had high member numbers due to convenience but trends are changing with awareness increasing on outdoor training. It goes on to say that the commercialization of gyms by owners will lead to the rise of outdoor training to fulfill the demand of inexpensive exercises for a sustainable lifestyle.

5.2 Gender on Gym and Outdoor Based Group Training

The study clearly shows that there were differences in preference on the mode of training by the two genders; the proportion of male respondents was 37.6% while female was

62.4%. This clearly shows a huge difference in exercise participation. Several studies align with this study on the fact that female are more likely to exercise than male (Wang, Zhang & Zhang, 2018) and (DePaulo, 2020).

Male respondents in gym based group training were 56.3% while in outdoor based group training they were 43.8%, while female respondents in gym based group training were 53.3% and 46.7% in outdoor based group training. The current study shows the difference was not statistically significant that both male and female respondents trained more in gyms unlike in outdoors based group trainings. A comparison study on indoors (Gyms) versus outdoors pro and cons by (Indoor vs. Outdoor Exercise - Which is Better for You? 2020) stated that compared with indoor exercise, working out in “natural environments” was associated with “superior feelings of re-energization and positive engagement, reduced tension, anger, depression and confusion” and more energy. People who exercised outside were happier, satisfied and longed to repeat the activity at a later date. It also shows reducing levels of cortisol to the hormone triggering stress, after exercising outside compared to inside. However, exercising in a gym set up means you are likely to have air conditioning and heat regulation to make it comfortable. You do not need to worry about rain, snow or heat. Living in the city, escaping to the electrified cleaner air inside a gym can be a benefit to anyone suffering from asthma, allergies and other respiratory related problems.

5.3 Exercise Self-Efficacy (SEE) on Gym and Outdoor Based Group Training

According to Fletcher, (2001) SEE is the measure or determinant to which a participant in exercise programs adheres or believes in having the capacity to maintain his or her exercise program even on difficult scenarios He also goes ahead to explain that self-efficacy is the

belief and conviction that one can successfully adhere to a given activity or behavior. The study showed that outdoor based group training for SEE had a mean of 2.42 SD 0.459, 95% C.I which meant that the participants were very confident they would exercise 3 times per week for at least 20 minutes per every session. The gym based group training for SEE had a mean of 2.18 SD 0.485, 95% CI which meant they were confident they would exercise 3 times per week for at least 20 minutes per session. The study showed a significance difference in SEE for participants in both gym and outdoor group based training. Therefore, noting that the study rejected the hypothesis that “there is no significant difference between participant’s exercise self-efficacy and the type of the fitness program in Nairobi County, Kenya”

Outdoor based group training had a higher mean of 2.42 SD 0.459, 95% C.I compared to gym based group training 2.18 SD 0.485, 95% CI, this aligns to D'Alonzo, Stevenson and Davis, (2004) research on outcomes of a workout program to enhance exercise self-efficacy and improve fitness in black and Hispanic college-age women. The study explained that performance accomplishments were many in outdoor training and were the most valid sources of self-efficacy to exercise this is because they were based on personal mastery, vicarious experiences and emotional arousal from being outside. Prior positive mastery experiences are likely to increase the level of exercise self-efficacy and, thus increase exercise performance.

Some theories have been related to physical activity among young adults. Among them, the social cognitive theory (SCT) which has been the core construct of self-efficacy has shown undoubtedly the benefit of one maintaining exercise behavior over a period (Sallis & Owen, 1999). According to SCT, human behavior can be explained by a triadic

reciprocal determination; the multi-directional interaction of cognition, previous behavior, and the engagement with the operating environment to affect the current behavior (Bandura, 1986).

According to Social Cognitive Theory (SCT), individual uses either one or more of the stated sources of self-efficacy knowledge to make judgments when met by a situation or tasks in our case training in a gym or an outdoors set-up. The results of the judgments of confidence expectations are hypothesized to establish individual motivation to indulge in a specific exercise behavior. It is reflected perfectly in the challenges one undertakes, the effort they use in a given exercise activity, and their level of perseverance in the face of difficulties while executing the task. However, it is explained further that self-efficacy judgments greatly influence decision patterns and emotional reactions that in return influence motivation. Self-efficacy judgments are customized through programs that use more strategic measures to increase the perception of exercise self-efficacy (Bandura, 1977).

5.4 Physical Activity Status (PAs) on Gym and Outdoor Based Group Training

World Health Organization (WHO) defines physical activity as any bodily movement generated by skeletal muscles and that requires energy expenditure this includes activities undertaken while working, playing, doing household chores, moving from one place to another, and engaging in recreational pursuits. Physical activity should not be confused with exercise. How much of physical activity is recommended per age bracket? According to WHO Physical activity, (2018) physical activity should be done for at least 150 minutes of moderate-intensity throughout the week, or at least 75 minutes of vigorous-intensity throughout the week, or an equivalent of moderate- and vigorous-intensity activity.

In-case one needs extra health benefits, one should increase their moderate-intensity physical activity to 300 minutes per week. Muscle-strengthening and endurance activities should be done involving major muscle groups on 2 or more days a week. To measure physical activity in adults, WHO came up with Global Physical Activity Questionnaire (GPAQ). This questionnaire has been of help to countries in monitoring insufficient physical activity as one of the main NCD risk factors. The GPAQ has been absorbed into the WHO Stepwise approach, which is a surveillance system for the main NCD risk factors. The study used the GPAQ to assess physical activity status of the respondents.

5.4.1 Vigorous and Moderate Intensity Activities at Work

The GPAQ first subsection on activity at work measured the vigorous intensity activities. The study found out that 46.1% of respondents were gym based group members with a mean of M 1.0315, SD 0.5965 while 53.9% were outdoor based group members with a mean of M 1.6756, SD 0.70961. 51.8% of gym based group training respondents did train 3-5days followed by 42.9% on 0-2days and 5.4% on 6-7days in a week. However, 66.6% of outdoor based group fitness respondents trained for 3-5days followed by 22.1% training for 6-7days and 11.5% training for 0-2days in a week. In this regard, there was a significant difference $t(240)=-7.562, p<.000$ between the vigorous intensity of activities in gym based group training program compared to outdoor based group training programs. This meant that outdoor program participants were more engaged in physical activities compared to gym program participants.

Further, the study revealed that, 76.7% of respondents who were involved in moderate intensity activities were gym based group members, while 23.3% were outdoor based group members. Regarding the frequency of moderate activities per week 51.8% of gym based group training respondents did train 3-5days followed by 48.2% on 0-2days and none

on 6-7days in a week. However, 76.5% of outdoor based group fitness respondents trained for 3-5days followed by 17.6% training for 6-7days and 5.9% training for 0-2days in a week. The Mean time taken for moderate intensity activities by participants of gym and outdoor program was M 1.77, SD 0.92725. The mean time taken by gym based group participants program was M 1.09, SD 0.65544., while the mean time taken by participants of the outdoor based group program was 2.9 hrs. Therefore, we can say there is significant difference $t(276)=-6.984$, $p<.000$ between the time taken by gym based group training and outdoor based group training program in moderate activities at work. And therefore participants of outdoor based program took more time per session compared to gym based program participants. As such, outdoor program participants were likely to meet the WHO recommendations compared to gym based program participants.

The study showed that the respondents from the outdoor based group programs engaged more in vigorous activities than those in gym based group fitness programs. This is in concurrence to a study by Kerr, et al., (2012) on outdoor physical activity and self-assed health in older adults living in two regions of the U.S, concluded that the time of moderate to vigorous intensity physical activity were significantly greater in those who were physically active for outdoor persons who trained at least three times a week compared to those who were physically active indoors only. The study by Kerr et al., (2012) goes on to compared the 3 physical activity settings (Gym/indoor training only, outdoor training only, and both indoor and outdoor) and the results showed training in outdoors created a need to increase intensity with the changing scenery each moment unlike indoor training.

5.4.2 Travelling /Cycling

A study by Barton & Pretty, (2010) showed that even five minutes of exercise in a park, nature trail, or other green space benefits your mental health. Exercising in natural

environments was associated with greater feelings of revitalization, more energy, and positive engagement. It also was shown to lower tension, confusion, anger, and depression. The study findings for both intensity and duration showed great benefits from short engagements in outdoor green exercise. Although it was short lived it still had positive returns. Every green environment enhanced both self-esteem and mood boost (Barton & Pretty, 2010).

A research on physiological and psychological responses to outdoor versus laboratory cycling found out that outdoor cycling enabled cyclists to exercise at a higher intensity than in laboratory cycling, despite similar environmental conditions and perceived exertion. In light of this, cyclists may want to ride at a high rated perceived exertion in indoor settings to gain the same benefit as they would gain from an outdoor ride (Mieras, Heesch & Slivka, 2014).

The current study showed that among those who participated in outdoor based group cycling or walking exercises, majority 47.0% do so between 3-5 days in a week with 27.5% doing it between 0-2 days while 25.5% doing it for 6- 7 days. 41.6% and 44.6% of gym based group training also cycled or walked between 0- 2 days and 3- 5days in a week with 13.9% cycling or walking between 6- 7 days. As far as outdoor program participants are concerned 27.5% and 47.0% walked or cycled for 0- 2 and 3- 5 days in a week with 25.7% walking or cycling for 6 – 7 days in a week. The mean time taken for outdoor and gym based program was M 1.66, SD 1,00748 and M 1.09, SD 0.61370 respectively meaning that outdoor program participants cycled more time. The difference is significant at 0.05 sig level $t(313) = -6.176, p < .000$

5.4.3 Vigorous and Moderate Intensity Recreational Activities

Vigorous recreation encompasses activities that are enjoyable, and noncompetitive. Recreation is an activity you do during your free time: thus, recreational activities are sometimes known as leisure activities. Many types of vigorous recreation activities are done out-doors because participants always have a feeling that the beauty of the setting and the fresh air help rejuvenate them (Caldwell, 2011). The current study shows that, vigorous recreational activities at the gym had M 1.06, SD 0.55556 while outdoors had M 1.47, SD 0.57225 which gives a significance of $t(295) = -6.273, p < .000$.

The study shows that many respondents who preferred to engage in vigorous intensity activities for recreational. The same respondents did train highest for 3-5 days in a week and the outdoor based group training had the highest mean hours of vigorous intensity training for recreational purposes unlike the gym based group trainings. This agrees with the above work of (Mieras, Heesch & Slivka, 2014).

It seems that there were less respondents who engaged in moderate intensity recreation activities. Again the study shows the respondents conformed with the WHO guidelines of gaining physical fitness by training 3-5 days in a week. There was a high mean time for the respondents in the outdoor based group training than the gym based group training. The current study findings disagree with Niedermeier, Einwanger, Hartl & Kopp, (2017) by talking of reducing intensity to increase time when our study shows more engagement in vigorous intensity than moderate intensity but same similar timings in both. However, Niedermeier, et al., (2017) noted that institutions who decided to investigate whether flipping a workout's focus and emphasizing its length while playing down its intensity found that it increased people's enjoyment and, potentially to participation more.

5.4.4 Sedentary Behavior

The study showed that the average time for sedentary state behavior was 4.83 hours per day for all respondents. The outdoor based group fitness respondents had a mean sedentary time of M 4.82, SD 1.6796 while gym based group fitness respondents had a mean sedentary of M 4.84, SD 1.4458. This showed a significant difference at 0.05 where $t(338) = -109, p < .913$. We can define sedentary behavior as any waking behavior which is noted by an energy expenditure ≤ 1.5 metabolic equivalents (METs) this includes but not limited to; sitting, reclining or lying posture. In other terms this means that a person sitting or lying down they are engaging in sedentary behavior. Common sedentary behaviors include viewing TV, playing video game, computer use which (collective termed “screen time”), driving, and reading (Tremblay, Aubert, Barnes, Saunders, Carson, Latimer-Cheung, Chastin, Altenburg, & Chinapaw, 2017).

A previous research study by Tremblay et al., (2017) of 17,000 Canadian on a 12-year period found that those who sit or lie a lot were 50% more likely to die during the follow-up than those who sit or lie less, even after controlling for age, smoking, and physical activity levels.

5.5 Social-demographic Status in Relationship to the Different Modes of Training.

The current study shows that the social-demographic status included were age, gender and marital status. The study sought to find the relationship between age and the mode of training using chi-square gave the following $\chi(4) = 83.513, p < .000$. This clearly indicates that there is a statistical relationship association between Age and the two modes of training that is, gym and outdoor based group fitness programs A study conducted in Japan on the the relationship between age and change in physical functions after exercise intervention. It was meant to bring light on the correct trainability of the Japanese community with

dwelling of the older elderly clearly stated that, there was a significant relationship between the age and change in physical functions after exercises which included, functional reach, sit and reach test and hand grip strength (Arai, Obuchi, Kojima, Nishizawa, Matsumoto, & Inaba, 2009).

The study goes ahead to show there were no differences between the younger elderly and older elderly with regard to changes in any of the measurements when subjected to exercise programs. Although the study falls short of the different modes of training which can be considered (Arai et al., 2009). This concurs with our current study that there was a relationship between age and exercises

When the study tested the gender relationship to modes of training the results showed $\chi (1) = 0.280, p < .597$ which meant there was no statistical relationship association between gender and the two modes of training; that is, gym and outdoor based group fitness programs. A study on fitness and fitting by Katherine, (2012) on an exploratory research of gender and exercise, which saw the two differences in the genders engagement to exercises and how to fit in the fitness industry. These study found out that there were no statistical relationship association between exercises and gender which concurs with this current study. But this study by Katherine, (2012) fails short to specify on the modes of training unlike our current study.

Lastly the study tried to establish the relationship between marital status and the mode of training which yielded $\chi (3) = 9.158, p < .027$. This tells us that there is a statistical relationship association between marital status and the two modes of training; that is, gym and outdoor based group fitness programs. The study shows the different marital status groups do relate different to exercises. But according to the results in the current study the

married population were the highest population which worked out at 47.9% followed by the single clients at 45.9%. The widowed came second last with 4.4% while the divorced came last with a sample of 1.8%.

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Summary of the Findings

The purpose of the study was to assess the exercise self-efficacy and the physical activity status among participants in gym based group fitness programs and outdoor based group fitness programs in Nairobi County. The study assessed and compared exercise self-efficacy among participants in gym and outdoor based programs. It also assessed and compared the physical activity status of the respondents of both the gym and the outdoor based exercise programs and lastly was to compare the efficacy of the different programs in the gym and the outdoor based group fitness across social-demographical characteristics.

The results of the study indicated that largest portion of the respondents were (23.8%) aged between 26-30 years, while the least were 18.2% which they are aged 36-40 years. The male respondents were 128 (37.6%) and female respondents, 212 (62.4%).

Exercise Self-Efficacy

The mean SEE for the respondents who participated in the outdoor based group fitness program was 2.42 (2.34- 2.49, 95% C.I) while those in the gym based group fitness program was 2.18 (2.11- 2.25, 95% C.I). The higher mean meant that the outdoor based group participants had a higher motivation and efficacy to the exercises unlike the gym based group fitness program.

Physical Activity Status

The GPAQ was used to test for physical activity status and it is divided into four sub sections. The study found out that on subsection one activity at work; vigorous intensity had most 155 respondents with outdoor group based training having more respondents at

53.9% while gym based group training having 46.1%. Moderate intensity had 73 respondents with gym group based training having the most at 76.7% while outdoor group based training had 23.3% of the respondents.

Subsection two on travel/cycling; 92.6% of all respondents did walk/cycle for at least 10 minutes continuously. The gym group based respondents who walk or cycle were 52.7% while 47.3% were outdoor group based respondents. The mean time spent to walk or cycle was 1.09hours for gym trainers and 1.66hours for outdoor trainers.

Subsection three was recreational activity engagement where, 288 engaged in vigorous intensity recreation activities. 56.3% and 43.8% of the gym and outdoor group based respondents were involved vigorously in recreation activities respectively. The mean time spent for gym training was 1.06hours while outdoor training was 1.47hours. 48 engaged in moderate intensity recreation activities. 45.8% and 54.2% of the gym and outdoor group based respondents were involved moderately in recreation activities respectively. The mean time spent for gym training was 0.84hours while outdoor training was 2.25hours.

Subsection four was sedentary behavior of the respondents which showed an average mean of 4.83hours per day where the gym trainers had 4.84hours and 4.82hours for outdoor trainers on their sedentary behaviors.

6.2 Conclusions

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

The study had more respondents in the gym based group training than the outdoor based group training by design. The female respondents were slightly higher than the male

respondents, the highest age bracket were 26-30year olds with marital status having more single and married respondents.

Outdoor and gym based group fitness respondents had both high exercise self-efficacy (confident they could exercise 3 times per week at least 20 minutes) in Nairobi County.

There were more outdoor based training respondents who did vigorous activities at work than gym based training respondents.

The outdoor based group training respondents spent more time walking or cycling for at least 10 minutes continuously unlike the gym based group training respondents but they were fewer in number.

The gym based group trainings had most respondents doing vigorous intensity recreational activities for less time while the outdoor based group trainings had most people do moderate intensity activities for most time.

The gym based group training respondents spent more time in their sedentary behaviour unlike the outdoor based group training respondents.

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 physical activity status and exercise self-efficacy among trainers in both gym and outdoor group based fitness programs is key as it helps them understand their consistency and level of fitness at a go.

Fitness professionals should understand the needs of a client individually thus preventing dropout and enhance exercise adherence. The facilities owners 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 their client's needs, this would really help differentiate between recommending a client to gym workouts or outdoor workouts or both as a way of helping them.

Gender, age, marital status can influence consistency of a client to workout either in the gym or outdoors, this would assist the facility owners and instructors create environments conducive for all social economical differences among clients.

Facilities owners in either gym or outdoors should emphasise more on health benefits of engaging in exercises unlike the perception of engaging in exercises for beauty and fun only. They should advise their clients on the many other reasons for exercising and bring out the fact that even activities of daily living are part of reasons to engage in exercise.

It is imperative that fitness professionals enrich and market their programmes to take advantage of group trainings. These forms of packages help ease cost on clients and still save on time and energy in training individuals separately. Groups can have a competition format which can run for months and this would go a long way to not only improving exercise efficacy but motivation and increased membership.

Also, facility providers and facilitators in gyms and outdoors facilities and programs should endorse and appreciate the shortcomings in order to effectively facilitate the

implementation of programmes and strategies to enhance consistency by their members. They should bring about the trending fitness activities and routines to not only encourage their clients to keep with the programmes or renew their membership but also ensure they have fun while doing it. They can have forms for clients to give their feedback suggestions, complaints or compliments.

Facility owners can also partner with community and county governments to organize sports programmes that would encourage and enhance good health and togetherness. They can have their clients either in the gyms and outdoors frequently switch workouts to ease boredom. Gym clients having outdoor excursions while indoor clients having accessibility to a gym.

The study presents wide knowledge gap for proprietors, managers, instructors and personal trainers. It is necessary that the service providers design and run activities whose main intention is meets the client needs. Fitness facilities should aim to reduce constraints to exercise consistency and improve level of adherence among clients by having qualified staff and friendly charges. Instructors should keep informed with up-to-date activities and trends in the ever evolving and dynamic fitness industry to enhance their client's self-efficacy to exercise.

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 self-efficacy and physical activity status can be carried out over time to fully understand differences across all these variables.

The study is a descriptive research, however an experimental research where the researcher monitors the gym and outdoor trainings in controlled groups would give more satisfactory knowledge in the frequency, intensity, time and type (FITT) principle used to see the effectiveness of the two types of training.

Further research ought to be done to assesses the quality of life on the participants of gym based group fitness programs and outdoor based group fitness programs. From the results of the study for example, outdoor trainings had more revitalization but felt more unsafe than gym training, but we lack the difference in the quality of life of the two program participants.

The current study stratified gym and outdoor facilities in Nairobi County based on their constituencies; additional research with varied samples in terms of locations and nature of facilities for example commercial, recreational, and private member's clubs, among others would explain these findings further. The association of gender, age and that of marital status should be examined further.

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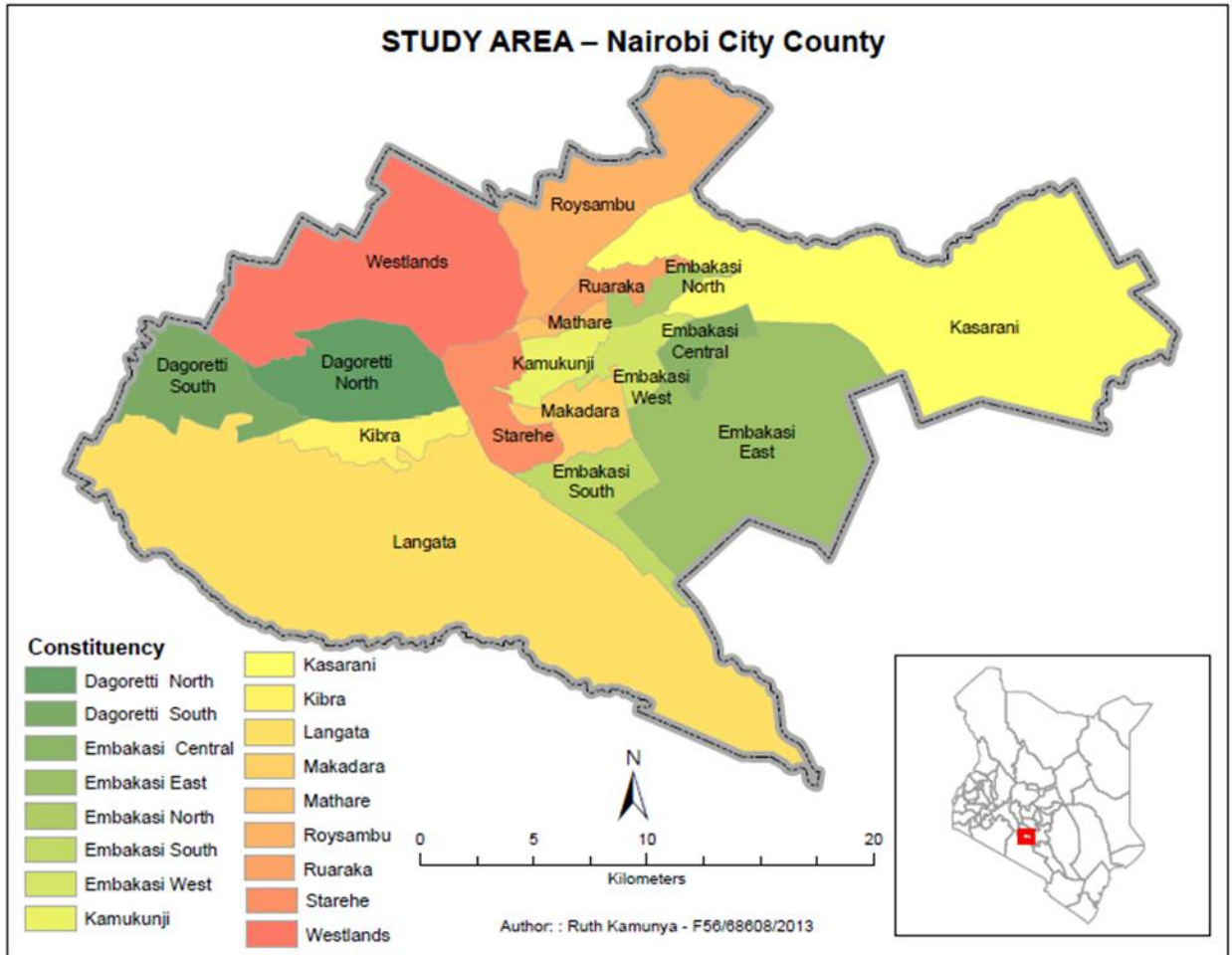
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APPENDICES

APPENDIX A: MAP OF NAIROBI COUNTY, KENYA



Source: Google maps, by Ruth Kamunya, (2013)

**APPENDIX B: INDOOR GYMS AND OUTDOOR GROUPS IN NAIROBI
COUNTY**

Fitness Centres in Dagoretti North Constituency

- 1) Barracks Fitness Studio-Yaya Centre, 3rd Flr, Argwings Kodhek Rd- Mobile: +254-722113991
- 2) The Colosseum Fitness Centre- Ngong Road Nairobi Kenya- +254 710 571294
- 3) Fitness First- 2nd Floor, Prestige Plaza Ngong Road- 020 2101226/7 +254 722 596708
- 4) Prestige Health and Fitness Centre -Woodley Estate- Ngong Road, Nairobi-020 2364173, +254 726 818 8
- 5) Body World Gym-Jampark Plaza, Ngong Road · 0774 812889
- 6) Gfitness and spa- Argwings kodhek · 0706 011906
- 7) Impala Club, P.O. Box 41516, Nairobi, Kenya- 020 3865684.
- 8) B Fitness Gym at Best Western Premier Nairobi-Arwing kodhek road, Hurlingham
- 9) Maxfit Gym And Fitness Centre- Gateway Arcade, 1st Floor, Juanco Shopping Center, Nairobi City, Kenya -Phone0772 399556- maxfitgym.kbo.co.ke
- 10) Senses Health Club and Spa- Ole Odume Road-off ngong road +254 20 2170821
- 11) Silver springs Hotel- Address: Valley Rd, Nairobi City, Kenya- Phone: +254 20 2722451- Argwings Kodhek Road, Nairobi.
- 12) Oasis Hotel Ltd- Valley Road - 020 2905000
- 13) Nairobi Gym House - Naivasha · 0714 812955
- 14) One Gym And Aerobics - Kawangware- Along Navasha Road · 0718 27479
- 15) Ratna Fitness Studio- Gitanga Rd, Ratna Apartments -020 3867348
- 16) The Zoo Gym- Kawangware, Nairobi City, Kenya Amboseli road
- 17) Colds Gym- Kawangware, Nairobi City, Kenya -Riara Rd
- 18) The Edge Fitness Champ Gym Nairobi - Naivasha Highway, · 0708 843157
- 19) Sparkle Fitness- off gutanga road-Lavington · 0727 920958
- 20) Samto Fitness Centre- Kogo Star Plaza, Off Langata Road- Mai Mahiu Rd- +254 719 338833
- 21) Ayatana Fitness- Elysee Plaza, Kilimani Road · 0720 673147
- 22) Active Fitness Solution- 100 Kenyatta Avenue, Nairobi, Kilimani, Nairobi Province, KE, Nairobi, Kenya - 0733 531936
- 23) Zeal Fitness And Rehabilitation Centre - P.O. Box 2120, +254 707 509294 Riara Road- Gatura Gardens · 020 5228140
- 24) Matis Kenya, Mara road, Nairobi
- 25) EA Fitness- Nakumatt junction riara road
- 26) Wentworth health and fitness center- githunguri road,-Kileleshwa-0723505126/0720663941
- 27) Ashton Court Gym. Ashton Court, Masanduku Lane, Kenya

Indoor Fitness Centres in Starehe Constituency

- 1) Maliah and Sasha Fitness Studio- Utalii street-Mobile · 0723 431220
- 2) Donz Gym- Kaxa
- 3) Ymca Fitness Centre- Ambira Rd

- 4) Milele Fitness- between Uhuru highway, university way & Harry Thuku road P. O. Box 1815-00100-020 271292- 0721479883- 0721942500
- 5) Great Body Gym- IBEA House 2nd Floor – Above Heartz Restaurant-3rd Floor, Interfina House- Junction of Tom Mboya- Phone: Moi Avenue Box 12421 – 00400 Nairobi- Tel 020 311489 0700 084870/ 0733734712 Nairobi Kenya.
- 6) Premier Fitness Centre, 2nd Floor, Finance House- Koinange St Nairobi Kenya- +254 20 2240806 /020 2240805- E-mail: Hamiid1@hotmail.com
- 7) Hotel Central Park Health Club (CBD)- Sheikh Karume Rd, Between Ronald Ngala & Luthuli Av.- Tel: 020 80007021/2, 316803/4- Email: info@hotelcentralpark.net Bwww.hotelcentralpark.net
- 8) The Sarova Stanley- Kimathi Avenue, P.O Box 30680 Standard Street, Nairobi- Tel: (0)25420 22883- +254 20 2757000
- 9) Fairmont Norfolk Hotel- Harry Thuku road-TEL +254-(0)-20-2265000 FAX +254-(0)-20-2216796
- 10) Hilton Hotel Gym-health club- Mama Ngina St, Nairobi, Kenya, P.O. Box 64548-00620 Telephone:254-20-2790000, 254-20-2226477- <http://www.hilton.com> Email: hilton.nairobi@hilton.com
- 11) Nairobi Safari Club- Koinange Street Nairobi- Telephone: (0)20 2821000
- 12) Figure 8 (CBD)- Tom Mboya (opp Post Office)- Cell: 0722 784664 / 0720 870028
- 13) Creative Fitness Centre- Koinange Street
- 14) Hotel Accra Nairobi health club- Accra road
- 15) Rollin TOTAL Fitness- CBD · 0722 905223
- 16) Curves Republick Gym- Biashara street - 0729 165919
- 17) InterFitness Center- InterContinental Hotel - www.intercontinental.com
- 18) Flex Fitness place- Haile Selassie Avenue, Nairobi- Address: Flex Apartments, Ragati Road, P.O. Box 66549, Nairobi, Kenya- Phone:+254 20 2721094
- 19) Oasis Fitness Gym- City Square, Nairobi
- 20) Nairobi Serena Hotel Maisha Health Club and Spa”- Kenyatta Avenue Processional Way Nairobi, Kenya- CALL: +254 732 123 333- Call: (+254) 202822000
- 21) Sports club - Ngara Plaza, Ngara · 0719 312949
- 22) Sir Ali Muslim Gym-Address- off Ngara road- Nairobi City, Kenya
- 23) The South Fitness Centre- South B, Nairobi City- 0725 766812
- 24) Gym- Melili Road, Nairobi City, Kenya South b near mater hospital
- 25) Penthouse Gymnasium and Health Centre; View park towers 21st floor. Off university way utalii lane opposite alliance francaise Nairobi, Kenya. Call +254 702 221 821/ +254 722 78 4664
- 26) Xtream Fitness Centre; Burhan Estate, Off Muratina Street, Mweni Rd, Nairobi, Kenya
- 27) +254 726 528333
- 28) Curves Health and Fitness Centre; 4th floor Mkoma road

Fitness Centres in Westlands Constituency

- 1) Fit4Life Gym- Parklands Limuru road opp Total Gas station- +254 721 120 555

- 2) Curves – Thigiri Branch- New Muthaiga Shopping Mall, Thigiri Rdg Rd- Mobile: +254-737444488
- 3) Nairobi Pilates Centre- Muthaiga Shopping Centre, Limuru Rd- P.O. Box: 63101-00619 Muthaiga- Mobile: +254-733785397
- 4) The Wellness Health Fitness Club- Village Market Next To Steers – Bowling Alley- P. O. Box 1511 – 00621 Tel 254 20 7125681/2 – Cell: +254 723 777869 0733 600479 – Fax 254 20 7125683 Nairobi – Kenya
- 5) Body Basics Fitness Studio- Muthaiga Shopping Centre, Limuru Rd, Muthaiga, Nairobi.- P.O. Box 63101 – 00619, Nairobi- Telephone: (254) 020 3745834, (254) 0733785397
- 6) Cross Fit Kwetu - Gigiri Lane- +254 701 748786
- 7) Racing Sport Gym Parklands- City Park Dr- +254 700 464646
- 8) TAUT BODY Fitness Studio-Village Market Shopping Center, Gigiri · 0701 053738
- 9) Trends Gym & Fitness Centre- Ebenezer Building, Along Market Road, Limuru Town., Kenya -0726 558215
- 10) UN Recreation Centre- P. O. Box 67578 · 020 7621506
- 11) Body By design Fitness Center”- Njema Court, No. 12, Rhapta Road, Westlands, P.O. Box 992 – 00606, Nairobi- Telephone: (254) 020 4445117, 020 4445439, (254) 0722637148
- 12) Muscle ‘n’ Motion- Rhapta Road, Westlands- +254 20 4441335/6/7, 0724 253911- E-mail: liza.apartment@africaonline.co.ke
- 13) King’s Gym & Spa- Westlands, opposite Pride Inn- Rhapta Road- +254 734 261182
- 14) Power Vibe Studio Westlands/Power Plate Studio- Almont Park, Church Rd- +254 705 811170
- 15) The Arena Health & Fitness Centre- Lower Kabete Road -2nd Floor, Sarit Centre mall, Westlands, Nairobi-Telephone: 020 4449484/5-, Phone:+254 714 606724-E-mail: info@thearena.co.ke
- 16) Bodywise Fitness Centre- St Michael’s Rd Off Waiyaki Way- Tel: +254-204448806
- 17) Fax: +254-204448806
- 18) Revitalize Wellness Center- ICEA Center, Block 1A, Ground Floor, Chiromo Road, Westlands
- 19) Acacia studios- Viking House, Westlands · 0721 111141
- 20) Classic Fitness & Leisure Centre- 48 Lower Kabete Rd, Lower Kabete · 0727 438412
- 21) WestEnd Hotel Kenya- Lower Kabete Road · 0770 600600
- 22) Reform Fitness centre- Level 5 Western Heights, Karuna Street, Westlands · 0774 334578
- 23) Ultra-Equipment Ltd- 2nd Floor, Sound Plaza, Westlands, Woodvale Grove- +254 20 4441347
- 24) Zen Cycle- The Pavilion, Westlands
- 25) Dynamic Fitness- Westlands road - 0723 760354
- 26) Fitness Centre & Pool-Villa Rosa Kempinski
- 27) Brahma Kumaris Raj Yoga Centre- Postal Address : 123-00606 Sarit Centre, Nairobi - 020 375603

- 28) Shark Fitness Centre and Gym is located in Lower Kabete.
- 29) BodyEdge Fitness Gym- Safaricom House
- 30) Outdoor recreation- westlands Nairobi · 0721 362175
- 31) Jaffery Sports Club- P.O Box 25342, El Molo Dr- James Gichuru road +254 712 627777
- 32) Africa Yoga Project, Diamond Plaza Annex 4th floor,, Masari Rd, Nairobi, Kenya. www.africayogaproject.org
- 33) Racing sport gym- Bandari Plaza, Floor Mezz.3, Woodvale Grove
- 34) New Image Fitness Centre- Mbuchia Hse, opp Sound Plaza, 2nd Flr, Woodvale Groove, Nairobi
- 35) Pride Active Health Club -Prideinn Hotel, East Church Road, Westlands
- 36) Paradise GYM and Fitness, Kangemi- 0728 683494

Fitness Centres in Langata Constituency

- 1) Trojan Health and Fitness Gym- Langata- Tel: 0717 180852
- 2) Langata Pilates and Fitness Centre- Rubia, Nairobi City, Kenya
- 3) Royale Healthy Fitness- Ndalat Rd, Off Langata South Rd, Nairobi Phone 2088902780
- 4) Parlisa Health And Fitness Studio- Otiende road; Langata, P. O Box No. 1163, Nairobi, Kenya-Phone 0706 728977
- 5) A.I.C. Lang'ata Fitness & Gym Centre
- 6) Karen Country Club Fitness Centre is located in Ongata Rongai
- 7) An - Nisaa Fitness & Spa Ltd.-Health spa- South C, Mufulu Avenue Off Ole Shapara Av. · 0790 650568
- 8) Veva Fitness Centre And Spa- South C Shopping Centre, Muhoho Avenue, South C · 0718 074309 - +254 714 355788
- 9) Zumba Dance South C –Muhoho avenue-Nairobi
- 10) Power Yoga Palace- Madaraka- langata road- Nairobi, Kenya · 0724 223678
- 11) Evolve fit and fab, off Langata road behind Carnivore

Fitness Centres in Dagoretti South Constituency

1. WHIPS- Walters High Performance Studio- Uthuru
2. Excquisite Styles Gym & Aerobics, Getathuru road Uthuru

Fitness Centres in Kasarani Constituency

- 1) Kasarani Fitness Center & Gym- Eden Plaza 5th Floor opposite Kasarani Police Station. Kasarani Mwiki street, thika · 0723 629478
- 2) Safari Fitness Club-Safari park- thika road
- 3) Usiu gym
- 4) Shacs Gym And Fitness Centre- Vision Plaza, Opposite Naivas Supermaket, Towards icipe ajnt to sports view estate- kasarani Nairobi City, Kenya 0789 887793
- 5) Tae Kwon Do Gym- Thome, Nairobi City, Kenya
- 6) Sportsview Hotel Nairobi Gymnasiun, Kasarani along Thika Road – Kenya, Tel: + 254 718-179-967, Mobile: 0721-242-711; Email: info@africanspicesafaris.com

- 7) Kasarani Gymnasium, Kasarani- Nairobi
- 8) Unisex Gym, kasarani 0721135049

Fitness Centres in Roysambu Constituency

- 1) Blue Springs Hotel- Located close to Jambo grill Thika Road -Garden Estate
Tel: +254 722 222 111/721 741010
- 2) Safara Gym- 2nd Floor, Next To Rosmak Court, Off Kamiti Road, Lumumba Drive, Nairobi, Kenya
- 3) Acro Yoga Garden- Yoga & pilates -Mukima Drive, Garden Estate, House number 3 · 0721 367910
- 4) Zimmer Fitness Centre, Ground Floor, Zimmerman, Off Kamiti Road, Kenya
- 5) Golden Gym Kahawa West Kahawa West – Bima Road, Behind DJos Club , Kenya 0717443723
- 6) Genesis Fitness Centre Kahawa West, Off Kahawa Station Road, Along Plaza Road, Kenya +254 721 877062
- 7) Wab aerobics and Gym; Lumumba 1st Avenue- Nairobi
- 8) Zimm Aerobis; ground floor, Engineer centre, Zimmerman, Kamiti road.
- 9) Genesis Fitness Centre; Kahawa West, Off Kahawa Station Road, Along plaza Road
- 10) Braeburn New image Fitness Centre; Garden estate ,Nairobi
- 11) Tae Kwon Do Club, Githurai 44; 0722900960

Fitness Centres in Mathare Constituency

1. Metro-Flex Gym huruma road new Mathare 0717170763

Fitness Centres in Ruaraka Constituency

2. Unispan Ltd, Off Baba Dogo Rd, Nairobi, Kenya, Phone +254-202675555, Mobile phone 0722511165, Fax+254-208560590
3. Utalii Gym & Spa ,Ruaraka along Thika Road; Phone: +254 20 245862
4. Abdallagym Center and Profitness; Mathare North area 4, Nairobi
5. Oilibya Babadogo; Electro Systems Ltd, Outering Road, Off Thika Road, P. O Box No. 3207, Nairobi,. www.oilibya.co.ke; +254 20 782058
6. KCA Gym- 0724 888022- Near Ruaraka Thika road

Centres in Embakasi Central Constituency

- 1) Jaheca Health and Fitness Centre- Obama estate-Saika, Kagundo Road- Nairobi, Kenya- 0725 137755
- 2) Graka Health & Fitness Centre- Saika Estate- Komarock · 0722 143912
- 3) Royal Fitness Centre; phase four, Royal around, Komarock, close to Viewpark Hotel
- 4) Iron bag Gym, Mihango, Nairobi. +254 734152933

Fitness Centres in Embakasi East Constituency

- 1) Osaga Fitness Zone- Embakasi (Opposite Embakasi Police Station · 0715 865087
- 2) Classic Touch Fitness Center-Bahati city nyayo estate embakasi
- 3) Fitness and FunGym- Off Kibiku Road
- 4) Gym Plaza; Along Outer Ring Road, Nairobi, Kenya; www.skytrackgps.co.ke; +254 736 882746
- 5) Heart & Soul Fitness Centre- Avenue Park 1-STAGE MPYA-outering· 0721 258111
- 6) Digital Fitness Centre Nyati Ln, Nairobi, Kenya
- 7) Fahari gym & Sauna, Fahari Gardens Nairobi

Fitness Centres in Embakasi West Constituency

- 1) Olympia Gym-Moi Drive, Nairobi City, Kenya adjan to Manyaja road
- 2) Southern Fitness Centre -Kariobangi South
- 3) South gym and aerobic center Nairobi Kariobangi south; 0714751381
- 4) Jaffery Sports Club ... Next To Horn Bill Club, Umoja 1 Estate, Moi Drive, Nairobi, Kenya. City: Nairobi.
- 5) Flex and Tone Umoja-Innercore, Naiobi 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. Health & Soul Fitness Centre- E.A.B.S Estate Stage- mpya railway stop Fedha
4. MegaFlex Gym -Kwa Njenga
5. Catherine Ndereba Road in the Building opposite St. Bakhita School.

Fitness Centres in Embakasi North Constituency

- 1) Aim Global Fitness Ltd.- Airport North Road · 0722 913633
- 2) Ceragem massanger, Dandora phase 5, Nairobi
- 3) Lucky Summer Gym-Lucky Twin Plaza Road, Nairobi Dandora phase 4

Fitness Centres in Kibra Constituency

1. Urban Fitness Gym- Kibera Drive, Kibera near Ayany estate- Nairobi City, Kenya- 0719 170244
2. Children World & Fitness Center- Woodley Estate, Nairobi City, Kenya
3. Nairobi fitness & Health- Nairobi- mbagathi round about

Fitness Centres in Makadara Constituency

- 1) Stop & Trend Fitness Centre- Mumias S Rd- Buruburu shopping center +254 733 847352- 0788 808266
- 2) Lystra Gym & Spa-The Point Buruburu- The Point Buruburu · 0717 309319
- 3) Bedrock Gym- Harambee Estate Off enterprise road
- 4) Strathmore University Gym
- 5) Classique Gym- Off Mombasa Road- 0722 644510
- 6) View Park Health & Fitness Parkside Towers, 5th Floor, Mombasa Rd- Tel: +254-203504874
- 7) Ole Sereni Hotel- Health Club Service Center- Tel. +254 20 3901000/+254-20-5036000 Mombasa Road, Nairobi.
- 8) Panari Hotel Gymnasium- Panari Sky Centre, Nairobi.- P. O. Box 4372 – 00506-www.panarihotels.com- Telephone: +254(20)3946000, 828990/3, 3574601/2, +254(725)694600/1/2, E-mail: info@panarihotels.com-Mombasa Road, Nairobi.
- 9) Nautilus Health & Fitness Center Ltd- First Floor, Davies Building, Mombasa Road- +254 733 610970
- 10) Duma Health & Fitness- Mombasa Road
- 11) Dolphin gym, Spa and Fitness Centre, Panari Nairobi.
- 12) Palmtree Fitness Centre- United Complex, Ondiek Hwy, Box 24879-00502, Nairobi - 020 3875623

Fitness Centres in Kamukunji Constituency

- 1) Body4life Fitness Gym-Eastleigh- 0734 152933adjan to park phase I
- 2) Fun and fitness gym (FHOK)-Eastleigh near Juja road
- 3) Recreation and fitness at Nairobi Eastleigh Mall Nairobi, Kenya- 0722 319759
- 4) Extreme Gym And Fitness Centre, Juja road, 254720179978
- 5) Steel city gym

Outdoor Fitness Groups in Nairobi County

- 1) Karen track and fitness club- <http://www.karentrackclub.com>
- 2) Original Nairobi Hash House Harriers (ONH3) –<http://www.originalnairobihash.com> or edwinwachira@gmail.com
- 3) Sunday Nairobi Hash House Harriers (SNH3)- sunnhhh@gmail.com
- 4) Karura Forest Runners
- 5) Urban Swaras- www.urbanswaras.co.ke
- 6) Nairobi Hash House Harriers (NH3) nhhhscribe@gmail.com www.nhhh.co.ke
- 7) North Nairobi Cycle Club
- 8) CyclovilleKenya-<http://www.cycloville.co.ke/contact-us/0707645190>, 0719645053, 0724428770
- 9) Safari Simbaz
- 10) Kenya Riders

- 11) Sunday Cycle
- 12) Christians Cycling
- 13) Bypass Fitness Jaguars www.bypassfitnessjaguars.com
- 14) Karura Cycling Group
- 15) Nairobi cyclists

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)
5. Outdoor fitness groups (2017)
6. Cycling groups Kenya (2017)

APPENDIX C: INFORMED CONSENT FORM

Nicholas Mwangi
 Department of Physical Education Exercise and Sports Science
 Kenyatta University
 P.O Box 43844-00100
 Nairobi, Kenya
 Email: nickmwas92@gmail.com
 Cell phone +254 740065724/ +254 101 065724

INTRODUCTION

I am a Masters' student at Kenyatta University in the Department of Physical Education Exercise and Sports Science. You have been selected to take part in the study on "Exercise self-efficacy and physical activity status of gyms and outdoor based group fitness programs participants in Nairobi City County, Kenya". You are kindly requested to participate in this study because you are part of the gym or outdoor group fitness programs in which the study is concerned. Your participation will be on a voluntary basis and you can leave the study at any time. Kindly answer the set of questions and be informed that information obtained is held strictly confidential and used only for the purpose of study.

DECLARATION

I have read and understood the information concerning my participation in the study. I will answer the questions as honestly and truthfully as possible. By signing and returning this consent form, I will participate in the study voluntarily.

TO BE COMPLETED BY THE INVESTIGATOR

I certify that I have read the above consent procedure to the participant.

Signature of Investigator _____ Date _____

TO BE COMPLETED BY PARTICIPANT

Signature of Participant _____ Date _____

**APPENDIX D: INTRODUCTION LETTER AND CONSENT TO GYM
MANAGEMENT**

Kenyatta University,
Department Physical Education Exercise and Sports 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 exercise and sports in the department of Physical Education Exercise and Sports Science. My M.Sc. research topic is, "Exercise self-efficacy and physical activity status of gyms and outdoor based group fitness programs participants in Nairobi City 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. 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,

Nicholas Mwangi.

**APPENDIX E: INTRODUCTION LETTER AND CONSENT TO OUTDOOR
FITNESS GROUP MANAGEMENT**

Kenyatta University,
Department Physical Education Exercise and Sports Science
P.O Box 43844-00100,
Nairobi.

The Administrator,

.....

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 exercise and sports in the department of Physical Education Exercise and Sports Science. My M.Sc. research topic is, "Exercise self-efficacy and physical activity status of gyms and outdoor based group fitness programs participants in Nairobi City 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. For easier identification, co-operation and administration of questionnaires, I kindly ask you to allow your fitness instructor (s) to help in linking me and my research assistants to your clients while with your group.

Thank you.

Yours Sincerely,

Nicholas Mwangi.

APPENDIX F: RESPONDENT'S QUESTIONNAIRE

Dear respondent,

I am Nicholas Mwangi from the Department of Physical Education Exercise and Sports Science at Kenyatta University. I am conducting research for my Masters in Exercise and Sports Science by the title "Exercise Self-efficacy and Physical Health among young adults participating in gym and outdoor based group fitness programs in Nairobi City County." You have been identified as one of the participants in the study so kindly fill in the questionnaire for me. All the information collected from you will be used for educational purposes only and will be treated as confidential.

Section 1: Demographic data

Instructions:

Put a tick or insert 'X' in the appropriate box.

Tick or cross just one box for each question.

Fill in the provided space with appropriate information.

Age

20-25 26-30 31-35 36-40 41-45

Gender

Male Female

Marital status

Single Married Divorced Widowed

Gym based group fitness program Outdoor based group fitness program

Section 2: Global Physical Activity Questionnaire

Physical Activity

Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. *[Insert other examples if needed]*. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

Activity at work

Questions	Response	Code
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like <i>[carrying or lifting heavy loads, digging or construction work]</i> for at least 10 minutes continuously?	Yes 1 No 2 if no, go to p4	P1
In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days	P2
How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes	P3

Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking [<i>or carrying light loads</i>] for at least 10 minutes continuously?	Yes 1 No 2 if no, go to p7	P4
In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days	P5
How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours: minutes	P6

Travel to and from Places

The next questions exclude the physical activities at work that you have already mentioned.

Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to a place of worship. [Insert other examples if needed]

Question	Response	Code
Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 if no, go to p10	P7
In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days	P8

In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Hours: minutes	P9 (a-b)
--	----------------	-----------------

Recreational Activities

The next questions exclude the work and transport activities that you have already mentioned.

Now I would like to ask you about sports, fitness and recreational activities (leisure), [insert relevant terms].

Question	Response	Code
Do you do any vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause large increases in breathing or heart rate like [<i>running or football,</i>] for at least 10 minutes continuously?	Yes 1 No 2 if no, go to p13	P10
In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days	P11
How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours: minutes	P12 (a-b)

Do you do any moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate such as brisk walking, (cycling, swimming, and volleyball) for at least 10 minutes continuously?	Yes 1 No 2 if no, go to p16	P13
In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days	P14
How much time do you spend doing moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities on a typical day?	Hour: minutes	P15 (a-b)

Sedentary Behaviour

The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent [sitting at a desk, sitting with friends, travelling by car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping.

How much time do you usually spend sitting or reclining on a typical day?	Hours: minutes.	P16 (a-b)
---	-----------------	------------------

Section 3: Exercise Self-Efficacy Questionnaire.

How confident are you right now that you could exercise 3 times per week for 20 minutes if: (1=Not Confident, 2=Confident, 3=Very Confident)

1. You were worried the exercise would cause further pain 1 2 3
2. You were bored by the program or activity 1 2 3
3. You were not sure exactly what exercises to do 1 2 3
4. You had to exercise alone 1 2 3
5. You did not enjoy it 1 2 3
6. You were too busy with other activities 1 2 3
7. You felt tired during or after exercise 1 2 3
8. You felt stressed 1 2 3
9. You felt depressed 1 2 3
10. You were afraid the exercise would make you fall 1 2 3
11. You felt pain when exercising 1 2 3

APPENDIX G: APPROVAL LETTER FROM GRADUATE SCHOOL

**KENYATTA UNIVERSITY
GRADUATE SCHOOL**

E-mail: dean-graduate@ku.ac.ke

P.O. Box 43844, 00100

NAIROBI, KENYA

Tel. 020-8704150

Website: www.ku.ac.ke

Internal Memo

FROM: Dean, Graduate School

DATE: 10th April, 2019

TO: Mr. Nicholas Mwangi
C/o Department of Physical
Education & Exercise Science

REF: H108/37418/2016

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

=====

We acknowledge receipt of your Research Proposal after fulfilling recommendations raised by the Graduate School Board of 27th March, 2019.

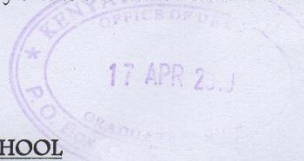
You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

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 downloads.

Thank you.

EDWIN OBUNGU

FOR: DEAN, GRADUATE SCHOOL



CC. Chairman, Department of Physical Education & Exercise Science

Supervisors:

1. Dr. Francis Mundia
C/o Department of Physical Education & Exercise Science
Kenyatta University
2. Dr. Vincent Muasya
C/o Department of Recreation, Management & Leisure Studies
Kenyatta University

APPENDIX H. ETHICAL CLEARANCE LETTER



**KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE**

Fax: 8711242/8711575
Email: chairman.kuerc@ku.ac.ke

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

Website: www.ku.ac.ke

Our Ref: **KU/ERC/ APPROVAL/VOL.1 (253)**

Date: 27th May, 2019

Nicholas Mwangi
P.O Box 43844-00100
Nairobi

Dear Mr. Mwangi,

APPLICATION NUMBER PKU/1013/I1063: EXERCISE SELF-EFFICACY AND PHYSICAL ACTIVITY STATUS OF GYMS AND OUTDOOR BASED GROUP FITNESS PROGRAM PARTICIPANTS IN NAIROBI CITY COUNTY

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic “Exercise Self-Efficacy and Physical Activity Status of Gyms and Outdoor Based Group Fitness Program Participants in Nairobi City County”. Received on 17th April, 2019 and discussed on 14th May, 2019

2. APPLICANT

Nicholas Mwangi

3. SITE

Nairobi City County

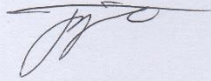
4. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines and **APPROVED** that the research may proceed for a period of **ONE year from 14th March, 2019.**

5. 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.



PROF. JUDITH KIMIYWE
 CHAIRMAN ETHICS REVIEW COMMITTEE



I, NICHOLAS MUKANGI accept the advice given and will fulfill the conditions therein.

Signature..... Nicholas Mukangi Dated this day of..... 29/05/2019 2019.

cc. DVC-Research Innovation and Outreach

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

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/28947/30944**

Date: **27th June 2019**

Nicholas Ngugi Mwangi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Exercise self-efficacy and physical activity status of gyms and outdoor based group fitness program participants 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 **24th June, 2020.**

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

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

DR. ROY B. MUGIIRA, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

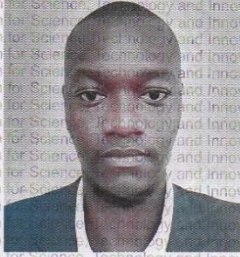
The County Director of Education
Nairobi County.

21/07/2019
COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341666

APPENDIX J. RESEARCH PERMIT FROM NACOSTI

THIS IS TO CERTIFY THAT: **MR. NICHOLAS NGUGI MWANGI** of **KENYATTA UNIVERSITY, 230-1020 Kenol**, has been permitted to conduct **research in Nairobi County** on the topic: **EXERCISE SELF-EFFICACY AND PHYSICAL ACTIVITY STATUS OF GYMS AND OUTDOOR BASED GROUP FITNESS PROGRAM PARTICIPANTS IN NAIROBI CITY COUNTY, KENYA** for the period ending: **24th June, 2020**

Permit No : **NACOSTI/P/19/28947/30944**
Date Of Issue : **27th June, 2019**
Fee Received : **Ksh 1000**



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

Signature: *[Handwritten Signature]*
Applicant's Signature

**APPENDIX K. RESEARCH AUTHORIZATION LETTER FROM REGIONAL
COORDINATOR OF EDUCATION**



**Republic of Kenya
MINISTRY OF EDUCATION**

STATE DEPARTMENT OF EARLY LEARNING & BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone: Nairobi 020 2453699
Email: rcenairobi@gmail.com
rcdenairobi@gmail.com

REGIONAL DIRECTOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 - 00200
NAIROBI

When replying please quote

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

DATE: **1st July, 2019**

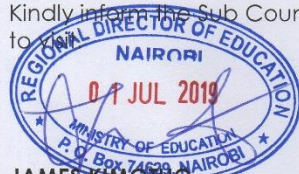
Nicholas Ngugi Mwangi
Kenyatta University
P O Box 43844-00100
NAIROBI

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 "**Exercise self-efficacy and physical activity status of gyms and outdood based group fitness program participants in Nairobi City County, Kenya**".

This office has no objection and authority is hereby granted for a period ending **24th June, 2020** as indicated in the request letter.

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



JAMES KIMOTHO
FOR: REGIONAL DIRECTOR OF EDUCATION
NAIROBI

c.c

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

