

**BODY IMAGE, SELF-ESTEEM AND HEALTH-RELATED BEHAVIORS  
AMONG UNDERGRADUATE STUDENTS, MOI UNIVERSITY - ELDORET  
WEST CAMPUS.**

**BY**

**MAUREEN MUTEITSI MUCHESI**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF  
MEDICINE IN PSYCHIATRY, MOI UNIVERSITY, SCHOOL OF  
MEDICINE.**

**© 2022**

## DECLARATION

I declare that this thesis is my original work and has not been presented in any other university/institution for consideration for any certification. This research thesis has been complemented by referenced sources duly acknowledged. No part of this thesis may be reproduced without the permission of the author and/or Moi University.

Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including the internet, these are specifically accredited and references cited using current APA system and in accordance with anti-plagiarism regulations.

Signature \_\_\_\_\_ Date: \_\_\_\_\_

Name: Dr. Maureen Muteitsi Muchesi

Registration number: SM/PGPSY/01/16

Department: Mental Health and Behavioural Sciences

### Supervisor's declaration

This thesis has been submitted for appraisal with our approval as University Supervisor(s).

Dr. Daniel W. Kinyanjui

Senior Lecturer, Department of Mental Health and Behavioural Sciences, School of Medicine, Moi University.

Signature \_\_\_\_\_ Date: \_\_\_\_\_

Dr. Rogers Songole

Senior Lecturer, Department of Mental Health and Behavioural Sciences, School of Medicine, Moi University.

Signature \_\_\_\_\_ Date: \_\_\_\_\_

## **DEDICATION**

First and foremost, I dedicate this thesis to God for having given me the strength, understanding, patience and good health that I needed so much throughout the period of developing this work. Secondly, my sincere dedication goes to my family for their prayers, endless support and understanding.

## **ACKNOWLEDGEMENTS**

I would like to take this opportunity to sincerely thank my supervisors Dr. Daniel W. Kinyanjui and Dr. Rogers Songole (PhD) from the department of Mental Health and Behavioural Sciences, Moi University. I am extremely grateful for the support they have given me through this journey towards the writing of this thesis. I also thank all my lecturers in the Department of Mental Health and Behavioural Sciences and colleagues for their unwavering support during the writing of this thesis.

I do extend my gratitude to the study participants who agreed to be part of this important study and the student leaders and the management of Eldoret West Campus for the immense support during data collection. Special thanks to my biostatistician for the support during data analysis and lastly to the Dean, School of Medicine, Moi University for facilitation of the marking of the thesis and the thesis defense presentation.

## TABLE OF CONTENTS

DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENTS .....	iv
TABLE OF CONTENTS .....	v
LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
ABSTRACT .....	x
LIST OF ABBREVIATIONS .....	xi
OPERATIONAL DEFINITION OF TERMS .....	xii
CHAPTER ONE .....	1
1.0 INTRODUCTION .....	1
1.1 Background .....	1
1.2 Statement of the Problem .....	15
1.3 Justification .....	17
1.4 Significance .....	17
1.5 Research Questions .....	18
1.6 Objectives .....	18
1.6.1 Broad Objectives .....	18
1.6.2 Specific Objectives .....	18
CHAPTER TWO .....	19
2.0 LITERATURE REVIEW .....	19
2.1 Body image and self esteem .....	19
2.2 Body Image and Gender .....	20
2.3 Self-esteem and gender .....	23
2.4 Socioeconomic status .....	23
2.5 Peer Influence/ Peer Pressure .....	24
2.6 Body Image and health-related behaviours .....	25
2.7 Conceptual Framework .....	30
CHAPTER THREE .....	32
3.0 METHODOLOGY .....	32
3.1 Study Setting .....	32

3.2 Study Design .....	32
3.3 Sample Size .....	33
3.4 Study Population .....	33
3.5 Sampling Procedure .....	34
3.6 Eligibility Criteria .....	34
3.6.1 Inclusion Criteria .....	34
3.6.2 Exclusion criteria.....	34
3.7 Data Collection Tools and Techniques .....	35
3.8 Data management and Analysis .....	35
3.9 Ethical Considerations.....	37
CHAPTER FOUR.....	38
4.0 RESULTS .....	38
4.1 Participants Sociodemographic Characteristics .....	38
4.2 Satisfaction Level of Moi University West Campus Students with their Body Image 39	
4.3 Comparison between participants' BMI status, self-classified weight (WTCLASS) and overweight preoccupation (OWPREOC).....	40
4.4 Relationship between satisfaction level of body image and self-esteem .....	42
4.5 Effect of sociodemographic characteristics on body image and self-esteem.....	43
4.6 Association between body image, self-esteem, and health-related behaviour...44	
CHAPTER FIVE .....	48
5.0 DISCUSSION .....	48
5.1 Satisfaction Level of Moi University West Campus Students with their Body Image 48	
5.2 Relationship between satisfaction level of body image and self-esteem .....	49
5.3 Effect of sociodemographic characteristics on self-esteem and body image.....	50
5.4 Association between body image, self-esteem, and health-related behavior.....	53
CHAPTER SIX.....	56
6.0 CONCLUSIONS, RECOMMENDATIONS AND STUDY LIMITATION .....	56
6.1 Conclusion.....	56
6.3 Recommendation.....	58
REFERENCES .....	60
APPENDICES .....	72
Appendix I: Informed Consent Form .....	72

Appendix II: Data Collection Tools .....	76
APPENDIX III: BUDGET .....	88
APPENDIX IV: TIME SCHEDULE .....	89
APPENDIX V: IREC Approval .....	90
APPENDIX VI: University Approval (Moi University).....	91

**LIST OF TABLES**

Table 3.1: Data Analysis Matrix .....	36
Table 4.3: Comparison between participants' BMI status and self-classified weight, overweight preoccupation and contour drawing rating scale. ....	41
Table 4.4: Relationship between satisfaction level of body image and self-esteem....	42
Table 4.5: Effect of Gender on Body Image, Self-Esteem, and Health-Related Behavior.....	43
Table 4.6: Comparison between PGWBI Indicators and BMI Status (N=421).....	44
Table 4.7: Association between Body Image Indicators and Health-Related Behavior .....	45
Table 4.8: Association between Body Image (CDRS) and Health-Related behavior .	46
Table 4.9: Self-esteem and Health-Related Behavior .....	47



**LIST OF FIGURES**

Figure 2.1: Conceptual Framework .....	31
Figure 4.2: Mean body image satisfaction sub-scales .....	40

## ABSTRACT

**Background:** Body image is the mental picture individuals have of their physical appearance and the resulting attitude towards themselves. University students experiencing negative body image have high tendencies for low self-esteem, depressive illness, anxiety, poor feeding habits, suicidality, internet addiction, cyber bullying and risky health behaviors including alcoholism, drug abuse and unsafe sexual activities. This creates the need to understand the relationship between body image, self-esteem and health-related behaviors.

**Broad Objective:** This study aimed to establish the level of body image satisfaction and the relationship between body image, self-esteem, and health-related behaviors among Moi University, Eldoret West Campus students. Specific objectives were body image satisfaction level and its relationship with body image and self-esteem. Furthermore, it assessed the association between body image, self-esteem and sociodemographic characteristics as well as health-related behaviors.

**Methods:** A cross-sectional study was conducted among 421 undergraduate students who were stratified by academic year and sampled randomly from Eldoret West Campus' Schools of Business Management, School of Education and School of Arts in Eldoret-Kenya. Data was collected using a validated and pretested structured questionnaire entailing sociodemographic characteristics, Body Mass Index (BMI), Multi-Dimensional Body Self-Relations Questionnaire (MBSRQ), Rosenberg Self-Esteem Scale, Contour Drawing Rating Scale (CDRS) and Psychological General Wellbeing Index. Descriptive data were analyzed as frequencies with corresponding proportions as well as mean and corresponding standard deviation. Tests of association were conducted using both Pearson Chi-square and Fisher's exact test at a critical value of  $p \leq 0.05$ . Odds ratios were computed at 95% confidence interval for statistically significant relationships.

**Results:** This study enrolled nearly equal proportions of male (48.2%;  $n=203$ ) and female (51.8%;  $n=218$ ); with 53.5% of all the students aged between 18-21 years. On body image, 344 (81.7%) were satisfied with their self-attitudinal aspect of appearance, 317 (75.3%) invested in their appearance, 258 (61.3%) were dissatisfied with their contour drawings (global aspect of body image) while 311 (73.9%) classified themselves as having a normal weight. There was a statistically significant association between having a normal self-classified weight and a normal BMI status ( $p=0.004$ ). Gender positively affected appearance evaluation ( $p=0.028$ ), appearance orientation ( $p<0.001$ ), overweight preoccupation ( $p=0.014$ ), weight classification ( $p=0.001$ ), contour drawing rating scale ( $p=0.001$ ), anxiety ( $p=0.001$ ) and positive wellbeing ( $p=0.021$ ). Female students were more likely (OR=1.122, 95% CI: 1.023, 1.231) to be satisfied with their appearance evaluation compared to male students. Body image was significantly affected by overweight preoccupation ( $p=0.035$ ) and anxiety ( $p<0.001$ ). High self-esteem positively affected overweight preoccupation ( $p=0.032$ ) while anxiety significantly associated ( $p=0.009$ ) with having an abnormal BMI.

**Conclusions:** Majority of students were satisfied with their self-attitudinal aspect of their body image (MBSRQ) but dissatisfied with their global aspect of body image (CDRS) and this was gender specific. Anxiety predisposed the students to having an abnormal BMI while those with a high self-esteem had an overweight preoccupation.

**Recommendations:** The findings could be adopted by students, parents, university administrators, health practitioners, non-governmental organizations and policy makers to create screening and intervention programmes for body image concerns. Future case-control studies should be conducted to explain causality of body image concerns.

**LIST OF ABBREVIATIONS**

<b>APPEVAL</b>	Appearance evaluation
<b>APPOR</b>	Appearance Orientation
<b>BASS</b>	Body Area Satisfaction Scale
<b>BIC</b>	Body Image Concerns
<b>BMI</b>	Body Mass Index
<b>CDRS</b>	Contour Drawing Rating Scale
<b>HLTHEVAL</b>	Health Evaluation
<b>HLTHOR</b>	Health Orientation
<b>ILLOR</b>	Illness Orientation
<b>IREC</b>	Institutional Research and Ethics Committee
<b>MBSRQ</b>	Multidimensional Body Self-Relations Questionnaire
<b>OWPREOC</b>	Overweight Preoccupation
<b>PGWBI</b>	Psychological General Well-Being Index
<b>RSES</b>	The Rosenberg Self-Esteem Scale
<b>SEM</b>	Structural Equation Modelling
<b>SPSS</b>	Statistical Package for the Social Sciences
<b>UK</b>	United Kingdom
<b>US</b>	United States of America
<b>WTCLASS</b>	Self-classified weight

## OPERATIONAL DEFINITION OF TERMS

**Appearance evaluation:** Appearance evaluation is a multidimensional body self-relations questionnaire subscale that assesses feelings of satisfaction and dissatisfaction with one's physical appearance (Cash & Ph, 2000).

**Appearance orientation:** Appearance orientation is a multidimensional body self-relations questionnaire subscale that assesses the extent of investment in an individual's appearance (Cash & Ph, 2000).

**Body areas satisfaction scale:** Body areas satisfaction scale is a multidimensional body self-relations questionnaire subscale that assesses satisfaction with discrete or specific areas of an individual's appearance (Cash & Ph, 2000).

**Body image:** Body image is a mental picture and attitude towards one's body as influenced by the psychological, biological, societal and cultural factors (Khor et al., 2009).

**Body mass index:** Body mass index is a statistical index using a person's weight (kgs) and height ( $m^2$ ) to provide an estimate of body fat in males and females of any age. The weight and height measurements are used in calculating the body mass index (BMI) derived by taking a person's weight, in kilograms and dividing it by the height, in meters squared or  $BMI = \text{weight}(\text{kg}) / \text{height}(\text{m}^2)$  ( $\text{kg}/\text{m}^2$ ). The reference ranges for the BMI as used in this study was adopted from the global World Health Organization values categorized as follows; underweight  $<18.5$ , normal weight  $18.5-24.9$  and overweight  $>25$  (Weir & Jan, 2022).

**Fitness evaluation:** Fitness evaluation is a multidimensional body self-relations questionnaire subscale that assesses feelings of physical fitness or unfitness (Cash & Ph, 2000).

**Fitness orientation:** Fitness orientation is a multidimensional body self-relations questionnaire subscale that assesses the extent of investment in one's physical fitness (Cash & Ph, 2000).

**Health evaluation:** Health evaluation is a multidimensional body self-relations questionnaire subscale that assesses feelings of physical health or absence of physical illness (Cash & Ph, 2000).

**Health orientation:** Health orientation is a multidimensional body self-relations questionnaire subscale that assesses the investment by an individual in a physically healthy lifestyle (Cash & Ph, 2000).

**Health-related behavior:** Health-related behavior refers to a person's behavior or habits that positively or negatively influence his or her physical, psychological and social wellbeing (Babao & Moscoso, 2008).

**Illness orientation:** Illness orientation is a multidimensional body self-relations questionnaire subscale that assesses the extent of reactivity to ill health (Cash & Ph, 2000).

**Overweight preoccupation:** Overweight preoccupation is a multidimensional body self-relations questionnaire subscale that assesses a construct reflecting fat anxiety, weight vigilance, dieting, and eating restraint (Cash & Ph, 2000).

**Self-classified weight:** Self-classified weight is a multidimensional body self-relations questionnaire subscale that assesses how an individual perceives and labels one's weight (Cash & Ph, 2000).

**Self-esteem:** Self-Esteem refers to a person's general assessment of his or her own worth (Clay et al., 2005).

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background

Body image is a mental picture of one's physical body (size, shape and appearance), and one's attitude toward the physical self (thoughts, feelings and beliefs about one's body) influenced by our psychobiological makeup, family and the society. It is the mental image we have of the size, shape and contour of our own bodies as well as of our feelings about these characteristics and the parts that constitute our bodies (Slade, 1988). It is defined as the way a person perceives or thinks about his body and how it appears to others (Khor et al., 2009).

Body image is "a subjective picture of one's own physical appearance established both by self-observation and by noting the reactions of others" (Wright, 2012). More recently, the term body image has been used to reflect one's ability to regard parts of one's body as belonging to the self or to define the boundaries of one's own body (J. K. Thompson, 1990) and one's subjective, mental representation of his or her physical appearance. Body image is constructed from self-observation, the reactions of others, and a complicated interaction of attitudes, emotions, memories, fantasies, and experience, both conscious and unconscious (Lowery, et. al, 2005).

Tylka et al. defines body image as a multidimensional construct broadly describing internal, subjective representations of physical appearance and bodily experience, our attitude towards body, in particular, size, shape and aesthetics (Tylka & Wood-Barcalow, 2015). They further state that physiological functions such as appetite, food consumption and body weight are intricately linked to psychological constructs such as body image, self-esteem and psychosocial adjustment (Tylka & Wood-Barcalow, 2015).

Self-esteem is a person's general assessment of his or her own worth. An individual whose self-esteem is reduced portrays self-hate and lack of respect for oneself (Clay et al., 2005). The value an individual accords his/her physique depends on their ability to participate in sporting activities, weight monitoring and physical well-being (Franzoi & Shields, 1984). As a result, negative body image is linked with low self-esteem (Harris, 1995; Stowers & Durm, 1996).

There is an association between low self-esteem and negative body image (Paxton, et al., 2006; P. Van den Berg et al., 2007); an association also exists between low self-esteem and unhealthy eating behaviors (Nemeth et. al., 2009). Adolescents who have experienced body shaming as a result of their weight early in life have ended up with high levels of negative body image (Paxton et al., 2006). A study by (Neumark-Sztainer, Dianne; Story, Mary; Hannan, Peter J.; Perry, Cheryl L.; Irving, 2002) found that girls of average weight still perceived themselves as overweight hence showed marked degrees of dissatisfaction with their bodies.

Health-related behavior is any overt behavior or personal attribute that either enhances or damages physical, psychological and social wellbeing now and in the future (Ryff, 1989); with hereditary or environmental factors influencing negatively or positively (Babao & Moscoso, 2008). Approximately 70%-80% of an individual's way of life depends on the decisions one makes (Babao & Moscoso, 2008). The decisions made develop into habits which include eating habits, ability to exercise, drug use or abuse etc. (Cinelli & O'dea, 2009). A meta-analysis of the relationship between physical activity and body image among men and boys showed that physical activity is positively related to body image (Bassett-Gunter et al., 2017). Lack of a healthy diet and physical activity has been shown to result into feelings of low body-

esteem (Zanon et al., 2016). Health behaviors involve neurotransmitters (Currie et al., 2004). Physical activities, positive attitudes and ability to manage stress have been shown to boost serotonin levels hence improved mood (Lipowski, 2012; Quick et al., 2013).

Currently, a person's image is considered a means through which an individual can exploit in order to access certain privileges within the social environment. People are therefore increasingly investing in cosmetic products and other body modification procedures such as plastic surgeries so as to achieve their preferred societal status (Pop, 2016). Appearance and body image are regarded highly in contemporary Western societies (Tiggemann, 2011). Body image is more than a cognitive construct; it is also about the attitudes and interactions that exist between individuals. Mass media advertisement imply that "what is beautiful is good," and has linked physical beauty with success (Pop, 2016).

Most behaviors gained in early childhood often persist into adulthood. During childhood, individuals are exposed to different societal concepts of what should be considered as positive body image (Parsons et al., 2011). Both sexes operate on peer influence with their peers dictating the ideals hence negative impact on the adolescent's body image (Presnell et al., 2004). The negative body image finally leads to low self-esteem, poor eating habits and risky lifestyle behaviors (Parsons et al., 2011).

The majority of undergraduate university students fall into the categories of late adolescence (ages 18-21) and early adulthood (ages 21-34) (Stassi et al., 2007). As they enter adulthood, they create their own niche targeted towards independent functioning. They are completely focused inwardly and outwardly on themselves and



therefore have a tendency to believe other people's attention is equally on them and for this reason they believe in acting right in all aspects (Wright, 2012).

Body image perceptions are vital for university students due to the need to remain popular by adhering to the set standards of an ideal body image and appearance. In Spain, more than half a sample of college students (55% of women, 63% of men) had poor body image perceptions (Míguez Bernárdez M, De la Montaña Miguélez J, González Carnero J, 2011). Similarly, research across undergraduate college students in Austria, France and USA observed a wide discrepancy between men's actual muscularity and their body ideals (Pope Jr et al., 2000). Likewise, university students in Denmark and the UK perceived themselves as either 'too thin' or 'too fat' (El Ansari et al., 2010). In Lebanon, 19%, 12% and 5% of students were either slightly, moderately or extremely worried, respectively, with regard to how they perceived their bodies (Yahia et al., 2011).

In a study (El Ansari et al., 2014) on body image concerns among students in the United Kingdom, a larger proportion of females (35%) than males (8%) had body image concerns. In both males and females, body image concerns were related to high levels of depressive symptoms, diet and year of study. Females' body image concerns were related to poor health, stressors for instance studies and lack of exercise. In contrast, body image issues in males were linked with low quality of life and advancement in age.

Research indicates that poor body image (J. K. Thompson, 1990) has been on the rise since the 1980s and is associated with increasing cases of depression (Denniston et al., 1992), anxiety, low self-esteem (J. K. Thompson & Altabe, 1991), eating disorders and dieting (Cooley & Toray, 2001). Lack of satisfaction with one's body

has become “a normative discontent” in today’s culture, and therefore related to an overwhelming desire for thinness. Thus, inability to lose the unwanted weight has a big impact on an individual’s overall mood and confidence. Body image dissatisfaction, weight issues, eating disorders, and physical attractiveness are among the concerns that college students have (Harris, 1995) with a large proportion (90%) reporting dissatisfaction with their bodies (Delene & Brogowicz, 1990).

Body image dissatisfaction is a normal occurrence for most people, but others experience extreme levels of dissatisfaction resulting in inability to cope with daily activities and societal expectations. A 2016 study by (Sarwer & Polonsky) showed that a large percentage of women were preoccupied with either wearing clothing that would conceal their obesity, adopting newer body posture, or shifting focus away from their bodies. The study highlighted mental disorders that co-exist with extreme levels of body dissatisfaction. The disorders highlighted were gender dysphoria, depression, eating disorders and body dysmorphic disorder (BDD); these were particularly noted to influence individuals’ decision to seek body modification procedures.

Understanding body image and lifestyle habits is crucial in the development of corrective measures aimed at enabling the youth gain a positive outlook (Wilkosz et al., 2011). Being satisfied with one’s self-image enhances the need for an individual to adopt a healthy lifestyle (Paxton et al., 2006).

Generally, body image concerns is associated with a complex range of factors to include socio-demographic variables e.g. gender (Di Pietro & Silveira, 2009), age and year of study at the University. Body image concerns is also associated with physical activity (Kirkcaldy et al., 2002), nutrition behaviors (Brenner et al., 2004), and mental

well-being, e.g., quality of life, perceived stress, perceived health, and depressive symptoms (El Ansari et al., 2010; Kjærbye- Thygesen et al., 2004).

People who are overweight may suffer from poor self-confidence, may be timid and may also have social phobia. Socio-cultural factors have also contributed immensely to how individuals view themselves; fatness is either associated with laziness or a sign of financial stability in some cultures (Onywera, 2010) (Onywera, 2010b). Idealized body image contributes to eating disorders such as anorexia nervosa or bulimia, steroid use, protein supplements (Constructed, 2008) and even plastic surgery as a means of obtaining a desired image (Hogan & Strasburger, 2014).

A study done in South Africa showed that black girls (38%) had negative body image perception compared to the white girls (16.7%). The study further showed that more white girls wanted to be thinner compared to black girls at 65.4 vs. 38.8% (Gitau, 2014). Another study done in Nigeria showed that 36.7% of the participants were not satisfied with their appearance while 46.2% were dissatisfied with discrete aspects of their bodies. The same study indicated a 35.4% prevalence of probable psychiatric morbidity (Otakpor & Ehimigbai, 2016). A study (Pedro et al., 2016) showed 83.5% of the girls were dissatisfied with their bodies, the girls either desired to be thinner or fatter. Most girls compared to boys in this study were overweight or obese.

A study done in South-Africa used Structural equation modeling (SEM) to test the relationships between body image, eating attitudes, body mass index and physical activity in rural and urban South African young adult females. Women from urban areas were found to be overweight with an overwhelming need to be thin compared to those from rural areas. Women with disordered eating attitude had poor body image and were majorly from urban areas (Prioreshi et al., 2017).

Locally, a Kenyan study (Oguta, 2015) done at Pumwani Maternity hospital and Kenyatta National Hospital in Nairobi, Kenya, reported the highest rate of caesarian section in Sub-Saharan Africa, with national rates of about 6.7% and up to 13.9% in the urban areas with self-image being one of the psychosocial factors contributing to the high CS rates. Kenya's 2016 report card highlighted the health and well-being with relation to physical activity and body weights of children and youth aged 5 to 17 years. This report card was conceptualized, designed and developed by a multidisciplinary team of 8 experts drawn from different institutions of higher learning in Kenya and focused on physical activity and body weights of children and youth; the team developed an uptake strategy including media engagement as well as family and peers' involvement in promoting healthy active lifestyles and suggested a more representative data for all indicators in Kenya. A study done in Kenya on Screen-based sedentary behavior and adiposity among school children found that 20.8% were classified as over-weight/obese (Wachira et al., 2018). Higher socioeconomic status and parental education attainment were associated with a higher likelihood of children being overweight/obese and a lower likelihood of children meeting the physical activity (Herrera-Cuenca et al., 2016).

A study done in Nigeria and Kenya highlighted various perspectives of what the women perceived as beauty in an African context, what they thought about their bodies, what they were doing differently regarding their perceived imperfections and what others thought about those imperfections; "A beautiful African woman is one who has a curvy and toned body."- Age 27, Kenya (Kikuyu).

"Average/tall height, full breasts, full hips and butts (sic), flat stomach, full hair, nicely shaped eyes and lips, slim and slightly pointed nose, smooth and even skin tone."-Age 36, Nigeria (Yoruba)

“Curves, an African woman has to have curves.”-Age 36, Kenya (Kamba)

“Radiant skin, shapely, moderate hips and breasts.”-Age 39, Nigeria (Igbo)

For some women, the problems with their bodies were fixed, definite and hopeless; for example, a 37-year-old Kenyan woman describes her body as follows, “Disgusting. Ugly. Unshapely. Unsexy.” Similarly, a 33-year-old Nigerian participant stated, “Not slim, straight body, no hips, no butt, small boobs, not very attractive.”

This is a clear indication of the set societal expectations of an ideal female figure and the inability to achieve it. Other responses focused on problem areas as well as future goals; “My body type is ok (sic), I wish I had a little more hips and curves with flat belly too. I have since discovered how to appreciate my body type and dress it accordingly”. -Age 31, Nigeria (Benin)

“I am overweight but have struggled with several health issues so I would describe my body as transforming, changing and growing into what I want it to be”. -Age 36, Nigeria (Taroh)

Commentary and criticism from others can be contradictory and relentless as indicated by the following statements: a 30-year-old Kalenjin woman from Kenya: “...I put on weight; people think I am too big. I lose weight, others think I am too thin -- people will never be satisfied.”

“Beautiful, stunning, nice butt, great legs, fat, 'you've lost weight, you look great', 'you've gained so much weight, you're rolling', you're looking good, you're so beautiful, love your dimples, love your hair, love your smile, love your eyes, you're always nicely dressed, love your hair, your style is unique, your style is so you, what are you eating, have you gained weight, have you lost weight, you need to lose weight”-Age 38, Nigeria (Igbo)

Being overweight seemed to be the most reported criticism by respondents. A 32-year-old Kenyan respondent of Luo ethnicity stated, “My peers and colleagues come down on me hard when I put on weight.” A 27-year-old Nigerian participant who identified as Fulani parroted some of the comments she had heard: “You’ve added weight! You need to start exercising! Kai, you’re enjoying oh!” (Balogun-Mwangi, 2016).

### **Instruments**

Anthropometric measures (height and weight) were taken by the researcher before a participant proceeded to fill the other sections of the questionnaire. The measures were used in calculating the body mass index (BMI) derived by taking a person’s weight, in kilograms and dividing it by the height, in meters squared or  $BMI = \text{weight}(\text{kg}) / \text{height}(\text{m}^2)$  ( $\text{kg}/\text{m}^2$ ). The reference ranges for the BMI as used in this study were adopted from the global World Health Organization values categorized as follows; underweight  $<18.5$ , normal weight  $18.5-24.9$  and overweight  $>25$  (Weir & Jan, 2022). BMI does not however explain wide variation in body fat distribution, and may not correspond to the same degree of fatness or associated health risk in different individuals and populations such as weight gain resulting from muscle gain as occurs in sportsmen (Consultation, 2000; Weir & Jan, 2022). In this study, the body mass index was used as an objective measure and not to assess health risk as the tools used in this study, body image, self-esteem and health-related behavior, were subjective in nature. For assessment of health risk (the probability to develop health problems such as Diabetes and Hypertension) for an individual, the waist circumference and height to weight ratio would be more accurate.

Sociodemographic and general characteristics of the participants such as age, sex, residence, religion, ethnicity/race, marital status, income, area of residence were captured. The names of the participants remained anonymous.

The Multidimensional Body-Self Relations Questionnaire (MBSRQ) (Cash & Ph, 2000) is a 69-item self-report inventory for the assessment of self-attitudinal aspects of the body-image construct. Though not locally validated, all subscales possess acceptable internal consistency and stability. Moreover, the physical self encompasses not only one's physical appearance but also the body's competence or "fitness" and its biological integrity or "health/illness." Unique in its multidimensional assessment, the MBSRQ has been used extensively and successfully in body-image research. The MBSRQ has been employed in national survey research, studies of "normal" college students, investigations of obesity, eating disturbance, androgenetic alopecia, facial acne, and physical exercise, and outcome studies of body-image therapy. The subscales are appearance evaluation, appearance orientation, fitness evaluation, fitness orientation, health evaluation, health orientation, and illness orientation as follows:

**APPEARANCE EVALUATION:** Feelings of physical attractiveness or unattractiveness; satisfaction or dissatisfaction with one's looks. High scorers feel mostly positive and satisfied with their appearance; low scorers have a general unhappiness with their physical appearance. Cronbach's alpha value of 0.88 for males and 0.88 for females.

**APPEARANCE ORIENTATION:** Extent of investment in one's appearance. High scorers place more importance on how they look, pay attention to their appearance, and engage in extensive grooming behaviors. Low scorers are apathetic about their

appearance; their looks are not especially important, and they do not expend much effort to "look good". Cronbach's alpha value of 0.88 for males and 0.85 for females.

**FITNESS EVALUATION:** Feelings of being physically fit or unfit. High scorers regard themselves as physically fit, "in shape", or athletically active and competent. Low scorers feel physically unfit, "out of shape", or athletically unskilled. High scorers value fitness and are actively involved in activities to enhance or maintain their fitness. Low scorers do not value physical fitness and do not regularly incorporate exercise activities into their lifestyle. Cronbach's alpha value of 0.77 for males and 0.77 for females.

**FITNESS ORIENTATION:** Extent of investment in being physically fit or athletically competent. High scorers value fitness and are actively involved in activities to enhance or maintain their fitness. Low scorers do not value physical fitness and do not regularly incorporate exercise activities into their lifestyle. Cronbach's alpha value of 0.91 for males and 0.90 for females.

**HEALTH EVALUATION:** Feelings of physical health and/or the freedom from physical illness. High scorers feel their bodies are in good health. Low scorers feel unhealthy and experience bodily symptoms of illness or vulnerability to illness. Cronbach's alpha value of 0.80 for males and 0.83 for females.

**HEALTH ORIENTATION:** Extent of investment in a physically healthy lifestyle. High scorers are "health conscious" and try to lead a healthy lifestyle. Low scorers are more apathetic about their health. Cronbach's alpha value of 0.78 for males and 0.78 for females.



**ILLNESS ORIENTATION:** Extent of reactivity to being or becoming ill. High scorers are alert to personal symptoms of physical illness and are apt to seek medical attention. Low scorers are not especially alert or reactive to the physical symptoms of illness. Cronbach's alpha value of 0.78 for males and 0.75 for females.

Additional MBSRQ Subscales:

**BODY AREAS SATISFACTION SCALE:** Similar to the Appearance Evaluation subscale, except that the BASS taps satisfaction with discrete aspects of one's appearance. High composite scorers are generally content with most areas of their body. Low scorers are unhappy with the size or appearance of several areas. Cronbach's alpha value of 0.77 for males and 0.73 for females.

**OVERWEIGHT PREOCCUPATION:** This scale assesses a construct reflecting fat anxiety, weight vigilance, dieting, and eating restraint. The high scoring individuals have a preoccupation with their weight and dieting compared to the low scorers. Cronbach's alpha value of 0.73 for males and 0.76 for females.

**SELF-CLASSIFIED WEIGHT:** This scale reflects how one perceives and labels one's weight, from very underweight to very overweight. Cronbach's alpha value of 0.70 for males and 0.89 for females.

Scoring of the results was done using the formulae below as per the MBSRQ Manual which reverse-score items by subtracting them and adding a constant (i.e., any reversed item is scored as 6 minus the response value). Reverse-scored items are marked using an asterisk and items denoted as B1 to B69.

COMPUTE APPEVAL = (B5+B11+B21+B30+B39-B42-B48+12)/7.

COMPUTE APPOR = (B1+B2+B12+B13+B22+B31+B41+B50-B23-B32-B40-B49+24)/12.

COMPUTE FITNESS EVALUATION (FITEVAL) = (B24+B51-B33+6)/3.

COMPUTE FITNESS ORIENTATION (FITOR) =

$(B3+B4+B14+B26+B35+B44+B53-B6-B15-B16-B25-B34-B43+36)/13.$

COMPUTE HLTHEVAL =  $(B7+B27+B54-B17-B36-B45+18)/6.$

COMPUTE HLTHOR =  $(B8+B9+B18+B19+B29+B52-B28-B38+12)/8.$

COMPUTE ILLOR =  $(B46+B55+B56-B37-B47+12)/5.$

COMPUTE BASS =  $(B61+B62+B63+B64+B65+B66+B67+B68+B69)/9.$

COMPUTE OWPREOC =  $(B10+B20+B57+B58)/4.$

COMPUTE WTCLASS =  $(B59+B60)/2.$

The Contour Drawing Rating Scale (Thompson & Gray, 1991) was used to assess the global aspect of body image. The Contour Drawing Rating Scale (CDRS) consists of nine drawings of a female and male figure, each drawing increasing in size from extremely thin scored as (1) to very obese (9). The participants rated their ideal figure (how they would ideally love to look like) and their current size (perceived figure). The discrepancy between the ideal and perceived current size score (current - ideal $\neq$ 0) implied body image dissatisfaction.

Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg et al., 1995) which is a 10-item questionnaire. The scale has been used widely and has a high internal reliability ( $\alpha = .96$ ) and validity. The Rosenberg Self-esteem Scale has been used locally in a study done at the United States International University, Kenya (Arasa, 2017). The Rosenberg Self-Esteem Scale contains an equal number of positively and negatively worded items. Responses are coded on a four-point scale ranging from 0 (strongly disagree) to 3 (strongly agree), the higher the score, the higher the self-esteem level. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem, while scores above 25 correspond to high

self-esteem (Pop, 2016). If the subjects strongly agree, they circle Strongly Agree (SA). If they agree with the statement, they circle Agree (A). If they disagree, they circle Disagree (D). If they strongly disagree, they circle Strongly Disagree (SD). Scoring of test in this study was as follows, Strongly Agree (SA)=1, Agree (A)=2, Disagree (D)=3, Strongly Disagree (SD)=4. Items with an asterisk were reverse scored, that is, Strongly Agree (SA)=4, Agree (A)=3, Disagree (D)=2, Strongly Disagree (SD)=1. Sum the scores for the 10 items (Arshad et al., 2015). The Rosenberg scores in this study ranged between 10 and 40 with the lower scores corresponding to higher self-esteem and higher scores corresponding to lower self-esteem (Pettersson, 2012). For this study,  $\leq 25$  was equated to high self-esteem while  $> 25$  was equated to low self-esteem. Negatively worded statements with asterisk were reverse-scored and denoted low self-esteem while the positively worded statements denoted high self-esteem.

The Psychological General Well-Being Index (PGWBI) is a measure of the level of subjective psychological well-being. Internal Consistency of the American PGWBI was high (Grossi et al., 2016), with Cronbach's alpha values ranging between 0.90 and 0.94. The intersubjective reproducibility expressed by test- retest coefficients ranged around a median value of 0.80. The validity of the PGWBI was significantly correlated with the items that assessed the needs and utilization of mental health services, with the sociodemographic variables and the items of medical history. The instrument has been used in South Africa (Chassany et al., 2004). The PGWBI assesses self-representations of intrapersonal affective or emotional states reflecting a sense of subjective well-being or distress (subjective perception of well-being). Consisting of 22 standardized items, PGWBI produces a single measure of psychological well-being. The questionnaire has subscales to assess the following

Health-Related Quality of Life domains: anxiety, depression, positive well-being, self-control, general health, and vitality. Each item has six possible scores (from 0 to 5), referring to the last 4 weeks of the subject's lifetime. Each domain is defined by a minimum of 3 to a maximum of 5 items as follows.

Anxiety: Items 5, 8, 17, 19, 22; Score Range 0-25

Depressed mood: Items 3, 7, 11; Score Range 0-15

Positive well-being: Items 1, 9, 15, 20; Score Range 0-20

Self-control: Items 4, 14, 18; Score Range 0-15

General health: Items 2, 10, 13; Score Range 0-15

Vitality: Items 6, 12, 16, 21; Score Range 0-20

Global score: Items 22; Score Range 0-110

The PGWBI global score represents the sum of all items and ranges from 0 to 110. Higher scores indicate greater psychological well-being while a lower score reflects poor quality of life (Chassany et al., 2004).

## **1.2 Statement of the Problem**

Self-esteem is associated with good health and determines the quality of life of an individual. These health-related behaviors are on the increase in both men and women, young and old, but expressed more in women than men. Today's society is filled with the "perfect body type" hence many people have been pushed to the extremes in the search of their ideal body (Hamilton, 2008). Body image dissatisfaction results in low self-esteem, depressive illness, anxiety, poor feeding habits, suicidality as well as risky health behaviors including alcoholism, drug abuse and unsafe sexual activities (Woods, 2016). College students overindulge through binge drinking and driving under alcohol use so as to remain popular among their peers (Backer-Fulghum, et. al., 2012).

Body image and self-esteem are also important for one's academic achievement. A study by Aryana, 2010 shows a direct relationship between self-esteem and academic success (Aryana, 2010). Academic accomplishment is the number one reason for the campus students being in their various institutions of learning (Jowkar , et al., 2014) and lays the foundation towards ambition and advancement. Low self-esteem impairs academic accomplishment and as a result feeling of worthlessness due to underperformance in class. These depressive feelings inhibit academic achievement as individuals affected tend to hold back instead of taking risks as in those with high self-esteem. Body image dissatisfaction, low self-esteem, risky sexual and drinking behaviors all form a common pathway leading to low academic performance among college students. This finding was noted to be common among female college students (Sharma & Agarwala, 2013).

It is thus correct to conclude that self-image affects self-esteem and self-esteem affects academic accomplishment (Hoogveen, et al., 2009; Raymer, 2015). In a much wider perspective, body image is more than the physical attributes, it is also about an individual's attitudes towards people and life (Yumurtacı, 2012). A Kenyan study (Oguta, 2015) done at Pumwani Maternity Hospital and Kenyatta National Hospital in Nairobi, Kenya, reported the highest rate of caesarean sections in Sub-Saharan Africa, with national rates of about 6.7% and up to 13.9% in the urban areas. In this study, body image was among the psychosocial factors contributing to the high caesarean section rates.

### **1.3 Justification**

Body image dissatisfaction is a normal occurrence among most people with a greater prevalence among adolescents and young adults. In some young adults, there could be levels of body image dissatisfaction that could result in the inability to cope with daily activities and societal expectations. Young adults such as undergraduate university students start worrying about how they look from the first day of admission as they struggle dealing with peer influence as well as parental and social media expectations of them. When their body image concerns get out of control, they could experience an identity crisis, body dysmorphic disorder, anxiety, depression and suicidal tendencies (Sarwer & Polonsky, 2016). It is therefore important to conduct this study among university students who are likely to be weighed down by the pressure of balancing their body image and self-esteem in a near perfect equilibrium to perform well in class, relate optimally with their communities and maintain a good health status. Enhanced body satisfaction is linked with a greater desire by an individual to possess and maintain healthy habits (Paxton et al., 2006).

### **1.4 Significance**

The study will highlight body image and self-esteem and their effects on the general well-being of university students. The study will also be vital in informing policy makers to ensure holistic growth among university students. Lastly, study findings will help to identify gaps or areas of interest for future researchers.

## **1.5 Research Questions**

- i. Is there a relationship between body image, self-esteem and health related behaviors among Moi University West Campus students?
- ii. What is the satisfaction level of Moi University West Campus students with their body Image?
- iii. Is there a relationship between satisfaction level of body image and self-esteem?
- iv. Is there an association between body image, self-esteem and Sociodemographic variables?

## **1.6 Objectives**

### **1.6.1 Broad Objectives**

To establish the level of body image satisfaction and the relationship between body image, self-esteem and health related behaviors among Moi University West Campus students.

### **1.6.2 Specific Objectives**

1. To determine the satisfaction level of Moi University West Campus students with their body image.
2. To determine the relationship between satisfaction level of body image and self-esteem.
3. To determine the relationship between body image, self-esteem and Sociodemographic variables.
4. To determine the association between body image, self-esteem and an individual's health-related behaviors.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Body image and self esteem

Self-image comprises of various factors including social upbringing, community, family, friends, culture and media (Abadseh, 2013). Body image is important in the functioning of people in all aspects of their life especially during childhood and adolescence. Self-image is crucial during adolescence, an important stage during which identity of a person develops. Self-image is also an important determinant of self-esteem in both sexes during adolescence. Body appearance provides a great link to self-confidence for both sexes during adolescence (Seligman & Reichenberg, 2006). An individual exhibiting low self-esteem portrays self-rejection, poor self-respect as well as poor self-picture. Positive body image implies heightened self-esteem while negative body image equates to low self-esteem. Higher level of self-esteem results in good physical and mental health. Low self-esteem on the contrary results in body image dissatisfaction, depressive illness, anxiety, poor feeding habits, suicidality as well as risky health behaviors including alcoholism, drug abuse and unsafe sexual activities (Woods, 2016).

Normal university students experience mixed feelings while adapting to the new environment. They seek to form new intimate relationships as well as strive to chart their own pathway to success. They are also vulnerable to risky behaviors, including drug abuse and promiscuity both of which may impact negatively on their self-esteem and body image (Stassi et al., 2007).



Body image affects an individual's lifestyle in all aspects, both young and old. There is therefore need for data to illustrate the extent to which individuals are willing to go to acquire their ideal body. This is because unchecked feelings of body dissatisfaction often lead to behavioral changes extending into their adult life (Wilkoosz et al., 2011). A youth surveillance report found that 27.7% of students were not satisfied with their weight (CDC, 2010). The proportion grew as students moved from lower to higher classes over time. Approximately 44.4% of the students had a desire to reduce their weight and this was more evident in girls than boys (CDC, 2010).

Body dissatisfaction is associated with low self-esteem (Presnell et al., 2004) and a higher body mass index (Paxton et al., 2006). Depressive illness in adolescents is linked with lack of satisfaction with their perceived weights (Daniels, 2005). Hispanic youths have high proportions of debilitating general health, including depression and low self-esteem when compared to their white counterparts (Swallen et al., 2005).

## **2.2 Body Image and Gender**

A 2007 study done by (Frederick, et al., 2007) showed that less muscular build leads to lack of satisfaction for most men. In the United States of America, 90% of undergraduate men desired a more muscular body. Similarly, 69% of Ukrainian and almost half (49%) Ghanaians in the same study desired a more muscular body.

Many young women who are either underweight or of normal weight think of themselves as being obese. The main reason for this kind of thinking results from a constant comparison with peers or with how they were in the past. The results therefore show that young women evaluate their shapes from relative and not absolute information. In a contemporary study (Mase et al., 2015), participants who thought they were obese desired to become slim and had body image issues early in life. They also had dieting concerns, had tried dieting and were willing to adopt daily exercising.

Approximately 60% of the participants being underweight or of normal weight perceived themselves as overweight.

Girls are said to be more conscious of themselves as compared to their male counterparts. During adolescence, girls have been known to have concerns regarding their body shape and overall body image on a much higher scale as compared to the boys. Evidence shows that women and girls tend to portray a negative body image more often (Furnham et al., 2010). This is majorly so because being slim has been projected as the desirable standard of beauty and the trend seems to be easily replicating even in adulthood with figures showing higher prevalence of body image dissatisfaction among females compared to males (Ali & Lindström, 2006). In girls, changes that bring along increased adiposity are perceived negatively as they do not concur with the thin-ideal norm (Reel et al., 2015).

Women view beauty as an important aspect of their social success. This has been elicited on college campuses with people being assessed for physical beauty. Men have previously been exempted from extreme standards of beauty but current data shows that certain cultures now require men to conform to a thin and muscular stature (Leit et al., 2001). Men are now showing greater dissatisfaction with their self-image with more men wanting to shed a few pounds or alternatively improve on their muscle tone (Lowery, et. al, 2005). Anabolic steroid use to build muscle bulk is the new trend among men. It is increasingly becoming a common practice among university males (Pope Jr et al., 2000). It is therefore important to note that body dissatisfaction among men is becoming a societal concern just as for women with both sexes going to extremes in search of their ideal bodies (Engeln et al., 2013).

Historically, there have been sex differences on self-image perception with studies revealing greater dissatisfaction among females as compared to males, women tend to overestimate their weight more frequently compared to men (Lowery, et. al, 2005). A study done on the Mediterranean adult population showed that an overweight status yielded more dissatisfaction than an underweight status among women compared to men. In the same study, middle-aged participants showed higher levels of body shape dissatisfaction and underestimated their body weight compared to the younger population (Bibiloni et al., 2017).

Media images have been shown to dictate the kind of image women want to portray and hence the strong desire for the ideal body. Findings (Van den Berg et al., 2007) show that women who have fallen short of their ideal body types have ended up with high prevalence of depression. Study findings (Franzoi & Herzog, 1987) have shown women to have tendencies to easily view themselves as being less attractive, men on the contrary are less judgmental with regards to how they perceive their outlook. Obese women were shown to have self-image dissatisfaction in comparison to those who had normal weight (Carpenter et al., 2000) and suffered more depressive symptoms (Hamilton, 2008). The continued search for the ideal body is increasingly becoming injurious to humanity more so for women and girls as most are resulting to extreme measures of attaining the desired body.

Social media users such as those on Facebook displayed image dissatisfaction resulting from constant appearance comparisons, a finding not elicited from the users of conventional media (Cohen et al., 2015). Furthermore, a study on social comparisons among social media users and how they affect self-esteem demonstrated that that there was lower self-esteem and poor self-evaluation depending on target

person's profile; subjects felt better when the target profile had negative comparison information while felt low with positive profile information (Vogel et al., 2014). Traditional media such as television use is less relied on currently with the youth spending more and more time on Facebook, Myspace and YouTube that are more interactive and the desired image is evident from the information shared including own photographs (Hogan & Strasburger, 2014). Desire to comment and view a peer's profile was mainly motivated by drive for thinness across gender (Kim & Chock, 2015).

### **2.3 Self-esteem and gender**

College women are often compelled to attain certain levels of thinness and attractiveness. The standards are way up as compared to male university students and as a result female students who may not attain the set standards end up with low self-esteem (Harris, 1995).

A study by (Tiwari, 2009) shows that male participants had higher mean scores on self-esteem. In this study, the self-esteem was different for urban versus rural populations with the rural population indicating a higher mean self-esteem score. Other factors that may influence self-esteem and overall image perception include societal norms, economic background, ethnicity, and obesity as described below (Wright, 2012).

### **2.4 Socioeconomic status**

Youth from privileged economic backgrounds have been reported to have an increased desire for smaller physique compared to those from low income families (Lynch et al., 2007). A study on high school students in Minnesota showed that individuals with low socioeconomic status underestimated their weights (Park, 2011). Ethnicity affects body image depending on the cultural norms on what may be considered beautiful or healthy. Data from the Youth Risk Surveillance Report

indicates that 33.3% of Hispanic students, 26.4% of white students, and 22.9% of black students described themselves as overweight (CDC, 2010). In a different study by (Sarwer & Polonsky, 2016), findings showed that African and Hispanic-American women reported less body image dissatisfaction than Caucasian women. This study also brought out the effect of acculturation such that as Asian and Hispanic American individuals acculturate to American customs, level of image dissatisfaction resembles that of Caucasian Americans.

### **2.5 Peer Influence/ Peer Pressure**

Peer pressure refers to individuals being influenced by what their peers do and/or say which therefore leads to individuals changing their behavior to meet that of their peers. Peer influence on the contrary involves individuals changing behavior to meet the perceived expectations of others. Peer influence therefore refers to individuals being influenced by how they think their peers will react to their actions (Burns & Darling, 2002). Peer influence occurs commonly when individuals enter a new territory such as change of school or peer group. Research findings (Borsari et al., 2006) have linked alcohol use and drug use among college students with peer influence (Hall et al., 2011). Similar studies show that female college students report various levels of body dissatisfaction depending on the exposure (Blackwell, 2000; Maxwell et al., 2015).

## **2.6 Body Image and health-related behaviours**

Most people develop certain traits and beliefs concerning their desired body shape in early childhood. Those dissatisfied with their bodies often suffer from low self-esteem, depressive episodes, eating problems and bad lifestyle choices. Children easily pick what they think is right from peers, siblings, parents and various media sources which partly or wholly form the body image perceptions and lifestyle behaviors they adopt into adulthood (Parsons et al., 2011). The kind of exposure they get determines whether they adopt a negative or positive body image. Negative self-perception often leads to detrimental outcomes in relation to self-esteem and overall life activities. These lifestyle choices may be either healthy or unhealthy behaviors depending on what they have been exposed to (Presnell et al., 2004).

Aging deviates one's mindset from the cultural ideals concerning body image. As stated earlier, body image perception in adulthood depends on what they adopted as young children and adolescents. Literature on body image in adults is quite scanty, the available literature has focused more on women compared to men (Moustafa et al., 2017).

Women with positive perception of the self are able to resist external influences on how one feels about themselves (Wood-Barcalow et al., 2010). This group of women therefore is not influenced by negative media information, have less chaotic eating habits, have good support system, good self-esteem and engage more in physical activity.

Majority of women with thin internalization are more prone to desire thinness and therefore cautious about their eating habits and usually result into restrained eating (Ahern et al., 2008; Ferrari et al., 2013; Gitimu et al., 2016). In this study, 68.6%

reported an ideal body shape smaller than their current body shape (Gitimu et al., 2016). Empirical data demonstrate that eating disorders and depression are on the rise (Ivarsson et al., 2006) A study among medical students found that more male students were at an increased risk for developing eating disorders which was significantly associated with higher BMI and body image dissatisfaction than female students (Chaudhari et al., 2017). Anorexia nervosa is an eating disorder characterized by intense fear of gaining weight or of becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low weight. There is a disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

Bulimia nervosa on the other hand is characterized by the binge eating and inappropriate compensatory behaviors in order to prevent weight gain. The compensatory mechanisms are often recurrent and inappropriate such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise. In both cases, self-evaluation is unduly influenced by body shape and weight (Association, 2018) with the affected individuals often requiring medical attention or hospitalization. With the onset of depression and its worsening symptoms, those affected often contemplate suicide (Pompili et al., 2006).

Tattooing is also on the rise as a means of boosting one's self-esteem, initially associated with those against societal norms. The more the body tattoos, four or more, the higher the chances of suicide attempts, increased alcohol use and elevated use of other substances of abuse (Effinger & Stewart, 2012; Koch et al., 2015). Enhanced level of self-esteem in persons with tattoos is paradoxical to the suicide attempts in

the same group (Koch et al., 2015). Women have been documented to suffer from increased social stigma (Dickson et al., 2014) and tattoo regret (Armstrong et al., 2008) and therefore have increased chances to demand for a tattoo removal. Tattooing in women has also been associated with emotional restoration as seen in breast cancer survivors in an attempt to reclaim control over their bodies (Radley & Bell, 2007). Similar findings indicate that women who have been sexually assaulted opt for genital piercings as a means of control over their bodies (Nelius et al., 2011).

Many people have been found to revert to the online platforms so as to compensate for their low self-esteem (Amichai-Hamburger & Vinitzky, 2010), this has however yielded negative results with the regards to body image. Studies (Kraut et al., 1998) have shown an increase in depressive symptoms among internet users with women showing more negative mood after minimal exposures (Fardouly et al., 2015). Studies have also demonstrated increasing negative perception as a result of negative social comparison (de Vries & Kühne, 2015).

In pursuit of a perfect body image, people have devised ways of improving their looks. Research (Woods, 2016) shows that extensive work has been done focus being on people's eating habits and excessive exercise as possible ways of achieving a better perception of the self. Cosmetic surgery is however gaining popularity for both men and women as an alternative option of enhancing an individual's body image. Cosmetic surgery is usually sought after to correct physical deformity or improve on parts of the body that an individual considers less appealing. Cosmetic surgery among college students and even in the general population has been less studied (Swami et al., 2009). Available data shows that cosmetic surgery is now becoming socially acceptable (Henderson-King & Brooks, 2009; Markey & Markey, 2009) and college



students are embracing it in large numbers with most of them undergoing plastic surgery (Calogero et al., 2010).

Skin-lightening as a means of enhancing one's looks is on the rise despite it being documented as a global health concern. Globally, skin bleaching is on the rise with available data indicating that approximately 35% of black people are embracing the practice (James et al., 2016). The compelling desire to change one's skin colour has been associated to self-hate and low self-esteem (Hamed et al., 2010). Skin bleaching together with body contouring procedures often sought to augment one's appearance has been termed harmful by medical experts (Charles, 2003). The compulsion to acquire the perfect or ideal look has seen individuals, mostly women, overlook the health risks such as predisposition to skin cancers and steroid induced acne to fulfill their desires (Jacobs et al., 2016).

The effect of social media on self-objectification was also reported in the United States where the authors (Durante & Alves, 2017) based Southern Illinois University at Carbondale reported that the top cosmetic surgical procedures opted for by the teens in pursuit of the ideal body were nose reshaping and breast augmentation. Body image dissatisfaction plays a key role when deciding to seek and in the selection of a body contouring procedure or product offered by aesthetic physicians (Sarwer & Polonsky, 2016).

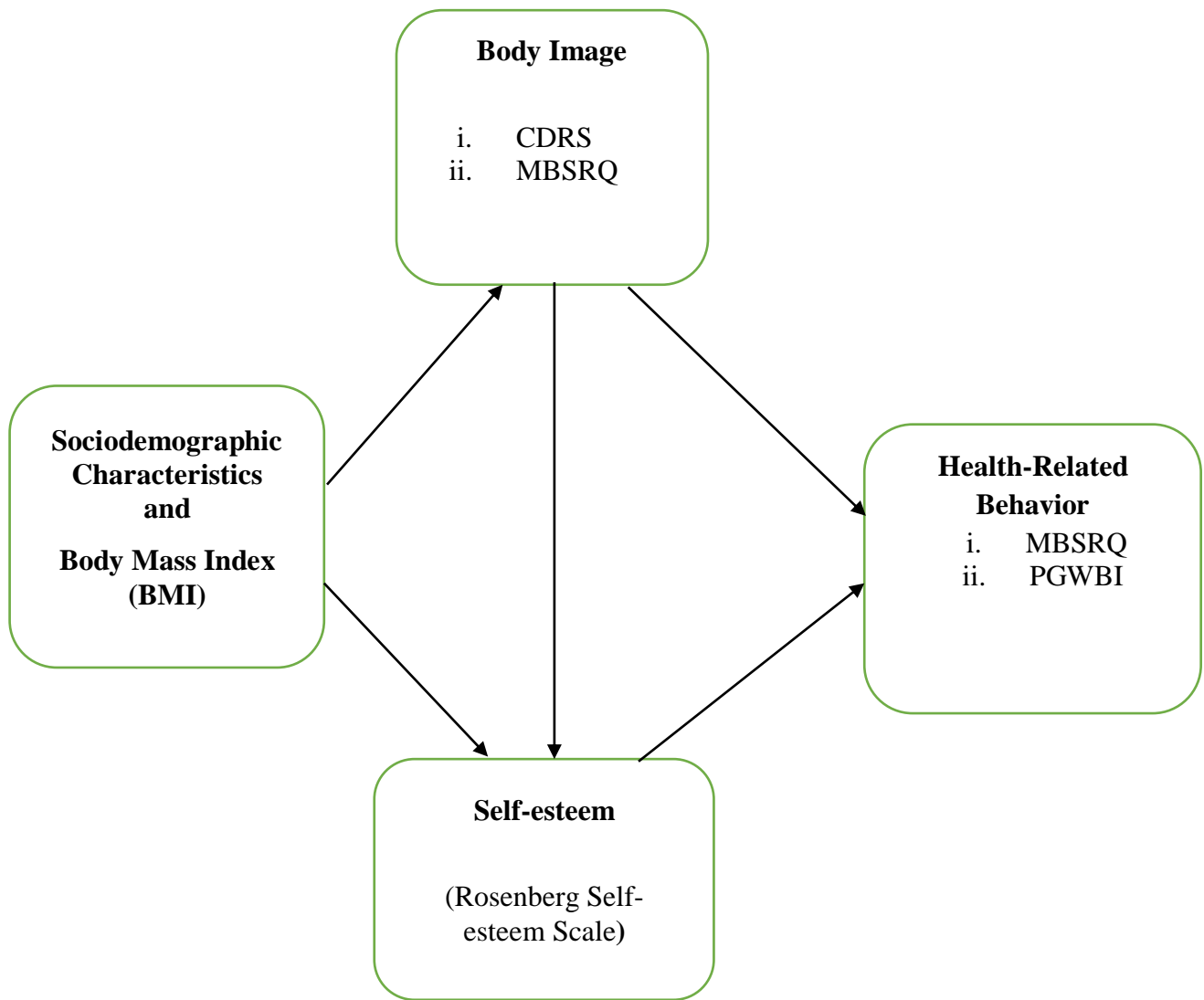
A large proportion of individuals with body dissatisfaction suffer from social anxiety which begins at around 10-16 years of age and increases in severity from 19-24 years (Wittchen & Fehm, 2003). Affected individuals often lack the ability to take up tasks requiring public appearance (Woods, 2016). The Diagnostic and Statistical Manual V 2016 (Association, 2018) defines social anxiety or social phobia as a disorder in

which an individual is fearful or anxious about or avoidant of social interactions and situations that involve the possibility of being scrutinized. These include social interactions such as meeting unfamiliar people, situations in which the individual may be observed eating or drinking, and situations in which the individual performs before an audience. The cognitive ideation is of being negatively evaluated by others, by being embarrassed, humiliated, or rejected, or offending others.

Body dissatisfaction also leads to unhealthy sexual behaviors such as multiple sex partners, inconsistent use of protection, one-night stands and indulging in sexual activities while under influence of alcohol (Gillen et al., 2006). Individuals engaging in risky sexual behaviors have also been noted to have sexually transmitted diseases as well as unintended pregnancies for females (Finer & Henshaw, 2006). Risky drinking is also quite rampant amongst students with self-esteem and body image concerns. It is documented that college students overindulge through binge drinking and driving under alcohol use so as to remain popular among their peers hence the ability to deal with their inadequacies (Backer-Fulghum et al., 2012). Body image dissatisfaction, low self-esteem, risky sexual and drinking behaviors all form a common pathway leading to low academic performance among college students. This finding was noted to be common among female college students (Sharma & Agarwala, 2013).

## **2.7 Conceptual Framework**

This study assessed the level of body image satisfaction and the relationship between body image, self-esteem and health-related behaviors among undergraduate university students at Moi University's Eldoret West campus. The study hypothesized that there is a direct relationship between sociodemographic characteristics and a student's personal assessment of body image. Specifically, body mass index (BMI) was used as an objective tool for body image assessment as opposed to contour drawing rating scale (CDRS) and multidimensional body self-relations questionnaire (MBSRQ) which are subjective tools. Sociodemographic characteristics and BMI were also hypothesized to directly affect a student's self-esteem, which was assessed using the Rosenberg Self-esteem Scale. There was a mediating relationship between Sociodemographic characteristics, body image assessment and students' health-related behavior as well as sociodemographic characteristics, self-esteem and health-related behavior. Both multidimensional body self-relations questionnaire (MBSRQ) and psychological general wellbeing index (PGWBI) were used to assess the students' health-related behavior. In summary, sociodemographic characteristics and BMI were the independent variables; Body-Image Assessment and Self-esteem were mediating variables while health-related behavior was the dependent variable as demonstrated on Figure 1.



**Figure 2.1: Conceptual Framework**

## **CHAPTER THREE**

### **3.0 METHODOLOGY**

#### **3.1 Study Setting**

This study was conducted at the Moi University, Eldoret West Campus in Eldoret, Kenya just before it was merged into the remaining three campuses. Moi University is one of the leading public universities in Kenya currently comprising of three campuses of which two (Main campus and Town Campus) are within Eldoret town and one (Odera Akang'o Campus) outside the town. At the time of the study, Eldoret West Campus previously known to be purely for privately sponsored students had both self-sponsored and government-sponsored students, a pattern that was replicated across the country among other privately sponsored universities as per the government's policy aiming at decongesting public universities. Eldoret West Campus is no longer operational as it was merged into the other three campuses and its student body redistributed across the other campuses. Eldoret West Campus was situated in Uasin Gishu County, Rift Valley region of Kenya along Eldoret Uganda Road, just besides Kenya Pipeline Company Eldoret. It comprised of three schools; School of Business Management, School of Education and School of Arts.

#### **3.2 Study Design**

This study adopted a cross-sectional study design to determine the level of body image satisfaction, self-esteem, and associated health related behaviors among Moi University West Campus students.

### 3.3 Sample Size

This study adopted the Fisher's formula to calculate the sample size (Rosner, 2010):

$$n = \frac{z^2 qp}{d^2}$$

Where:  $z$  = standard normal deviate for  $\alpha$  at 95% confidence,  $Z_{1-\alpha/2} = 1.96$

$p$  = estimated proportion of body image dissatisfaction (0.49) from previous study done by (Frederick, Buchanan, Sadehgi-azar, et al., 2007).

$q = 1 - p$  (0.51)

$d$  = level of precision (margin of error) at 5% (0.05);

Therefore, the sample size ( $n$ ) obtained was 384. To take care of incomplete response, an additional 10%, the sample size will be further increased to 423 respondents.

### 3.4 Study Population

Moi University Eldoret West Campus had 4,005 students enrolled at the time of study as undergraduate students between year 1 and 4 of study. Of these, 914 were first years, 939 were second year students, 870 third years and 1,282 fourth year students.

With a calculated sample size of 423, the potential study participants were stratified based on their academic year of study as follows:

First year:  $(914/4005)*423 = 96.5$                       ~97

Second year:  $(939/4005)*423 = 99.2$                       ~99

Third year  $(870/4005)*423 = 91.9$                       ~92

Fourth year  $(1282/4005)*423 = 135.4$                       ~135

Therefore,      $97+99+92+135$                       =                      423

### **3.5 Sampling Procedure**

A two-stage stratified random sampling technique was used to identify potential study participants. To achieve this, the student population at Moi University was first categorized into its four campuses namely Main campus, Town Campus, Eldoret West Campus and Odera Akang'o Campus and Eldoret West campus selected randomly among the five campuses. The second stage was to select potential study participants by categorizing the students based on their academic year of study to ensure both inclusivity and representativeness of the university students at Moi University, Eldoret West Campus. After grouping the students by their academic year, a simple random sampling technique was used by placing the respective admission numbers in a jar and picking them randomly. In the event a student declined, an alternative admission number was picked and the process repeated for each strata based on academic years.

### **3.6 Eligibility Criteria**

#### **3.6.1 Inclusion Criteria**

- i. Being an undergraduate student at Moi University Eldoret West Campus.
- ii. Aged 18 years or older.
- iii. Should be in session at the time of the study.

#### **3.6.2 Exclusion criteria**

- i. Any student with a severe mental/physical illness or recovering from the condition.

### **3.7 Data Collection Tools and Techniques**

This study used multiple tools to assess students perception of their body image, self esteem and health-related behavior. These tools were all combined into a self-administered questionnaire. Each questionnaire comprised of five sections namely socio-demographic section, Multidimensional Body Self-Relations Questionnaire (MBSRQ), Contour Drawing Rating Scale (CDRS), Rosenberg Self-Esteem Scale (RSES), and Psychological General Well-Being Index (PGWBI) as shown on Appendix II. Body-mass index was obtained by assessing the students weight (in Kilograms) and height (in squared meters). The weight was obtained using a calibrated digital weighing scale without shoes and any heavy clothing on , while the height was measured using a standard meter rule (obtained from the same suppliers as those for the national hospital's nutrition department) with no shoes on. The study was conducted over a duration of 12 weeks enrolling approximately 35 students per week.

### **3.8 Data management and Analysis**

Once a participant's data was collected into the questionnaires, it was safely kept in a locked cabinet awaiting data entry. Data was entered into a statistical package for social sciences (SPSS) version 24 database prior to analysis. Double data entry was performed to ensure that there were no incomplete sections on the dataset as well as ensure reliability and accuracy of the data entered.

Descriptive statistical analysis techniques were then adopted to present categorical data (academic year, gender, participants responses) as frequency (with corresponding proportions) while continuous data was summarized as mean (with corresponding standard deviation). Inferentially, Pearson test of association as well as Fischer's exact test (where Pearson test was statistically significant) were used to test for the



association between predictor (independent) variables and outcome (dependent) variables. The predictors considered to affect body image, self esteem and health-related behaviour were: gender, age, academic year of study, religion, marital status, number of children, level of income, history of smoking and alcohol consumption. Furthermore, a test of association ( $p \leq 0.05$ ) was conducted to determine the effect of self-esteem and body image on health related behaviour as well as body image on self esteem. Lastly, odds ratios were computed to compare the effect of gender and BMI on body image, self esteem and health-related behavior indicators at 95% confidence interval.

**Table 3.1: Data Analysis Matrix**

Objective	Independent variables	Dependent variables	Statistical tests
1. Satisfaction level of Moi University West Campus students with their body image.		Body Image i. CDRS ii. MBSRQ	Descriptive Statistics (frequency with corresponding proportions)
2. Relationship between satisfaction level of body image and self-esteem	Body Image i. CDRS ii. MBSRQ  Body Mass Index (BMI)	Self-esteem (RSES)	i. Pearson test of association ii. Fischer's exact test (where Pearson test was statistically significant in low counts <5)
3. Relationship between body image, self-esteem and Sociodemographic characteristics.	Sociodemographic Characteristics	Body Image i. CDRS ii. MBSRQ  Self-esteem (RSES)	i. Pearson test of association ii. Fischer's exact test (where Pearson test was statistically significant in low counts <5) iii. Odds Ratio (95% CI:)
4. Association between body image, self-esteem and an individual's health-related behaviors.	Body Image i. CDRS ii. MBSRQ  Self-esteem (RSES)  Body Mass Index (BMI)	Health-Related Behavior i. MBSRQ ii. PGWBI	i. Pearson test of association ii. Fischer's exact test (where Pearson test was statistically significant in low counts <5) iii. Odds Ratio (95% CI:)

### **3.9 Ethical Considerations**

This study obtained ethical approval from the Institutional Research and Ethics Committee of Moi University School of Medicine. A letter authorizing the researcher to collect student data from the Eldoret West Campus was obtained from the Deputy Vice Chancellor in charge of Academics Research and Extension Services (DVC-AR&E) at Moi University; prior to participants' enrollment. A written informed consent was then obtained from each study participant after explaining the scope, objectives and study methods. Participants' privacy and confidentiality was maintained by deidentifying all the study participants (using only study numbers and not personal identifiers), storing data in locked cabinets and using password protected databases accessible to only the research team. Participants had the autonomy to join or drop-out at any point if they were not comfortable with the study procedure. Research findings will be disseminated to the study participants, management of Moi University as well as presented in scientific conferences or published in high impact factor peer-reviewed journals.

## CHAPTER FOUR

### 4.0 RESULTS

#### 4.1 Participants Sociodemographic Characteristics

This study enrolled 423 students from Moi University's Eldoret West Campus, however, two participants did not complete all the questions on the self-administered questionnaire, leaving only 421 with complete responses. Of the 421, slightly more than half (53.4%) were aged between 18 to 21 years, 218 (51.8 %) were female, while the highest proportion (32.1%), by academic year, were fourth year students. Nearly all (95%) of the students professed the christian faith, while 370 (87.9%) were not married and 219 (58.0%) depended on their parents or guardians for financial support (Table 1).

**Table 4.1: Participants Sociodemographic Characteristics**

<b>Sociodemographic Characteristic</b>	<b>n (%)</b>	
<b>Gender</b>	Male	203 (48.2)
	Female	218 (51.8)
<b>Age (Years)</b>	18-21 years	225 (53.4)
	22-25 years	180 (42.8)
	26-29 years	11 (2.6)
	>=30 years	5 (1.2)
<b>Academic Year of study</b>	First	96 (22.8)
	Second	100 (23.7)
	Third	90 (21.4)
	Fourth	135 (32.1)
<b>Religion</b>	Christian	400 (95.0)
	Muslim	20 (4.8)
	Hindu	1 (0.2)
<b>Marital Status</b>	Single	370 (87.9)
	Married	21 (5.0)
	Cohabiting (Living-together)	24 (5.7)
	Separated/Divorced	6 (1.4)
<b>Source of Income</b>	Student Loan	165 (39)
	Study Leave	8 (2.0)
	Scholarship	4 (1.0)
	Parent/Guardian	219 (58.0)

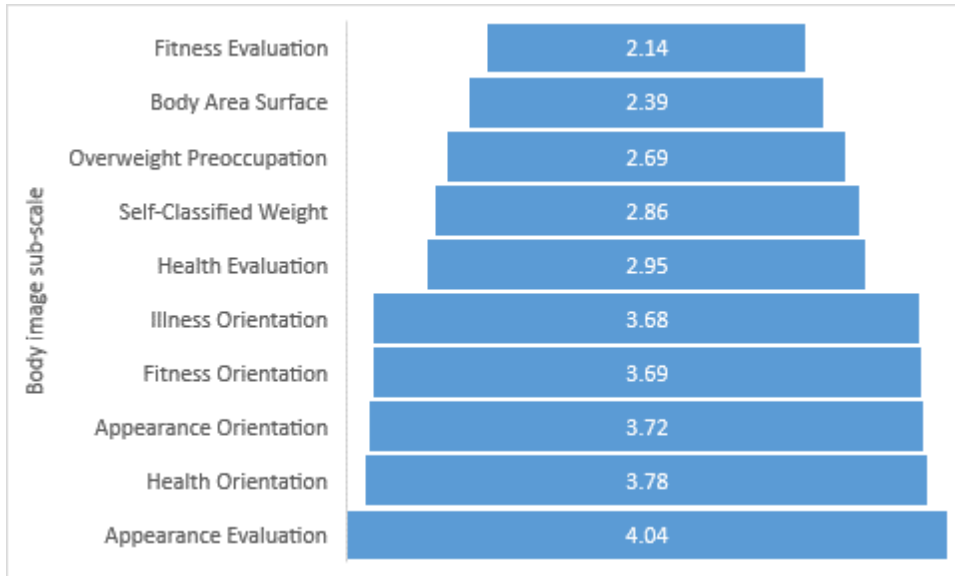
## 4.2 Satisfaction Level of Moi University West Campus Students with their Body Image

This study used multiple indicators to assess the satisfaction level with the body image of the undergraduate students at Moi University West Campus. These indicators included Appearance Evaluation (APPEV), Appearance Orientation (APPOR), Contour Drawing Rating Scale (CDRS) and Self-classified Weight (WTCLASS). As shown in table 2, majority of the students 344 (81.7%) were satisfied with their appearance, most 317 (75.3%) paid attention about their appearance, while 311 (73.9%) classified themselves as having a normal weight. However, more than half 258 (61.3%) were dissatisfied with their Contour Drawing Rating Scale (CDRS), as shown on Table 2.

**Table 4.1: Satisfaction level with body image**

<b>Satisfaction Level Indicator</b>	<b>Response</b>	<b>n (%)</b>
<b>Appearance Evaluation (APPEV)</b>	Neutral	72 (17.1)
	Satisfied with appearance.	344 (81.7)
	Dissatisfied with appearance	5 (1.2)
<b>Appearance Orientation (APPOR)</b>	Pays attention about appearance.	317(75.3)
	Neutral	98 (23.3)
	Apathetic about appearance	5 (1.2)
<b>Contour Drawing Rating Scale (CDRS)</b>	Satisfied	163 (38.7)
	Dissatisfied	258 (61.3)
<b>Self-classified (WTCLASS)</b>	<b>Weight</b> Overweight	57 (13.5)
	Normal weight	311 (73.9)
	Underweight	53 (12.6)

This satisfaction level was also comparable to the mean scores for the satisfaction indicators as shown in figure 2 below.



**Figure 4.2: Mean body image satisfaction sub-scales**

### **4.3 Comparison between participants' BMI status, self-classified weight (WTCLASS) and overweight preoccupation (OWPREOC).**

Participants self-classified their weight as either normal or abnormal. When the self-classified weight (WTCLASS) was compared to their body mass index (BMI) status, it was noted that most participants who thought that they had a normal weight (69.5%) were more likely to have a normal body mass index (OR= 1.295; 95% CI: 1.072, 1.564); a relationship that was statistically significant ( $p=0.004$ ). Participants with fat anxiety were more likely (OR=1.047; 95% CI: 0.728, 1.506) to have an abnormal BMI compared to those without fat anxiety, however, this relationship was not statistically significant ( $p=0.884$ ). Participants who were satisfied with their CDRS had a significantly ( $p=0.009$ ) increased likelihood of having a normal BMI status (AOR=1.207; 95% CI: 1.054, 1.383). About three quarters (73%) of those satisfied with CDRS had a normal BMI, whereas only 27% showed an abnormal BMI; a difference that was statistically significant ( $p= 0.009$ ) as demonstrated on table 3.

**Table 4.2: Comparison between participants' BMI status and self-classified weight, overweight preoccupation and contour drawing rating scale.**

Indicator		BMI		Total	OR (95% CI:) / p-value
		Abnormal (%)	Normal (%)		
<b>WTCLASS</b>	Normal	95 (30.5)	216 (69.5)	311	OR=1.295 (1.072, 1.564) p= <b>0.004</b>
	Abnormal	51 (46.4)	59 (53.6)	110	
<b>OWPREOC</b>	Fat Anxiety	22 (36.1)	39 (63.9)	61	OR = 1.047 (0.728, 1.506) p=0.884
	No Fat Anxiety	124 (34.4)	236 (65.6)	360	
<b>CDRS</b>	Satisfied	44 (27.0)	119 (73.0)	163	OR=1.207 (1.054,1.383) p= <b>0.009</b>
	Dissatisfied	102 (39.5)	156 (60.5)	258	

*Legend: WTCLASS: Self-classified weight; OWPREOC: Overweight preoccupation; CDRS-Contour drawing rating scale.*

Furthermore, more than one-third (38.7%; n=163) of the participants were satisfied with their contour drawing rating scale. Of the 258 (61.3%) who were not satisfied with their CDRS, 209 (81%) desired to be fat while 49 (19%) desired to be thinner.

#### 4.4 Relationship between satisfaction level of body image and self-esteem

Majority of the students who were satisfied with their appearance, paid attention about their appearance and self-classified their weight as normal were found to have a high self-esteem. However, those who were not satisfied with their contour drawing rating scale still had a high self-esteem (Table 4). Despite this, none of these relationships was statistically significant.

**Table 4.3: Relationship between satisfaction level of body image and self-esteem**

Satisfaction Level Indicator	Response	Self-Esteem		p-value
		High	Low	
<b>Appearance Evaluation (APPEV)</b>	Neutral	68 (94.4%)	4(5.6%)	0.086
	Satisfied with appearance.	339 (98.5%)	5(1.5%)	
	Dissatisfied with appearance	5 (100%)	-	
<b>Appearance Orientation (APPOR)</b>	Pays attention about appearance.	311 (98.1%)	6 (1.9%)	0.741
	Neutral	95 (96.9%)	3 (3.1%)	
	Apathetic about appearance	5 (100%)	-	
<b>Contour Drawing Rating Scale (CDRS)</b>	Satisfied	161 (98.8%)	2 (1.2%)	0.304
	Dissatisfied	251 (97.3%)	7 (2.7%)	
	Overweight	57 (100%)	-	
<b>Self-classified Weight (WTCLASS)</b>	Normal weight	305 (98.1%)	6 (1.9%)	0.108
	Underweight	50 (94.3%)	3 (5.7%)	
	Content with most areas of the body	46 (93.9%)	3 (6.1%)	
<b>Body Area Satisfaction Scale (BASS)</b>	Neutral	124 (94.7%)	7 (5.3%)	0.799
	Unhappy with size or appearance	232 (96.3%)	9 (3.7%)	

#### 4.5 Effect of sociodemographic characteristics on body image and self-esteem.

This study determined that there was no statistically significant association between participants' sociodemographic characteristics (gender, age, academic year of study, religion, marital status, number of children, income, alcohol use, and history of smoking) and their self-esteem. However, when gender was compared to body image and health-related behavior scales, it was noted that there was a statistically significant association between gender and appearance evaluation ( $p=0.028$ ), appearance orientation ( $p<0.001$ ), overweight preoccupation ( $p=0.014$ ), weight classification ( $p=0.001$ ), contour drawing rating scale ( $p=0.001$ ), anxiety levels ( $p=0.001$ ) and perception of positive wellbeing ( $p=0.021$ ). Specifically, female students were more likely (OR=1.122, 95% CI: 1.023, 1.231) to be satisfied based on their appearance evaluation, appearance orientation, self-classified weight and overweight preoccupation compared to males. The male participants were however more likely to be satisfied with their contour drawing rating scale (OR = 1.500; 95% CI: 1.173, 1.918) and had an increased likelihood of a positive wellbeing (OR = 1.169; 95% CI: 1.023, 1.335). The results additionally revealed that 50% more males had anxiety (OR = 1.500; 95% CI: 1.173, 1.918) as compared to their female counterparts. (Table 5).

**Table 4.4: Effect of Gender on Body Image, Self-Esteem, and Health-Related Behavior.**

<b>Indicator</b>	<b>Odds Ratio (95% CI)</b>	<b>p-value</b>
<b>Appearance Evaluation</b>	1.122 (1.023, 1.231)	<b>0.028</b>
<b>Appearance Orientation</b>	1.333 (1.187, 1.497)	<b>&lt;0.001</b>
<b>Overweight preoccupation (Fat Anxiety)</b>	1.538 (0.951, 2.489)	<b>0.014</b>
<b>Weight Classification (WTCLASS)</b>	1.229 (1.097, 1.378)	<b>0.001</b>
<b>CDRS</b>	1.500 (1.173, 1.918)	<b>0.001</b>
<b>Anxiety</b>	1.500 (1.173, 1.918)	<b>0.001</b>
<b>Positive Wellbeing</b>	1.169 (1.023, 1.335)	<b>0.021</b>



#### 4.6 Association between body image, self-esteem, and health-related behaviour.

This study identified anxiety, depression, positive wellbeing, self-control, good general health and vitality as the main indicators of psychological general well-being index (PGWBI). When PGWBI indicators were compared with BMI status, there was a statistically significant association between anxiety ( $p=0.009$ ) and having an abnormal BMI as shown on Table 6.

**Table 4.5: Comparison between PGWBI Indicators and BMI Status (N=421)**

PGWBI Indicator		BMI Status		Total	p-value
		Abnormal	Normal		
<b>PGWBI</b>	Positive Wellbeing	67 (36.6)	116 (63.4)	183	0.750
	Moderate Distress	46 (33.8)	90 (66.2)	136	
	Severe Distress	33 (32.4)	69 (67.6)	102	
<b>Anxiety</b>	Yes	44 (27.0)	119 (73.0)	163	<b>0.009</b>
	No	102 (39.5)	156 (60.5)	258	
<b>Depression</b>	Yes	45 (36.6)	78 (63.4)	123	0.653
	No	101 (33.9)	197 (66.1)	298	
<b>Positive Wellbeing</b>	Yes	106 (37.3)	178 (62.7)	284	0.103
	No	40 (29.2)	97 (70.8)	137	
<b>Self-Control</b>	Yes	109 (35.9)	195 (64.1)	304	0.426
	No	37 (31.6)	80 (68.4)	117	
<b>Good General Health</b>	Yes	105 (34.5)	199 (65.5)	304	0.923
	No	41(35.0)	76 (65.0)	117	
<b>Vitality</b>	Yes	121 (34.2)	233 (65.8)	354	0.675
	No	25 (37.3)	42 (62.7)	67	

This study did not find any statistically significant association between self-esteem (assessed using the Rosenberg scale) and body image (assessed using the multidimensional self-relations questionnaire and the contour drawing rating scale). Appearance evaluation ( $p=0.086$ ), Appearance Orientation ( $p=0.741$ ), Body Area Satisfaction Scale ( $p=0.896$ ), Self-classified Weight ( $p=0.108$ ) and contour drawing rating scale ( $p=0.304$ ) did not significantly affect Rosenberg scale findings.

When body image indicators were cross-tabulated against the indicators for health-related behavior, appearance evaluation was significantly associated with fitness

evaluation ( $p=0.006$ ), fitness orientation ( $p=0.013$ ), health orientation ( $p=0.001$ ) and illness orientation ( $0.010$ ). On the other hand, appearance orientation was significantly associated with fitness orientation ( $p=0.002$ ), health orientation ( $p<0.001$ ) and illness orientation ( $p<0.001$ ). There was also a statistically significant association seen between weight classification and fitness orientation ( $p=0.043$ ) as demonstrated on table 7.

**Table 4.6: Association between Body Image Indicators and Health-Related Behavior**

<b>Body Image Indicator</b>	<b>Health Related Behavior</b>	<b>p-value</b>
<b>Appearance Evaluation (APPEV)</b>	Fitness Evaluation (FITEV)	<b>0.006</b>
<b>Appearance Evaluation (APPEV)</b>	Fitness Orientation (FITOR)	<b>0.013</b>
<b>Appearance Evaluation (APPEV)</b>	Health Orientation (HLTHOR)	<b>0.001</b>
<b>Appearance Evaluation (APPEV)</b>	Illness Orientation (ILLOR)	<b>0.010</b>
<b>Appearance Orientation (APPOR)</b>	Fitness Orientation (FITOR)	<b>0.002</b>
<b>Appearance Orientation (APPOR)</b>	Health Orientation (HLTHOR)	<b>&lt;0.001</b>
<b>Appearance Orientation (APPOR)</b>	Illness Orientation (ILLOR)	<b>&lt;0.001</b>
<b>Self-classified (WTCLASS)</b>	<b>Weight</b> Fitness Orientation (FITOR)	<b>0.043</b>

When contour drawing rating scale (CDRS) as a body image indicator was compared to health-related behaviors of the undergraduate students enrolled in this study, the CDRS findings were significantly associated with overweight preoccupation ( $p=0.035$ ) and anxiety levels ( $p<0.001$ ) as shown on Table 8.

**Table 4.7: Association between Body Image (CDRS) and Health-Related behavior**

<b>Health Related Behavior</b>	<b>p-value</b>
<b>Overweight Preoccupation (OWPREOC)</b>	<b>0.035</b>
<b>Fitness evaluation</b>	0.504
<b>Fitness Orientation</b>	0.492
<b>Health Evaluation</b>	0.363
<b>Health Orientation</b>	0.822
<b>Illness Orientation</b>	0.289
<b>Psychological General well-being index (PGWBI)</b>	0.351
<b>Anxiety</b>	<b>&lt;0.001</b>
<b>Depression</b>	0.721
<b>Positive Well-being</b>	0.053
<b>Self-Control</b>	0.337
<b>General health</b>	0.408
<b>Vitality</b>	0.573

Self-esteem assessed using the Rosenberg scale was significantly associated ( $p=0.032$ ) with overweight preoccupation (OWPREOC) which is a health-related behavior (Table 9).

**Table 4.8: Self-esteem and Health-Related Behavior**

<b>Health Related Behavior</b>	<b>p-value</b>
<b>Fitness Evaluation (FITEV)</b>	0.217
<b>Fitness Orientation (FITOR)</b>	0.924
<b>Health Orientation (HLTHOR)</b>	0.624
<b>Illness Orientation (ILLOR)</b>	0.234
<b>Health Evaluation (HLTEVAL)</b>	0.791
<b>Overweight preoccupation (OWPREOC)</b>	<b>0.032</b>
<b>Psychological General well-being index (PGWBI)</b>	0.285
<b>Anxiety</b>	0.304
<b>Depression</b>	0.079
<b>Positive Well-being</b>	0.441
<b>Self-Control</b>	0.706
<b>General health</b>	0.708
<b>Vitality</b>	0.690

## CHAPTER FIVE

### 5.0 DISCUSSION

#### 5.1 Satisfaction Level of Moi University West Campus Students with their Body Image

The study set out to assess level of satisfaction of Moi University West Campus Students with their body image. The mean satisfaction level with appearance evaluation among the study participants enrolled in this study was 4.04 ( $\pm 0.68$ ). This shows that majority of participants had a good attitude towards their physical appearance whereby attitude refers to their thoughts, feelings and beliefs about their physical selves. This finding matched that of Denver, Colorado in the United States of America (Hamilton, 2008) at 3.36 ( $\pm 0.94$ ) and Nigeria (Otakpor & Ehimigbai, 2016a) at 3.86 ( $\pm 0.87$ ). The findings were however way higher than that reported in the Netherlands (van de Grift et al., 2016) at 2.62 ( $\pm 0.73$ ). The difference between the current study and the Dutch study (Grift et al., 2016) is that the Dutch study comprised of trans-sexual men who were undergoing mastectomy as part of their medical transition as opposed to this study which did not focus on the sexual orientation of the study participants. Furthermore, the Dutch study (Grift et al., 2016) adopted a prospective design whereas the current study was cross-sectional study. Variations in study designs have been associated with difference in study outcomes.

Appearance orientation which shows the extent of investment by an individual in his or her appearance was the second indicator of body image satisfaction with a mean value of 3.72 ( $\pm 0.48$ ). A finding similar to this was found in the study done by Hamilton in the United States of America (Hamilton, 2008) 3.43 ( $\pm 0.65$ ) and the Netherlands study by Van de Grift ( Grift et al., 2016) at 3.29 ( $\pm 0.72$ ). In a study conducted at the Midwestern University in the United States of America (Gitimu et al., 2016) that employed the contour drawing rating scale to measure body image

dissatisfaction, 68.6% of the students reported an ideal body shape that was smaller than their current body shape, a sign of dissatisfaction with their body image. This is three-fold more than the current study's finding of 19% of the university students enrolled who desired to be thinner. A study done among slum dwellers in Nairobi Kenya (Ettarh et al., 2013) also indicates preference for a larger body size for both genders. This could be attributed to the African culture that associates thinness to poor socioeconomic well-being (Muthuri et al., 2014; Onywera, 2010b). For example, curvy women are considered beautiful while men who appear fat are perceived to be wealthier and therefore accorded higher social status.

## **5.2 Relationship between satisfaction level of body image and self-esteem**

This study also set out to determine the relationship between satisfaction level of body image and self-esteem. The study determined that nearly all the study participants who were satisfied with their appearance, invested in their appearance, and self-classified their weight as normal had a high self-esteem. Dissatisfaction with body image has been previously associated with low self-esteem (Presnell et al., 2004). This finding was also confirmed by other authors who reported a direct relationship between body image dissatisfaction and low self-esteem (Nemeth et al., 2009). Furthermore, there is a statistically significant association between unhealthy eating behavior as a result of dissatisfaction with body image and low self-esteem (Nemeth et al., 2009). Cristiana Pop also found a direct relationship between body mass index versus body image with a low self-esteem prevalence of 1.87% (Pop, 2016).

On the other hand, in an exploration of body image perception among African American population residing in the United States of America, there was no statistically significant association between body weight dissatisfaction, body size silhouettes and self-esteem (Amburgey, 2009). This could be attributed to other

factors such as ability to exercise and availability of funds to access various fitness programs.

### **5.3 Effect of sociodemographic characteristics on self-esteem and body image.**

This study examined age, gender, year of study, religion, marital status, number of children, income, alcohol use and smoking as sociodemographic variables. The current study did not report any statistical association between the participants' sociodemographic characteristics and self-esteem. This finding is similar to a British study (Furnham et al., 2010) where no statistically significant difference was reported between gender and self-esteem. However, the finding contrasts studies conducted in India (Chaudhari et al., 2017), Egypt (Elsherif & Abdelraof, 2018), New Zealand (Griffiths et al., 2015) and Brazil (Ferrari et al., 2013). In India, the authors (Chaudhari et al., 2017) found a statistically significant difference between gender and self-esteem. In Egypt (Elsherif & Abdelraof, 2018), there was a statistically significant difference between the participants self-esteem and academic year of study. This study did not control for probable confounders such as students' income levels which often changes with advancement in the academic year of study and further affect the students' self-esteem. This could explain the difference in self-esteem among university students in Egypt and those enrolled in the current study. In a study conducted in New Zealand, the authors (Griffiths et al., 2015) reported a statistically significant difference between the students' gender and self-esteem, their academic year of study also affected their self-esteem perception. The gender differences with respect to self-esteem often begin at a very young age because of differences in gender roles and physical development, impacting adolescents' body image and self-esteem differently between genders (Golan, 2015). Therefore, as

students advance in age and academic year of study, their self-esteem perception could be affected by their gender differences.

Gender was statistically significantly associated with body image indicators such as appearance evaluation ( $p=0.028$ ), appearance orientation ( $p<0.001$ ), self-classified weight ( $p=0.001$ ) and contour drawing rating scale ( $p=0.001$ ) in the current study. Female participants had a more positive evaluation (OR=1.122, 95% CI: 1.023, 1.231) of their appearance compared to their male counterparts. Previous studies (Noser & Zeigler-Hill, 2014) have indicated that women have a greater likelihood to base their perception of self-worth on their appearance and are more likely to monitor their bodies more closely. From the findings reported in Dublin-Ireland, female students were significantly ( $p<0.001$ ) more likely to have a body shape concern compared to their male counterparts (Mc Donald, 2013). These findings and that reported in the current study clearly indicate gender-differences in college students' perception of both their appearance evaluation and appearance orientation.

Being overweight is associated with body image dissatisfaction among more females than males (Bibiloni et al., 2017). Research has shown that higher BMI is associated with increased vigilance as far as weight monitoring is concerned by the adolescents (Caccavale et al., 2012; Calzo et al., 2012) such that the effects of high body mass index in adolescents gives rise to body image concerns in young adulthood (Bucchianeri et al., 2013; Quick et al., 2013). A large proportion of men and women have misconceptions regarding their weight to an extent that those that have normal weight or body mass index still perceive themselves as being underweight or overweight as evidenced in this study and that conducted in Spain among a Mediterranean population (Bibiloni et al., 2017). This could emanate from them



comparing themselves to their peers or how they perceived their body image in the past.

While female participants had a higher likelihood of being satisfied with their appearance evaluation, this study reports that male participants had an increased likelihood of being satisfied with their contour drawing rating scale (OR = 1.500; 95% CI: 1.173, 1.918) as well as an increased likelihood of a positive wellbeing (OR = 1.169; 95% CI: 1.023, 1.335). Contour Drawing Rating Scales (Furnham et al., 2010) are used to assess body dissatisfaction of the male and female figure from extremely thin to obese. This is because of the perceived gender-based difference in the rating of contour drawings as some individuals may desire to be either thinner or bigger. In a study conducted at the university college London (Furnham et al., 2010), it was reported that 29.4% of the male participants desired to gain weight while 69% of the female participants desired to lose their weight. Similarly, another study (Frederick, et al., 2007) showed an increased desire for more musculature by the males in three countries (United States, Ukraine and Ghana). This statistically significant association is consistent with the findings of this study where gender was associated with differences in the assessment of contour drawing rating scales. As the females were keener on their appearance and showed greater ability to invest on their appearance (appearance orientation), men were more inclined towards the contour drawing rating scale. Social media images constantly portray the female body ideal as a thinner version hence the desire to lose weight by female participants while the male ideal body is shown to possess enhanced musculature hence the desire for weight gain by male participants. Social media therefore plays a huge role in influencing body image ideals amongst male and female adolescents and young adults.

#### **5.4 Association between body image, self-esteem, and health-related behavior.**

This study also sought to determine the association between body image, self-esteem and health-related behavior. The study reports that there was no statistically significant association between body image indicators and self-esteem. This finding is inconsistent with that reported in other countries. In Malaysia (Rosli et al., 2012), there was a statistically significant association between the participants Body Area Satisfaction Scale (BASS) outcome and their self-esteem. The variance could be attributed to the difference in sample size and data collection tools. The Malaysian study (Rosli et al., 2012) used the Rosenberg Self-Esteem Scale, Perceived Stress Scale, and the Body Area Satisfaction Scale (BASS) whereas this study used multiple comprehensive scales during data collection. Furthermore, in a study conducted in Tehran-Iran (Shahyad et al., 2015), there was a statistically significant association between the participants' body image assessment and their self-esteem. Although this study and that conducted in Iran used almost similar data collection tools, the difference was that the Iranian study adopted sociocultural attitudes towards appearance questionnaire and Physical Appearance Comparison Scale that were different from the ones used in the current study. In addition, the Appearance Evaluation Subscale used in the Iranian study is a subscale among the ten subscales of the Multidimensional Body Self-Relations Questionnaire used in the current study, a tool that comprehensively assessed the attitudinal aspects of body image as well as health-related behaviors among college students. Similar to the findings reported in Iran, a website survey conducted in the United States of America; there was a statistically significant association between body image indicators and self-esteem. Among 302 female undergraduate students in Thailand (Pisitsungkarn et al., 2014), a statistically significant association was reported between all the body image indicators selected and self-esteem. Lastly, in India (Chaudhari et al., 2017), there was

a statistically significant association between the body image indicators and self-esteem among 193 college students.

In past research, results have consistently demonstrated that research on health-related behavior such as engagement in physical activity is associated with a better body image (Breuer, 2013). In the current study, appearance evaluation was significantly associated with fitness evaluation ( $p=0.006$ ) and fitness orientation ( $p=0.013$ ), while appearance orientation was significantly associated with fitness orientation ( $p=0.002$ ). There was also a statistically significant association seen between weight classification and fitness orientation ( $p=0.043$ ). Overweight preoccupation ( $p=0.035$ ) and anxiety ( $p<0.001$ ) were significantly associated with the participants' perception of their body image. There was also a statistically significant association between anxiety ( $p=0.009$ ) and having an abnormal BMI, a major component of body image. This could be as a result of peer pressure, peer influence, body shaming or bullying as well as social comparisons.

Overweight preoccupation is a subscale that assesses fat anxiety, weight vigilance, dieting and eating restraints (Otakpor & Ehimigbai, 2016a). In the Netherlands, the authors determined that overweight preoccupation significantly affected the participant's body image perception (van de Grift et al., 2016). In a Mexican study on body dissatisfaction and its association with health-related factors amongst rural and urban adolescents, body dissatisfaction was positively associated with higher fat mass ( $\beta = 0.15$ ;  $p < 0.001$ ) (Rivera-ochoa et al., 2021). This is similar to the current study where overweight preoccupation, fat anxiety being an important component, was significantly associated to body image perception. Among Korean high school students ( Lee & Lee, 2016), body image distortion was significantly associated with sadness and suicidal ideation.

This study asked the participants general anxiety questions about their perception of their body image. This operationalized definition of anxiety is in tandem with the Diagnostic and Statistical Manual of Mental Disorders V definition of anxiety (Association, 2018). Anxiety disorders with body image have also been associated with eating disorders, lower self-esteem and general body dissatisfaction (Mc Donald, 2013).

Previous studies have noted that anxiety impacts the college life of students transitioning to post-secondary education and this necessitates more studies to understand the gravity and extent of the problem (Beiter et al., 2015). Furthermore, negative perceptions of body image are linked with increased likelihood of depression, anxiety, low satisfaction in life, low self-esteem and feelings of inferiority amongst the adolescents that may result in significant impairment of social, occupational and educational functioning (Goswami et al., 2012). This could be due to constant peer influence, peer pressure and social comparisons and extensive social media use amongst university students.

This study determined that overweight preoccupation as a health-related behavior was significantly ( $p=0.032$ ) associated with self-esteem. A study done in the United Kingdom ( Lee et al., 2017) found that there was overweight preoccupation in bullied adolescents as well as in the bullies themselves. In the bullies, the overweight preoccupation is important to maintain their level of attractiveness and hence dominance over their victims who on the other hand are psychologically impaired with a resultant restraint eating behavior, excessive exercise habits or even decreased desire to exercise.

## CHAPTER SIX

### 6.0 CONCLUSIONS, RECOMMENDATIONS AND STUDY LIMITATION

#### 6.1 Conclusion

This study determined the level of satisfaction of Moi University West Campus undergraduate students with their body image, the relationship between body image satisfaction level with self-esteem and sociodemographic characteristics as well as the association between body image, self-esteem and an individual's health-related behaviors. Majority of the study participants 81.7% were satisfied with the self-attitudinal aspect of their body image on the Multidimensional Body Self-Relations Questionnaire (MBSRQ) based on the appearance evaluation but dissatisfied with their global aspect of body image with 61.3% of the participants being dissatisfied on the Contour Drawing Rating Scale (CDRS) and this was gender specific. The Multidimensional Body Self-Relations Questionnaire (MBSRQ) also measured satisfaction with specific areas of the body using the Body Area Satisfaction Scale (BASS) whereby 57.2% of the participants were dissatisfied with specific areas of their bodies such as face, hair, waist, hips, legs, chest or breasts, amongst others.

Specifically, nearly all students who were satisfied with their body image had a high self-esteem. There were statistically significant associations between gender, body image and health-related behaviors, a relationship that was gender specific as well. Findings showed that female participants were significantly more satisfied with both their appearance evaluation and orientation compared to their male compatriots who in turn were satisfied with their contour drawing rating scale (CDRS) and had a higher proportion of positive wellbeing.

There was significant association between body image and health-related behaviors (overweight preoccupations and anxiety) whereby anxiety further predisposed the students to having an abnormal body mass index. This study also found a significant relationship between self-esteem and health-related behaviours (overweight preoccupation). A significant number of participants had overweight preoccupation with a mean score of 2.69 implying fat anxiety, weight vigilance, dieting and eating restraint, if left unchecked these young people are likely to develop eating disorders, and this necessitates a study in eating disorders among young people especially being a less studied area locally. There was however no statistically significant association between the participant's sociodemographic characteristics and self-esteem as well as between body image and self-esteem.

On the comparison between participant's BMI status and self-classified weight, overweight preoccupation and contour drawing rating scale, a significant number of participants displayed tendencies towards body dysmorphic disorder in that those who felt they had abnormal weight, had fat anxiety or dissatisfied on the contour drawing rating scale, 53.6%, 63.9% and 60.5% respectively were found to have a normal BMI though the relationships were not statistically significant. Self-classified weight assessed feelings that the participants had concerning their weights as well as what other people felt about the participants weights with regards to the BMI (underweight, normal weight or overweight). BMI was majorly used in this study as an objective measure as the other measures of body image, self-esteem and health-related behaviors were subjective. Body dysmorphic disorder as defined in the diagnostic and statistical manual is a preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others characterized by repetitive behaviors (e.g., mirror checking, excessive grooming, skin picking,

reassurance seeking) or mental acts (e.g., comparing his or her appearance with that of others) in response to the appearance concerns (Association, 2018). The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

## **6.2 Study Limitations and Strengths**

This study employed a self-report or a self-administered questionnaire which means study participants could only be able express what is socially approved hence social desirability bias. This was however minimized by the fact that the participants remained anonymous, and confidentiality was assured. Use of multiple comprehensive tools meant that the questionnaire was bulky. The process was therefore costly as well as time-consuming, however, the comprehensive nature of the questionnaire enabled adequate coverage of the research objectives. This study being cross-sectional in nature meant causal relations could not be drawn. The participant's weight and height used in calculating the body mass index (BMI) were not self-reported but measured by the researcher and this ensured accuracy of the results since the body mass index was an objective measure.

## **6.3 Recommendation**

This is the first large study that utilized both objective and subjective scales to assess how self-esteem and health-related behaviors affect body image perception among young undergraduate students in a public university in Kenya. The findings could be adopted through a multidisciplinary approach by students, parents, university administrators, health practitioners, non-governmental organizations and policy makers both in the education and health sector to create screening programmes and interventions for body image concerns among university students. University students should participate or be involved in contributing towards the interventions to be put in

place to ensure sustainability of the interventions. Parents are key players in body image concerns since factors such as parental and sibling comparisons and comments influence how individuals perceive their bodies and the effect and action thereafter. University administrators should put in place weight monitoring and nutritional counselling rooms to enable students make informed decisions pertaining their body image. Participants had to be sure that weight measuring was at no cost before agreeing to be enrolled in the study and it is therefore important that these services are available to the entire student body in our campuses. Psychological counselling and treatment of mental disorders resulting from body image concerns such as body dysmorphic disorder, eating disorders, anxiety and depression should be addressed by the university administrators and in a timely manner. It is important that these interventions are specific in terms of age, gender and prevailing problem or diagnosis. Health practitioners have a crucial role in ensuring timely screening and management of health-related issues such as obesity, anxiety, overweight preoccupation and eating disorders amongst others that are linked to body image dissatisfaction and low-self-esteem among young people. The Ministry of Health, Ministry of Education and Non-Governmental Organizations should run campaigns against body image ideals as suggested by both social media and the conventional media and instead educate and guide the youth and general public on self-love and proper channels to follow when dissatisfied with one's body image. Future case-control studies should be conducted to explain causality of body image concerns, low self-esteem and associated health-related behaviors among undergraduate students. Interventional studies will also play a crucial role in long-term management of body image concerns in the youth and children to curb negative health-related behaviors in adulthood since body image concerns that manifest in adults begin in childhood.



## REFERENCES

- Abadseh, A. (2013). Dissatisfaction with Body Image and Its Relationship with Depression in a Sample of Teenage Palestinian at Gaza Strip. *Islamic Journal of Educational and Psychological Studies*, 21(2), 41–61.
- Ahern, A. L., Bennett, K. M., & Hetherington, M. M. (2008). Internalization of the ultra-thin ideal: positive implicit associations with underweight fashion models are associated with drive for thinness in young women. *Eating Disorders*, 16(4), 294–307.
- Ali, S. M., & Lindström, M. (2006). Socioeconomic, psychosocial, behavioural, and psychological determinants of BMI among young women: differing patterns for underweight and overweight/obesity. *European Journal of Public Health*, 16(3), 324–330.
- Amburgey, R. K. (2009). *an Exploration of Body Image Perception*. 1–55.
- Amichai-Hamburger, Y., & Vinitzky, G. (2010). Social network use and personality. *Computers in Human Behavior*, 26(6), 1289–1295.
- Arasa, E. K. (2017). *The Predictors of Body Image Dissatisfaction among Undergraduate Students at the United States International University (USIU), Nairobi, Kenya* (Doctoral dissertation, United States International University-Africa).
- Armstrong, M. L., Roberts, A. E., Koch, J. R., Saunders, J. C., Owen, D. C., & Anderson, R. R. (2008). Motivation for contemporary tattoo removal: a shift in identity. *Archives of Dermatology*, 144(7), 879–884.
- Arshad, M., Muhammad Imran Haider Zaidi, S., & Mahmood Assistant Professor, K. (2015). Self-Esteem & Academic Performance among University Students. *Journal of Education and Practice*, 6(1), 156–162. <https://files.eric.ed.gov/fulltext/EJ1083788.pdf>
- Aryana, M. (2010). Relationship between self-esteem and academic achievement amongst pre-university students. *Journal of Applied Sciences*, 10(20), 2474–2477.
- Association, A. P. (2018). Dsm-5-Tr Tm. In *Angewandte Chemie International Edition*, 6(11), 951–952.
- Babao, A. J. G., & Moscoso, L. S. (2008). Lifestyle and health status of faculty of the College of Human Ecology and Food Sciences and the College of Education. *USM R&D Journal*, 16(2), 25–34.
- Backer-Fulghum, L. M., Patock-Peckham, J. A., King, K. M., Roufa, L., & Hagen, L. (2012). The stress-response dampening hypothesis: How self-esteem and stress act as mechanisms between negative parental bonds and alcohol-related problems in emerging adulthood. *Addictive Behaviors*, 37(4), 477–484.
- Bahram Jowkar , Javad Kojuri , Naeimeh Kohoulat, A. A. H. (2014). Academic resilience in education: the role of achievement goal orientations. *Journal of*

*Advances in Medical Education & Professionlism*, 2(1), 33–38.

- Balogun-Mwangi, O. (2016). *Embracing the Hottentot Venus: a mixed-methods examination of body image, body image ideals and objectified body consciousness among African women*. February.
- Bassett-Gunter, R., McEwan, D., & Kamarhie, A. (2017). Physical activity and body image among men and boys: A meta-analysis. *Body Image*, 22, 114–128.
- Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders*, 173, 90–96. <https://doi.org/10.1016/j.jad.2014.10.054>
- Bibiloni, M. D. M., Coll, J. L., Pich, J., Pons, A., & Tur, J. A. (2017). Body image satisfaction and weight concerns among a Mediterranean adult population. *BMC Public Health*, 17(1), 1–11. <https://doi.org/10.1186/s12889-016-3919-7>
- Blackwell, D. L. (2000). *Racial differences in psychosocial factors which predict social integration in college*.
- Borsari, B., Borsari, B., & Carey, K. B. (2006). How the quality of peer relationships influences college alcohol use. *Drug and Alcohol Review*, 25(4), 361–370.
- Brener, N. D., Eaton, D. K., Lowry, R., & McManus, T. (2004). The association between weight perception and BMI among high school students. *Obesity Research*, 12(11), 1866–1874.
- Breuer, R. (2013). *Examining the relationships between recreational physical activity, body image, and sexual functioning and satisfaction in men* (Doctoral dissertation, University of Guelph).
- Bucchianeri, M. M., Arikian, A. J., Hannan, P. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2013). Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body Image*, 10(1), 1–7. <https://doi.org/10.1016/j.bodyim.2012.09.001>
- Burns, A., & Darling, N. (2002). Peer pressure is not peer influence. *The Education Digest*, 68(2), 4.
- Caccavale, L., Farhat, T., & Iannotti, R. (2012). Social Engagement in Adolescence Moderates the Association between Weight Status and Body Image. *Body Image*, 9, 221–226. <https://doi.org/10.1016/j.bodyim.2012.01.001>
- Calogero, R. M., Pina, A., Park, L. E., & Rahemtulla, Z. (2010). Objectification theory predicts college women's attitudes toward cosmetic surgery. *Sex Roles*, 63(1–2), 32–41.
- Calzo, J. P., Sonnevile, K. R., Haines, J., Blood, E. A., Field, A. E., & Austin, S. B. (2012). The development of associations among body mass index, body dissatisfaction, and weight and shape concern in adolescent boys and girls. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 51(5), 517–523. <https://doi.org/10.1016/j.jadohealth.2012.02.021>

- Carpenter, K. M., Hasin, D. S., Allison, D. B., & Faith, M. S. (2000). Relationships between obesity and DSM-IV major depressive disorder, suicide ideation, and suicide attempts: results from a general population study. *American Journal of Public Health, 90*(2), 251.
- Cash, T. F., & Ph, D. (2000). *MBSRQ USERS' MANUAL (Third Revision, January, 2000 ) I. 2*, 1–12.
- CDC. (2010). CDC Surveillance Summaries. *MMWR 1999 48 No SS8, 56*(3), 1–66.
- Charles, C. A. D. (2003). Skin bleaching, self-hate, and black identity in Jamaica. *Journal of Black Studies, 33*(6), 711–728.
- Chassany, O., Dimenas, E., Dubois, D., Wu, A., & Dupoy, H. (2004). The Psychological General Well-being user Manual (PGWBI). *IQOD- Psychological General Well-Being Index Instruction Manual, 1*, 1–57. <http://docplayer.net/26261269-The-psychological-general-well-being-index-pgwbi-user-manual.html>
- Chaudhari, B., Tewari, A., Vanka, J., Kumar, S., & Saldanha, D. (2017). The Relationship of Eating Disorders Risk with Body Mass Index, Body Image and Self-Esteem among Medical Students. *Annals of Medical and Health Sciences Research, 7*(3), 144–149.
- Cinelli, R. L., & O’dea, J. A. (2009). Body image and obesity among Australian adolescents from indigenous and Anglo-European backgrounds: implications for health promotion and obesity prevention among Aboriginal youth. *Health Education Research, 24*(6), 1059–1068.
- Clay, D., Vignoles, V. L., & Dittmar, H. (2005). Body image and self- esteem among adolescent girls: Testing the influence of sociocultural factors. *Journal of Research on Adolescence, 15*(4), 451–477.
- Cohen, E., Bernard, J. Y., Ponty, A., Ndao, A., Amougou, N., Saïd-Mohamed, R., & Pasquet, P. (2015). Development and validation of the body size scale for assessing body weight perception in African populations. *PLoS ONE, 10*(11), 1–14. <https://doi.org/10.1371/journal.pone.0138983>
- Constructed, H. (2008). Body image, eating disorders, and the media. *Adolesc Med, 19*, 521–546.
- Consultation, W. H. O. (2000). *OBESITY: PREVENTING AND MANAGING THE GLOBAL EPIDEMIC Report of a*.
- Cooley, E., & Toray, T. (2001). Body image and personality predictors of eating disorder symptoms during the college years. *International Journal of Eating Disorders, 30*(1), 28–36.
- Currie, C., Roberts, C., Morgan, A., Smith, R., Settertobulte, W., Samdal, O., & Rasmussen, V. B. (2004). *Young people’s health in context*. World Health Organization Regional Office for Europe.

- Daniels, J. (2005). Weight and weight concerns: are they associated with reported depressive symptoms in adolescents? *Journal of Pediatric Health Care, 19*(1), 33–41.
- de Vries, D. A., & Kühne, R. (2015). Facebook and self-perception: Individual susceptibility to negative social comparison on Facebook. *Personality and Individual Differences, 86*, 217–221.
- Delene, L. M., & Brogowicz, A. A. (1990). Student healthcare needs, attitudes, and behavior: Marketing implications for college health centers. *Journal of American College Health, 38*(4), 157–164.
- Denniston, C., Roth, D., & Gilroy, F. (1992). Dysphoria and body image among college women. *International Journal of Eating Disorders, 12*(4), 449–452.
- Di Pietro, M., & Silveira, D. X. da. (2009). Internal validity, dimensionality and performance of the Body Shape Questionnaire in a group of Brazilian college students. *Revista Brasileira de Psiquiatria, 31*(1), 21–24.
- Dickson, L., Dukes, R., Smith, H., & Strapko, N. (2014). Stigma of ink: Tattoo attitudes among college students. *The Social Science Journal, 51*(2), 268–276.
- Durante, C., & Alves, B. (2017). *Influence of Media on Self- Objectification , Body Image , and Rape Myths Acceptance Among College Students.*
- Effinger, J. M., & Stewart, D. G. (2012). Classification of Co-occurring Depression and Substance Abuse Symptoms Predicts Suicide Attempts in Adolescents. *Suicide and Life-Threatening Behavior, 42*(4), 353–358. <https://doi.org/https://doi.org/10.1111/j.1943-278X.2012.00092.x>
- El Ansari, W., Clausen, S. V., Mabhala, A., & Stock, C. (2010). How do i look? Body image perceptions among university students from England and Denmark. *International Journal of Environmental Research and Public Health, 7*(2), 583–595. <https://doi.org/10.3390/ijerph7020583>
- El Ansari, W., Dibba, E., & Stock, C. (2014). Body image concerns: Levels, correlates and gender differences among students in the United Kingdom. *Central European Journal of Public Health, 22*(2), 106–117. <https://doi.org/10.21101/cejph.a3944>
- Elsherif, Z. A. E., & Abdelraof, A. S. E. (2018). The Relation between body image satisfaction, self-esteem and the academic behavior among the first and fourth year students in the faculty of nursing Tanta University. *Clinical Nursing Studies, 6*(3), 28. <https://doi.org/10.5430/cns.v6n3p28>
- Engeln, R., Sladek, M. R., & Waldron, H. (2013). Body talk among college men: Content, correlates, and effects. *Body Image, 10*(3), 300–308.
- Ettarh, R., Van de Vijver, S., Oti, S., & Kyobutungi, C. (2013). Overweight, Obesity, and Perception of Body Image Among Slum Residents in Nairobi, Kenya, 2008–2009. *Preventing Chronic Disease, 10*(4), 130198.

- Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015). Social comparisons on social media: THE impact of Facebook on young women's body image concerns and mood. *Body Image, 13*, 38–45.
- Ferrari, E. P., Petroski, E. L., & Silva, D. A. S. (2013). Prevalence of body image dissatisfaction and associated factors among physical education students. *Trends in Psychiatry and Psychotherapy, 35*(2), 119–127.
- Finer, L. B., & Henshaw, S. K. (2006). Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health, 38*(2), 90–96.
- Franzoi, S. L., & Herzog, M. E. (1987). Judging physical attractiveness: What body aspects do we use? *Personality and Social Psychology Bulletin, 13*(1), 19–33.
- Franzoi, S. L., & Shields, S. A. (1984). The Body Esteem Scale: Multidimensional structure and sex differences in a college population. *Journal of Personality Assessment, 48*(2), 173–178.
- Frederick, D. A., Buchanan, G. M., Sadehgi-azar, L., Peplau, L. A., Haselton, M. G., Berezovskaya, A., & Lipinski, R. E. (2007). *Desiring the Muscular Ideal: Men's Body Satisfaction in the United States, Ukraine, and Ghana*. 8(2), 103–117. <https://doi.org/10.1037/1524-9220.8.2.103>
- Frederick, D. A., Buchanan, G. M., Sadehgi-Azar, L., Peplau, L. A., Haselton, M. G., Berezovskaya, A., & Lipinski, R. E. (2007). Desiring the muscular ideal: Men's body satisfaction in the United States, Ukraine, and Ghana. *Psychology of Men and Masculinity, 8*(2), 103–117. <https://doi.org/10.1037/1524-9220.8.2.103>
- Furnham, A., Badmin, N., & Sneade, I. (2010). Body image dissatisfaction: Gender differences in eating attitudes, self-esteem, and reasons for exercise. *The Journal of Psychology, 136*(6), 581–596.
- Gillen, M. M., Lefkowitz, E. S., & Shearer, C. L. (2006). Does body image play a role in risky sexual behavior and attitudes? *Journal of Youth and Adolescence, 35*(2), 230–242.
- Gitau, T. M., Micklesfield, L. K., Pettifor, J. M., & Norris, S. A. (2014). Eating attitudes, body image satisfaction and self-esteem of South African Black and White male adolescents and their perception of female body silhouettes. *Journal of Child & Adolescent Mental Health, 26*(3), 193-205.
- Gitimu, P. N., Jameson, M. M., Turel, T., Pohle-Krauza, R., Mincher, J., Rowlands, Z., & Elias, J. (2016). Appearance issues, depression, and disordered eating among college females. *Cogent Psychology, 3*(1), 1–16.
- Golan, M. (2015). Gender Differences in Respect to Self-Esteem and Body Image as Well as Response to Adolescents' School-Based Prevention Programs. *Journal of Psychology & Clinical Psychiatry, 2*(5).

- Goswami, S., Sachdeva, S., & Sachdeva, R. (2012). Body image satisfaction among female college students. *Industrial Psychiatry Journal, 21*(2), 168.
- Griffiths, S., Murray, S. B., & Touyz, S. (2015). Extending the masculinity hypothesis: An investigation of gender role conformity, body dissatisfaction, and disordered eating in young heterosexual men. *Psychology of Men and Masculinity, 16*(1), 108–114.
- Grossi, E., Villa, F., Maria, S., & Compare, A. (2016). *Psychological General Wellbeing Index. January 2012.*
- Hall, W. D., Cabrera, A. F., & Milem, J. F. (2011). A tale of two groups: Differences between minority students and non-minority students in their predispositions to and engagement with diverse peers at a predominantly White institution. *Research in Higher Education, 52*(4), 420–439.
- Hamed, S. H., Tayyem, R., Nimer, N., & AlKhatib, H. S. (2010). Skin- lightening practice among women living in Jordan: prevalence, determinants, and user's awareness. *International Journal of Dermatology, 49*(4), 414–420.
- Hamilton, S. (2008). The Relationship Between Perceived Body Image and Depression: How College Women See Themselves May Affect Depression. *Student Journal of Psychological Sciences, 1*, 13–20.
- Harris, S. M. (1995). Body image attitudes and the psychosocial development of college women. *The Journal of Psychology, 129*(3), 315–329.
- Henderson-King, D., & Brooks, K. D. (2009). Materialism, sociocultural appearance messages, and paternal attitudes predict college women's attitudes about cosmetic surgery. *Psychology of Women Quarterly, 33*(1), 133–142.
- Herrera-Cuenca, M., Méndez-Perez, B., Morales, V. C., Martín-Rojo, J., Tristan, B., Bandy, A. T., Landaeta-Jiménez, M., Macías-Tomei, C., & López-Blanco, M. (2016). Results From Venezuela's 2016 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health, 13*(11 Suppl 2), S314–S329.
- Hogan, M. J., & Strasburger, V. C. (2014). *Body Image , Eating Disorders , and the Media. January 2009.*
- Hoogeveen, L., van Hell, J. G., & Verhoeven, L. (2009). Self-concept and social status of accelerated and nonaccelerated students in the first 2 years of secondary school in the Netherlands. *Gifted Child Quarterly, 53*(1), 50–67.
- Ivarsson, T., Svalander, P., Litlere, O., & Nevonen, L. (2006). Weight concerns, body image, depression and anxiety in Swedish adolescents. *Eating Behaviors, 7*(2), 161–175.
- Jacobs, M., Levine, S., Abney, K., & Davids, L. (2016). Fifty shades of African lightness: A bio-psychosocial review of the global phenomenon of skin lightening practices. *Journal of Public Health in Africa, 7*(2).

- James, C., Seixas, A. A., Harrison, A., Jean-Louis, G., Butler, M., Zizi, F., & Samuels, A. (2016). Childhood Physical and Sexual Abuse in Caribbean Young Adults and Its Association with Depression, Post-Traumatic Stress, and Skin Bleaching. *Journal of Depression & Anxiety*, *5*(1). <https://doi.org/10.4172/2167-1044.1000214>
- Khor, G. L., Zalilah, M. S., Phan, Y. Y., Ang, M., Maznah, B., & Norimah, A. K. (2009). Perceptions of body image among Malaysian male and female adolescents. *Singapore Medical Journal*, *50*(3), 303.
- Kim, J. W., & Chock, T. M. (2015). Body image 2 . 0 : Associations between social grooming on Facebook and body image concerns Computers in Human Behavior Body image 2 . 0 : Associations between social grooming on Facebook and body image concerns. *Computers in Human Behavior*, *48*(December 2017), 331–339.
- Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Social Psychiatry and Psychiatric Epidemiology*, *37*(11), 544–550.
- Kjærbye- Thygesen, A., Munk, C., Ottesen, B., & Krüger Kjær, S. (2004). Why do slim women consider themselves too heavy? A characterization of adult women considering their body weight as too heavy. *International Journal of Eating Disorders*, *35*(3), 275–285.
- Koch, J. R., Roberts, A. E., Armstrong, M. L., & Owen, D. C. (2015). Tattoos, gender, and well-being among American college students. *Social Science Journal*, *52*(4), 536–541. <https://doi.org/10.1016/j.soscij.2015.08.001>
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, *53*(9), 1017.
- Lee, J., & Lee, Y. (2016). The association of body image distortion with weight control behaviors, diet behaviors, physical activity, sadness, and suicidal ideation among Korean high school students: A cross-sectional study. *BMC Public Health*, *16*(1), 1–10. <https://doi.org/10.1186/s12889-016-2703-z>
- Lee, K., Guy, A., Dale, J., & Wolke, D. (2017). Does psychological functioning mediate the relationship between bullying involvement and weight loss preoccupation in adolescents? A two-stage cross-sectional study. *International Journal of Behavioral Nutrition and Physical Activity*, *14*(1), 1–11. <https://doi.org/10.1186/s12966-017-0491-1>
- Leit, R. A., Pope Jr, H. G., & Gray, J. J. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders*, *29*(1), 90–93.
- Lipowski, M. (2012). Level of optimism and health behavior in athletes. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, *18*(1), CR39.

- Lowery, S.E., Kurpius, S.E., Befort, C., Blanks, E.H., Sollenberger, S., Nicpon, M.F., & Huser, L. (2005). Behaviors among male and female first year college students. *Journal of College Student Development*, 46(6), 612–623.
- Lynch, E., Liu, K., Spring, B., Hankinson, A., Wei, G. S., & Greenland, P. (2007). Association of ethnicity and socioeconomic status with judgments of body size: the Coronary Artery Risk Development in Young Adults (CARDIA) Study. *American Journal of Epidemiology*, 165(9), 1055–1062.
- Markey, C. N., & Markey, P. M. (2009). Correlates of young women's interest in obtaining cosmetic surgery. *Sex Roles*, 61(3–4), 158–166.
- Martyn- Nemeth, P., Penckofer, S., Gulanick, M., Velsor- Friedrich, B., & Bryant, F. B. (2009). The relationships among self- esteem, stress, coping, eating behavior, and depressive mood in adolescents. *Research in Nursing & Health*, 32(1), 96–109.
- Mase, T., Miyawaki, C., Ohara, K., & Nakamura, H. (2015). The Relationships among Perception of Body Image, a Desire for Thinness, and Dieting Behavior in Young Females in Japan. *Health*, 07(01), 112–118.
- Maxwell, M., Brevard, J., Abrams, J., & Belgrave, F. (2015). What's color got to do with it? Skin color, skin color satisfaction, racial identity, and internalized racism among African American college students. *Journal of Black Psychology*, 41(5), 438–461.
- Mc Donald, A. (2013). *The relationship between self-esteem , social anxiety , body shape concern and BMI among college students*. April. <https://doi.org/Recuperado de: http://esource.dbs.ie/copyright>
- Míguez Bernárdez M, De la Montaña Miguélez J, González Carnero J, G. R. (2011). *citation-51618941*.
- Moustafa, S., Tawbe, Z., Daouk, S. El, Al-iskandarani, M., Sleiman, F., Koubar, M., & Hoteit, M. (2017). *Body Image Perception in Association with Healthy Lifestyle Behaviour ' s in Lebanese Men and Women International Journal of School and*. 4(4), 2–7.
- Muthuri, S. K., Wachira, L. M., Onywera, V. O., & Tremblay, M. S. (2014). *Correlates of objectively measured overweight / obesity and physical activity in Kenyan school children : results from ISCOLE-Kenya*. 14(1), 1–11.
- Nelius, T., Armstrong, M. L., Rinard, K., Young, C., Hogan, L., & Angel, E. (2011). Genital piercings: diagnostic and therapeutic implications for urologists. *Urology*, 78(5), 998–1007.
- Neumark-Sztainer, Dianne; Story, Mary; Hannan, Peter J.; Perry, Cheryl L.; Irving, L. M. (2002). Weight-related concerns and behaviors among overweight and nonoverweight adolescents. *Archives of Pediatrics & Adolescent Medicine*, 156, 171–178.



- Noser, A., & Zeigler-Hill, V. (2014). Investing in the ideal: Does objectified body consciousness mediate the association between appearance contingent self-worth and appearance self-esteem in women? *Body Image, 11*(2), 119–125.
- Oguta, T. (2015). *Psychosocial Determinants of Elective Cesarean Section Deliveries in Selected Obstetric Facilities in Nairobi, Kenya*. 1–210. <https://doi.org/UMI:3257958>
- Onywera, V. O. (2010a). Childhood obesity and physical inactivity threat in Africa: strategies for a healthy future. *Global Health Promotion, 17*(2 Suppl), 45–46. <https://doi.org/10.1177/1757975910363937>
- Onywera, V. O. (2010b). *Commentary Childhood obesity and physical inactivity threat in Africa : strategies for a healthy future. 2*, 45–46.
- Otakpor, A. N., & Ehimigbai, M. (2016a). Body image perception and mental health of in-school adolescents in Benin City, Nigeria. *Nigerian Postgraduate Medical Journal, 23*(2), 71. <https://doi.org/10.4103/1117-1936.186294>
- Otakpor, A. N., & Ehimigbai, M. (2016b). *Original Article. 71–78*. <https://doi.org/10.4103/1117-1936.186294>
- Park, E. (2011). Overestimation and underestimation: Adolescents' weight perception in comparison to BMI- based weight status and how it varies across socio-demographic factors. *Journal of School Health, 81*(2), 57–64.
- Parsons, M. A., Pender, N. J., & Murdaugh, C. L. (2011). *Health promotion in nursing practice*. Pearson Higher Ed.
- Paxton, S. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2006). Prospective predictors of body dissatisfaction in adolescent girls and boys: A five-year longitudinal study. *Developmental Psychology, 42*(5), 888.
- Pedro, T. M., Micklesfield, L. K., Kahn, K., Tollman, S. M., Pettifor, J. M., & Norris, S. A. (2016). Body image satisfaction, eating attitudes and perceptions of female body silhouettes in rural South African adolescents. *PLoS ONE, 11*(5), 1–13. <https://doi.org/10.1108/IR-05-2016-0142>
- Pettersson, P. (2012). Does unemployment contribute to a poor self-esteem, and does social support, coping and perceived control have any effect during unemployment? *University of Gävle, Faculty of Health and Occupational Studies, Department of Occupational and Public Health Sciences*, 1–33.
- Pisitsungkagarn, K., Taephant, N., & Attasaranya, P. (2014). Body image satisfaction and self-esteem in Thai female adolescents: The moderating role of self-compassion. *International Journal of Adolescent Medicine and Health, 26*(3), 333–338. <https://doi.org/10.1515/ijamh-2013-0307>
- Pompili, M., Girardi, P., Tatarelli, G., Ruberto, A., & Tatarelli, R. (2006). Suicide and attempted suicide in eating disorders, obesity and weight-image concern. *Eating Behaviors, 7*(4), 384–394.

- Pop, C. (2016). Self-esteem and body image perception in a sample of university students. *Egitim Arastirmalari - Eurasian Journal of Educational Research*, *64*, 31–44. <https://doi.org/10.14689/ejer.2016.64.2>
- Pope Jr, H. G., Gruber, A. J., Mangweth, B., Bureau, B., Decol, C., Jouvent, R., & Hudson, J. I. (2000). Body image perception among men in three countries. *American Journal of Psychiatry*, *157*(8), 1297–1301.
- Presnell, K., Bearman, S. K., & Stice, E. (2004). Risk factors for body dissatisfaction in adolescent boys and girls: A prospective study. *International Journal of Eating Disorders*, *36*(4), 389–401.
- Prioreschi, A., Wrottesley, S. V., Cohen, E., Reddy, A., Said-Mohamed, R., Twine, R., Tollman, S. M., Kahn, K., Dunger, D. B., & Norris, S. A. (2017). Examining the relationships between body image, eating attitudes, BMI, and physical activity in rural and urban South African young adult females using structural equation modeling. *PLoS ONE*, *12*(11), 1–16.
- Quick, V., Eisenberg, M. E., Bucchianeri, M. M., & Neumark-Sztainer, D. (2013). Prospective predictors of body dissatisfaction in young adults: 10-year longitudinal findings. *Emerging Adulthood*, *1*(4), 271–282.
- Radley, A., & Bell, S. E. (2007). Artworks, collective experience and claims for social justice: The case of women living with breast cancer. *Sociology of Health & Illness*, *29*(3), 366–390.
- Raymer, K. (2015). *The effects of social media sites on self-esteem*.
- Reel, J., Voelker, D., & Greenleaf, C. (2015). Weight status and body image perceptions in adolescents: current perspectives. *Adolescent Health, Medicine and Therapeutics*, 149. <https://doi.org/10.2147/ahmt.s68344>
- Rivera-ochoa, M., Arroyo-bello, M., Mañas, A., Quesada-gonz, C., Vizmanos-lamotte, B., Gonz, M., & Guadalupe-grau, A. (2021). *Body Dissatisfaction and Its Association with Health-Related Factors in Rural and Urban Mexican Adolescents from the State of Jalisco*. 1–10.
- Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review*, 141–156.
- Rosli, Y., Othman, H., Ishak, I., Lubis, S. H., Saat, N. Z. M., & Omar, B. (2012). Self-esteem and Academic Performance Relationship Amongst the Second Year Undergraduate Students of Universiti Kebangsaan Malaysia, Kuala Lumpur Campus. *Procedia - Social and Behavioral Sciences*, *60*(January 2011), 582–589.
- Rosner, B. (2010). *Fundamentals of Biostatistics* (7 edition). Cengage Learning.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*(6), 1069.

- Sarwer, D. B., & Polonsky, H. M. (2016). Body image and body contouring procedures. *Aesthetic Surgery Journal*, 36(9), 1039–1047. <https://doi.org/10.1093/asj/sjw127>
- Seligman, L., & Reichenberg, L. W. (2006). *Theories of counseling and psychotherapy: Systems, strategies, and skills*. Pearson Prentice Hall Upper Saddle River, NJ.
- Shahyad, S., Pakdaman, S., & Shokri, O. (2015). Prediction of Body Image Dissatisfaction from Self-esteem, Thin-ideal Internalization and Appearance-related Social Comparison. *International Journal of Travel Medicine and Global Health*, 3(2), 59–63. <https://doi.org/10.20286/ijtmgh-030299>
- Sharma, S., & Agarwala, S. (2013). Contribution of self-esteem and collective self-esteem in predicting depression. *Psychological Thought*, 6(1), 117–123.
- Slade, P. D. (1988). Body image in anorexia nervosa. *The British Journal of Psychiatry*, 153(S2), 20–22.
- Stassi, M. E., Harkreader, H., Hogan, M. A., & Thobaben, M. (2007). *Fundamentals of Nursing: Caring and Clinical Judgment*. Saunders.
- Stowers, D. A., & Durm, M. W. (1996). Does self-concept depend on body image? A gender analysis. *Psychological Reports*, 78(2), 643–646.
- Swallen, K. C., Reither, E. N., Haas, S. A., & Meier, A. M. (2005). Overweight, obesity, and health-related quality of life among adolescents: the National Longitudinal Study of Adolescent Health. *Pediatrics*, 115(2), 340–347.
- Swami, V., Taylor, R., & Carvalho, C. (2009). Acceptance of cosmetic surgery and celebrity worship: Evidence of associations among female undergraduates. *Personality and Individual Differences*, 47(8), 869–872.
- Thompson, J. K. (1990). *Body image disturbance: Assessment and treatment*. Pergamon Press.
- Thompson, J. K., & Altabe, M. N. (1991). Psychometric qualities of the figure rating scale. *International Journal of Eating Disorders*, 10(5), 615–619.
- Thompson, M. A., & Gray, J. J. (1991). Development and validation of a new body-image assessment scale. *Journal of Personality Assessment*, 64(2), 258–269.
- Tiggemann, M. (2011). *Sociocultural perspectives on human appearance and body image*.
- Tiwari, G. K. (2009). *Body Image Satisfaction Enhances Self-Esteem*. 2008.
- Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image*, 14, 118–129.

- van de Grift, T. C., Kreukels, B. P. C., Elfering, L., Özer, M., Bouman, M. B., Buncamper, M. E., Smit, J. M., & Mullender, M. G. (2016). Body Image in Transmen: Multidimensional Measurement and the Effects of Mastectomy. *Journal of Sexual Medicine, 13*(11), 1778–1786.
- Van den Berg, P., Paxton, S. J., Keery, H., Wall, M., Guo, J., & Neumark-Sztainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image, 4*(3), 257–268.
- Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture, 3*(4), 206–222.
- Wachira, L.-J. M., Muthuri, S. K., Ochola, S. A., Onywera, V. O., & Tremblay, M. S. (2018). Screen-based sedentary behaviour and adiposity among school children: Results from International Study of Childhood Obesity, Lifestyle and the Environment (ISCOLE) - Kenya. *Plos One, 13*(6), e0199790.
- Weir, C. B., & Jan, A. (2022). *BMI Classification Percentile And Cut Off Points*.
- Wilkosz, M. E., Chen, J., Kenndey, C., & Rankin, S. (2011). Body dissatisfaction in California adolescents. *Journal of the American Academy of Nurse Practitioners, 23*(2), 101–109.
- Wittchen, H., & Fehm, L. (2003). Epidemiology and natural course of social fears and social phobia. *Acta Psychiatrica Scandinavica, 108*, 4–18.
- Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). “But I like my body”: Positive body image characteristics and a holistic model for young-adult women. *Body Image, 7*(2), 106–116.
- Woods, S. L. (2016). *Implications of Diverse Peer Interactions on Body Image Satisfaction and Cosmetic Surgery Acceptance Among College Students*.
- Wright, T. L. (2012). *UNF Digital Commons Body Image and Healthy Lifestyle Behavior Among University Students*.
- Yahia, N., El-Ghazale, H., Achkar, A., & Rizk, S. (2011). Dieting practices and body image perception among: Lebanese university students. *Asia Pacific Journal of Clinical Nutrition, 20*(1), 21–28. <https://doi.org/10.6133/apjcn.2011.20.1.04>
- Yumurtacı, D. (2012). *Predictors of body image among university students*. Middle East Technical University.
- Zanon, A., Tomassoni, R., Gargano, M., & Granai, M. G. (2016). Body image and health behaviors: is there a relationship between lifestyles and positive body image? *Clin Ter, 167*(3), e63-69.

## APPENDICES

### Appendix I: Informed Consent Form

Study Title: Relationship between Body Image, Self-Esteem and Health-Related Behaviors among Undergraduate Students, Moi University West Campus Eldoret

Name of Principal Investigator: Maureen Muteitsi Muchesi

Name of Organization: Moi University West Campus, Eldoret.

Name of Sponsor: Self

Informed Consent Form for: Adults aged 18 years and above

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the signed Informed Consent Form.

#### Part I: Information Sheet

##### Introduction:

You are being asked to take part in a research study. This information is provided to tell you about the study. Please read this form carefully. You will be given a chance to ask questions. If you choose to participate in this study, you will be given a copy of this consent form for your records.

Your participation in this study is purely voluntary. You may choose not to take part in the study. Saying no will not affect your rights to health care or services. You are also free to withdraw from this study at any time. If after data collection you choose to quit, you can request that the information provided by you be destroyed under supervision- and thus not used in the research study. You will be notified if new information becomes available about the risks or benefits of this research. Then you can decide if you want to stay in the study.

Purpose of the study:

This study aims at determining the level and relationship between body image, self-esteem and health-related behaviour among Moi University West Campus students.

Type of Research Project/Intervention:

The study will employ self-administered questionnaire comprising of 5 segments: Sociodemographic section, Multidimensional body self-relations questionnaire, Contour drawing rating scale, The rosenberg self-esteem scale and Psychological general well-being index.

Commonly asked questions

1. Why should I participate in this study?

You will be part of 423 selected participants taking part in this study. Being part of the Moi University student body, your opinion and participation is invaluable in assisting me make a generalisation of challenges that students go through with body image and self-esteem at the core.

2. How long will I be involved in the study?

Your participation will be online with a link sent to you and ends on submitting the filled online questionnaire. If any concern pertaining to your body image and self-esteem is detected, as well as your desire to be assessed by a specialist then you will be linked to the appropriate available mental health services.

3. What will happen to me during the study?

You will be required to share with us your views concerning your body image and self-esteem to help us know the challenges arising from how students view their body image and the values attached to how they look. If you accept, you will be asked to answer a number of questions concerning the subject: what you like or dislike about your body and how you feel about yourself compared to others.

4. What side effects or risks I can expect from being in the study?

We shall not be applying any interventions, or giving any medication, therefore we don't anticipate any risks nor side effects from the study.

5. Are there benefits to taking part in the study?

This study will help us approach the university and other policy makers with the information you will have shared with us demanding for facilities to enable students grow as a whole and not just academically. Participants will also be given feedback. Willing respondents with body image and self-esteem concerns will also be referred to relevant experts in the area of concern for assistance.

6. Reimbursements:

There shall be no reimbursements to those who volunteer to participate in the study

7. Who do I call if I have questions about the study?

For questions about the study, contact the researcher; Tel No: 0728141481

For questions about your rights as a research subject: You may contact Institutional Review Ethics Committee (IREC) 053 33471 Ext.3008. ( IREC is a group of people that reviews studies for safety and to protect the rights of study subjects).

8. Will the information I provide be kept private?

All reasonable efforts will be made to keep your protected information (private and confidential. Protected Information is information that is, or has been, collected or maintained and can be linked back to you. Using or sharing (“disclosure”) of such information will follow National privacy guidelines. By signing the consent document for this study, you are giving permission (“authorization”) for the uses and disclosures of your personal information.

As part of the study, the researcher may share the results of your [age, residence, level of education health status e.t.c]. These may be study or non-study related. Names will be optional; you may submit your name or choose not to submit and for those who submit this information will remain absolutely confidential. They may also share portions of your medical record, with the groups named below:

- The Institutional Review and Ethics Committee,
- Moi University

National privacy regulations may not apply to these groups; however, they have their own policies and guidelines to assure that all reasonable efforts will be made to keep your personal information private and confidential.

The study results will be retained in your research record for at least 7 years after the study is completed. At that time, the research information not already in your medical record will be stored in a secure location, only accessible to the researcher. Research information will be kept for a period of 7 years and will then be destroyed permanently.

Part II: Consent of Subject:

I have read the description of the research study. The investigator or his representative has explained the study to me and has answered all of the questions I have at this time. I have been told of the potential risks, discomforts and side effects as well as the possible benefits (if any) of the study. I freely volunteer to take part in this study.

_____	_____	_____
Name of Participant	Signature of subject/thumbprint	Date
_____	_____	_____
Printed name of Investigator	Signature of Investigator	Date



**Appendix II: Data Collection Tools**  
**RESEARCH QUESTIONNAIRE**

Participant Code

Weight .....

Height .....

**SECTION A**

**Sociodemographic Information**

1. Name of your institution .....

Sex:             Male     Female

2. Year of study     I     II     III     IV     V     VI

3. Course studied .....

4. Nationality .....

5. Religion         Christian     Muslim     Hindu

Any Other (Specify).....

6. Marital Status     Single     Married     Cohabiting (Living-together)

Separated/Divorced     Widowed

7. If single, separated, divorced, or widowed, are you currently in a long-term relationship? (Relationship lasting more than 6 months).

Yes     No

8. Number of Children     None                     1                      $\geq 2$

9. Source of Income     Student Loan             Study leave     Scholarship

Parent/Guardian

Specify any other if none of the above.....

10. Do you take alcohol       Yes               No

11. Do You smoke               Yes               No

If yes, Please specify.....

.....

12. Physical activity level ( Circle the level that best applies to you)

- Sedentary
- Lightly active
- Active
- Very active

**SECTION B: MULTIDIMENSIONAL BODY SELF-RELATIONS**

**QUESTIONNAIRE (MBSRQ)**

Please answer each statement below by circling the number that best applies to you

1    2    3    4    5  
 ◀.....▶  
 Definitely          Mostly Disagree    Neither agree    Mostly agree    Definitely  
 Disagree    nor disagree    agree

1) Before going out in public, I always notice how I look.	1	2	3	4	5
2) I am careful to buy clothes that will make me look at my best	1	2	3	4	5
3) I would pass most physical – fitness tests	1	2	3	4	5
4) It is important that I have superior physical strength.	1	2	3	4	5
5) My body is sexually appealing.	1	2	3	4	5
6) I am not involved on a regular exercise program.	1	2	3	4	5
7) I am in control of my health	1	2	3	4	5
8) I know a lot about things that affect my physical health	1	2	3	4	5
9) I have deliberately developed a healthy lifestyle.	1	2	3	4	5
10) I constantly worry about becoming fat.	1	2	3	4	5

11) I like my looks just the way they are.	1	2	3	4	5
12) I check my appearance on the mirror whenever I can	1	2	3	4	5
13) My physical endurance is good.	1	2	3	4	5
14) Before going out, I usually spend a lot of time getting ready	1	2	3	4	5
15) Participating in a sport is unimportant to me.	1	2	3	4	5
16) I do not actively do things to keep physically fit.	1	2	3	4	5
17) My health is a matter of unexpected ups and downs.	1	2	3	4	5
18) Good health is one of the most important things in my life.	1	2	3	4	5
19) I don't do anything that I know might threaten my health.	1	2	3	4	5
20) I am very conscious of even small changes of my weight.	1	2	3	4	5
21) Most people would consider me good looking	1	2	3	4	5
22) It is important that I always look good	1	2	3	4	5
23) I use very few grooming products	1	2	3	4	5
24) I easily learn physical skills	1	2	3	4	5
25) Being physically fit is not a strong priority in life.	1	2	3	4	5
26) I do things to increase my physical strength.	1	2	3	4	5
27) I am seldom physically ill.	1	2	3	4	5
28) I take my health for granted.	1	2	3	4	5
29) I often read books and magazines that pertain to health.	1	2	3	4	5
30) I like the way I look without my clothes on.	1	2	3	4	5
31) I am self-conscious if my grooming isn't right.	1	2	3	4	5
32) I usually whatever is handy without caring how it looks.	1	2	3	4	5
33) I do poorly in physical sports and games.	1	2	3	4	5
34) I seldom think about my athletic skills.	1	2	3	4	5

35) I work to improve my physical stamina.	1	2	3	4	5
36) From day to day, I never know how my body will feel	1	2	3	4	5
37) If I am sick, I don't pay much attention to my symptoms.	1	2	3	4	5
38) I make no special efforts to eat a balanced and nutritious diet	1	2	3	4	5
39) I like the way my clothes fit me	1	2	3	4	5
40) I don't care what people think about my appearance.	1	2	3	4	5
41) I take special care with my hair grooming.	1	2	3	4	5
42) I dislike my physique.	1	2	3	4	5
43) I don't care to improve my abilities in physical activity.	1	2	3	4	5
44) I try to be physically active	1	2	3	4	5
45) I often feel vulnerable to sickness	1	2	3	4	5
46) I pay close attention for my body for any signs of illness	1	2	3	4	5
47) If I'm coming down with cold and flu, I just ignore it and go on as usual	1	2	3	4	5
48) I am physically unattractive.	1	2	3	4	5
49) I never think about my appearance.	1	2	3	4	5
50) I am always trying to improve my physical appearance	1	2	3	4	5
51) I am very well coordinated.	1	2	3	4	5
52) I know a lot about physical fitness.	1	2	3	4	5
53) I play sports regularly throughout the year	1	2	3	4	5
54) I am a physically healthy person.	1	2	3	4	5
55) I am very aware of small changes in my physical health.	1	2	3	4	5
56) At first sign of illness, I seek medical advice.	1	2	3	4	5
57) I am on a weight loss diet.	1	2	3	4	5

Please circle your answer

58) I have tried to lose weight by fasting or going on crash diet

- 1- Never
- 2- Rarely
- 3- Sometimes
- 4- Often
- 5- Very often

59) I think I am:

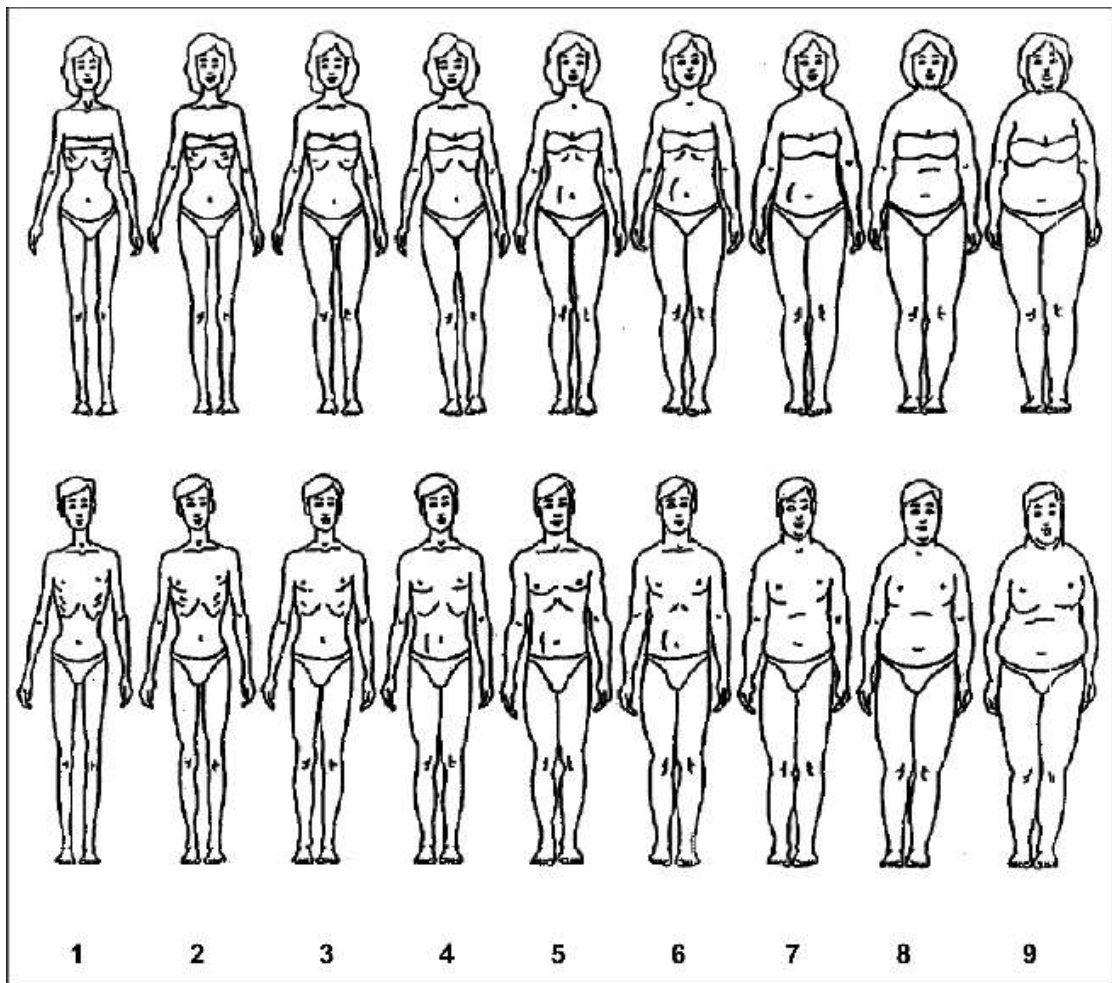
- 1- very underweight
- 2- somewhat underweight
- 3- normal weight
- 4- somewhat overweight
- 5- Very overweight.

60) From looking at me, most people think I am:

- 1- Very underweight
- 2- Somewhat underweight
- 3- Normal weight
- 4- Somewhat overweight
- 5- Very overweight

For questions 61-68, choose 1-5 scale to choose how satisfied or dissatisfied you are with each of the following areas of your body.

61) Face (features and complexions).	1	2	3	4	5
62) Hair (color,thickness,texture)	1	2	3	4	5
63) Lower torso (buttocks, hips, thighs, legs).	1	2	3	4	5
64) Mid torso (waist, stomach).	1	2	3	4	5
65) Upper torso (chest or breasts, shoulders, arms).	1	2	3	4	5
66) Muscle tone.	1	2	3	4	5
67) Weight.	1	2	3	4	5
68) Height.	1	2	3	4	5
69) Overall appearance.	1	2	3	4	5

**SECTION C; Contour Drawing Rating Scale**

## SECTION D: THE ROSENBERG SELF-ESTEEM SCALE

		1	2	3	4
		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
2	I feel that I have a number of good qualities.	SA	A	D	SD
3	All in all, I am inclined to feel that I am a failure.**	SA	A	D	SD
4	I am able to do things as well as most other people.	SA	A	D	SD
5	I feel I do not have much to be proud of.**	SA	A	D	SD
6	I take a positive attitude toward myself.	SA	A	D	SD
7	On the whole, I am satisfied with myself.	SA	A	D	SD
8	I wish I could have more respect for myself.**	SA	A	D	SD
9	I certainly feel useless at times.**	SA	A	D	SD
10	At times I think I am no good at all.**	SA	A	D	SD

## SECTION E: PSYCHOLOGICAL GENERAL WELL-BEING INDEX

### PSYCHOLOGICAL GENERAL WELL-BEING INDEX (PGWBI)

**READ:** This section of the examination contains questions about how you feel and how things have been going with you. For each question check the answer which best applies to you.

#### 1. How have you been feeling in general? (DURING THE PAST MONTH)

- 5 [ ] In excellent spirits
- 4 [ ] In very good spirits.
- 3 [ ] In good spirits mostly
- 2 [ ] I have been up and down in spirits a lot
- 1 [ ] In low spirits mostly
- 0 [ ] In very low spirits

#### 2. How often were you bothered by any illness, bodily disorder, aches or pains? (DURING THE PAST MONTH)

- 0 [ ] Every day
- 1 [ ] Almost every day
- 2 [ ] About half of the time
- 3 [ ] Now and then, but less than half the time
- 4 [ ] Rarely
- 5 [ ] None of the time

#### 3. Did you feel depressed? (DURING THE PAST MONTH)

- 0 [ ] Yes—to the point that I felt like taking my life
- 1 [ ] Yes—to the point that I did not care about anything
- 2 [ ] Yes—very depressed almost every day
- 3 [ ] Yes—quite depressed several times
- 4 [ ] Yes—a little depressed now and then
- 5 [ ] No—never felt depressed at all

#### 4. Have you been in firm control of your behavior, thoughts, emotions, or feelings? (DURING THE PAST MONTH)

- 5 [ ] Yes, definitely so
- 4 [ ] Yes, for the most part
- 3 [ ] Generally so
- 2 [ ] Not too well
- 1 [ ] No, and I am somewhat disturbed
- 0 [ ] No, and I am very disturbed



**(DURING THE PAST MONTH)**

- 0 [ ] Extremely so—to the point where I could not work or take care of things  
 1 [ ] Very much so  
 2 [ ] Quite a bit  
 3 [ ] Some—enough to bother me  
 4 [ ] A little  
 5 [ ] Not at all
- 

**6. How much energy, pep, or vitality did you have or feel?  
 (DURING THE PAST MONTH)**

- 5 [ ] Very full of energy—lots of pep  
 4 [ ] Fairly energetic most of the time  
 3 [ ] My energy level varied quite a bit  
 2 [ ] Generally low in energy or pep  
 1 [ ] Very low in energy or pep most of the time  
 0 [ ] No energy or pep at all—I felt drained, sapped
- 

**7. I felt downhearted and blue DURING THE PAST MONTH.**

- 5 [ ] None of the time  
 4 [ ] A little of the time  
 3 [ ] Some of the time  
 2 [ ] A good bit of the time  
 1 [ ] Most of the time  
 0 [ ] All of the time
- 

**8. Were you generally tense-or did you feel any tension?  
 (DURING THE PAST MONTH)**

- 0 [ ] Yes—extremely tense, most or all of the time  
 1 [ ] Yes—very tense most of the time  
 2 [ ] Not generally tense, but did feel fairly tense several times  
 3 [ ] I felt a little tense a few times  
 4 [ ] My general tension level was quite low  
 5 [ ] I never felt tense or any tension at all

---

**9. How happy, satisfied, or pleased have you been with your personal life?  
(DURING THE PAST MONTH)**

- 5 [ ] Extremely happy—could not have been more satisfied or pleased
- 4 [ ] Very happy most of the time
- 3 [ ] Generally satisfied—pleased
- 2 [ ] Sometimes fairly happy, sometimes fairly unhappy
- 1 [ ] Generally dissatisfied, unhappy
- 0 [ ] Very dissatisfied or unhappy most or all the time

---

**10. Did you feel healthy enough to carry out the things you like to do or had to do? (DURING THE PAST MONTH)**

- 5 [ ] Yes—definitely so
- 4 [ ] For the most part
- 3 [ ] Health problems limited me in some important ways
- 2 [ ] I was only healthy enough to take care of myself
- 1 [ ] I needed some help in taking care of myself
- 0 [ ] I needed someone to help me with most or all of the things I had to do

---

**11. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile? (DURING THE PAST MONTH)**

- 0 [ ] Extremely so—to the point that I have just about given up
- 1 [ ] Very much so
- 2 [ ] Quite a bit
- 3 [ ] Some—enough to bother me
- 4 [ ] A little bit
- 5 [ ] Not at all

---

**12. I woke up feeling fresh and rested DURING THE PAST MONTH.**

- 0 [ ] None of the time
- 1 [ ] A little of the time
- 2 [ ] Some of the time
- 3 [ ] A good bit of the time
- 4 [ ] Most of the time
- 5 [ ] All of the time

---

**13. Have you been concerned, worried, or had any fears about your health?  
(DURING THE PAST MONTH)**

- 0 [ ] Extremely so
- 1 [ ] Very much so
- 2 [ ] Quite a bit
- 3 [ ] Some, but not a lot
- 4 [ ] Practically never
- 5 [ ] Not at all

---

**14. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel or of your memory? (DURING THE PAST MONTH)**

- 5 [ ] Not at all
- 4 [ ] Only a little
- 3 [ ] Some—but not enough to be concerned or worried about
- 2 [ ] Some and I have been a little concerned
- 1 [ ] Some and I am quite concerned
- 0 [ ] Yes, very much so and I am very concerned

---

**15. My daily life was full of things that were interesting to me DURING THE PAST MONTH.**

- 0 [ ] None of the time
- 1 [ ] A little of the time
- 2 [ ] Some of the time
- 3 [ ] A good bit of the time
- 4 [ ] Most of the time
- 5 [ ] All of the time

---

**16. Did you feel active, vigorous, or dull, sluggish? (DURING THE PAST MONTH)**

- 5 [ ] Very active, vigorous every day
- 4 [ ] Mostly active, vigorous—never really dull, sluggish
- 3 [ ] Fairly active, vigorous—seldom dull, sluggish
- 2 [ ] Fairly dull, sluggish—seldom active, vigorous
- 1 [ ] Mostly dull, sluggish—never really active, vigorous
- 0 [ ] Very dull, sluggish every day

---

**17. Have you been anxious, worried, or upset? (DURING THE PAST MONTH)**

- 0 [ ] Extremely so—to the point of being sick or almost sick
- 1 [ ] Very much so
- 2 [ ] Quite a bit
- 3 [ ] Some—enough to bother me
- 4 [ ] A little bit
- 5 [ ] Not at all

---

**18. I was emotionally stable and sure of myself DURING THE PAST MONTH.**

- 0 [ ] None of the time
- 1 [ ] A little of the time
- 2 [ ] Some of the time
- 3 [ ] A good bit of the time
- 4 [ ] Most of the time
- 5 [ ] All of the time

---

**19. Did you feel relaxed, at ease or high strung, tight, or keyed-up?  
(DURING THE PAST MONTH)**

- 5 [ ] Felt relaxed and at ease the whole month
- 4 [ ] Felt relaxed and at ease most of the time
- 3 [ ] Generally felt relaxed but at times felt fairly high strung
- 2 [ ] Generally felt high strung but at times felt fairly relaxed
- 1 [ ] Felt high strung, tight, or keyed up most of the time
- 0 [ ] Felt high strung, tight, or keyed up the whole month

---

**20. I felt cheerful, lighthearted DURING THE PAST MONTH.**

- 0 [ ] None of the time
- 1 [ ] A little of the time
- 2 [ ] Some of the time
- 3 [ ] A good bit of the time
- 4 [ ] Most of the time
- 5 [ ] All of the time

---

**21. I felt tired, worn out, used up, or exhausted DURING THE PAST MONTH.**

- 5 [ ] None of the time
- 4 [ ] A little of the time
- 3 [ ] Some of the time
- 2 [ ] A good bit of the time
- 1 [ ] Most of the time
- 0 [ ] All of the time

---

**22. Have you been under or felt you were under any strain, stress, or pressure?  
(DURING THE PAST MONTH)**

- 0 [ ] Yes, almost more than I could bear or stand
- 1 [ ] Yes, quite a bit of pressure
- 2 [ ] Yes, some—more than usual
- 3 [ ] Yes, some—but about usual
- 4 [ ] Yes, a little
- 5 [ ] Not at all

*Thank you very much for your cooperation*

**APPENDIX III: BUDGET**

<u>ITEM</u>	<u>COST</u>
Laptop .....	95,000
Printing.....	40,000
Airtime.....	10,000
Transport .....	30,000
Data analysis .....	50, 000
Total.....	<u>225,000/=</u>

**APPENDIX IV: TIME SCHEDULE.**

<b><u>Activity</u></b>	<b><u>Timeline</u></b>
1. Writing and submission of proposal	April-Nov 2018
2. Present proposal to IREC for approval	November 2018
3. IREC Approval	December 2018
4. End of proposal writing	December 2018
5. Data collection	April-June 2019
6. Data cleaning, coding and entry	July 2019
7. Data analysis	August 2019
8. Submission of draft of thesis for scrutiny	April 2022
9. Correction of thesis and submission for final scrutiny	July 2022
10. Correction, binding and submission of thesis	July 2022

## APPENDIX V: IREC Approval



MOI TEACHING AND REFERRAL HOSPITAL  
P.O. BOX 3  
ELDORET  
Tel: 334711/2/3  
Reference: IREC/2019/02  
**Approval Number: 0003271**



MOI UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
P.O. BOX 4606  
ELDORET  
14<sup>th</sup> March, 2019

Dr. Maureen Muteitsi Muchesi,  
Moi University,  
School of Medicine,  
P.O. Box 4606-30100,  
ELDORET-KENYA.

Dear Dr. Muchesi,

### RE: FORMAL APPROVAL

The MU/MTRH- Institutional Research and Ethics Committee has reviewed your research proposal titled: -

***"Body Image, Self-Esteem and Health-Related Behaviors among Undergraduate Students, Moi University West Campus Eldoret".***

Your proposal has been granted a Formal Approval Number: **FAN: IREC 3271** on 14<sup>th</sup> March, 2019. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; hence will expire on 13<sup>th</sup> March, 2020. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date. You will be required to submit progress report(s) on application for continuation, at the end of the study and any other times as may be recommended by the Committee.

Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. You will also be required to seek further clearance from any other regulatory body/authority that may be appropriate and applicable to the conduct of this study.

Sincerely,

**DR. S. NYABERA**  
**DEPUTY CHAIRMAN**  
**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE**



cc	CEO	-	MTRH	Dean	--	SOP	Dean	-	SOM
	Principal	-	CHS	Dean	-	SON	Dean	-	SOD

**APPENDIX VI: University Approval (Moi University)**



**MOI UNIVERSITY**

**OFFICE OF THE DEPUTY VICE CHANCELLOR  
ACADEMICS, RESEARCH AND EXTENSION**

Tel: (053) 43355  
(053) 43620  
Fax: (053) 43412  
Email: [dvc\\_are@mu.ac.ke](mailto:dvc_are@mu.ac.ke) or [dvcresearchmu@gmail.com](mailto:dvcresearchmu@gmail.com)

P.O. Box 3900  
Eldoret - 30100  
Kenya

**REF: MU/DVC/REP/27B**

**Date: 17<sup>th</sup> May, 2019**

TO WHOM IT MAY CONCERN

**RE: PERMISSION TO CARRY OUT RESEARCH – DR. MAUREEN MUTEITSI  
MUCHESI**

The above subject matter refers.

Dr. Maureen Muteitsi Muchesi who is a Masters Student at the School of Medicine, Moi University has applied for authority to carry out research at Moi University. We would be grateful if she is permitted to conduct her research on "*Body Image, Self-Esteem and Health Related Behaviors among Undergraduate Students in Eldoret West Campus, Moi University*".

By a copy of this letter authority is hereby granted to her to conduct the research.

After the completion of the research, a complete report both on hard and soft copy will be handed over to the office of Deputy Vice-Chancellor, Academics, Research & Extension.

Any assistance accorded to her will be highly appreciated.

Thank you.

Yours faithfully,

**PROF. I. N. KIMENGI, Ph.D.  
DEPUTY VICE-CHANCELLOR  
(ACADEMICS, RESEARCH & EXTENSION)**

3/3/2019



(ISO 9001: 2008 Certified Institution)