NUTRITIONAL STATUS AND EATING DISORDERS AMONG FEMALE HAIR AND BEAUTY COLLEGE STUDENTS IN NAIROBI, KENYA

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.
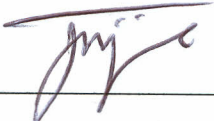
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To my husband Paul Matuku, my children Santana and Sepp, my mother Loice Katile for their prayers, support and encouragement throughout my study period.

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ABBREVIATIONS

EDNOS- Eating Disorders not otherwise specified.

EAT 26- Eating Attitudes Test.

NEDA- National Eating Disorders Association

BMI- Body Mass Index

FAO- Food Agriculture Organization

GOK- Government of Kenya

CBS- Central Bureau Statistics

SPSS- Statistical Package for Social Sciences

ABSTRACT

Eating disorders among young females are on the increase. Body image concerns are more prevalent in females than males; hence eating disorders are also more prevalent in females than males. Many college females are struggling with the idea of weight loss or gain to meet the perfect standard and yet they lack laid down procedures on how to do it thus resorting to harmful methods. It is in this light that this study was designed. The purpose of this study was to investigate the nutritional status and socio-behavioral factors that influence disordered eating habits among female hair and beauty college students in Nairobi, Kenya. The objectives of the study were to asses the nutritional status of female college students, determine the prevalence of eating disorders, and determine the risk factors associated with eating disorders. The study was carried out in Nairobi. The target population was females attending hair and beauty colleges in Nairobi, aged 18- 26 years. The study involved 219 respondents. Data were collected using questionnaires. Nutritional status was determined by computing the BMI of the respondents and also looking at consumption of various foods over a given period of time. Quantitative data were analysed using (SPSS) programme. To determine the nutritional status anthropometric data were analyzed using Epi Info to compute Body Mass Index. The Eating Attitudes Test was used to measure disordered eating behaviors. Cut off points for physical activities were chosen in a manner consistent with the national health objectives and recommendations. Eighty two percent of the respondents reported normal eating habits while 18% reported abnormal eating habits. Six percent of the respondents were underweight, 60.5% were of normal weight, 24.7% were overweight and 8.8% were obese. It was noted that most of the respondents were exercising for longer periods than recommended by the National Health Objectives and Recommendations for physical activity. There was a significant relationship $p\leq 0.05$ between peer support and development of eating disorders. There was also a significant relationship $p\leq 0.05$ between eating disorders and the kind of family one came from. Reading of magazines and television watching had no influence on food issues. There was no significant relationship between nutrition status and eating habits at $p\leq 0.05$ significance levels, though contingency coefficient measure of association showed that nutrition status accounted for 23 percent of the observed variations in eating habits. Conclusion; Young females in beauty colleges are engaging in disordered eating habits that may be harmful to their health. It was therefore recommended that nutritionists should offer nutrition education to young females on the dangers of engaging in disordered eating habits and nutrition education should be strengthened in the curriculum that is used in the beauty colleges for change to be realized.

CHAPTER I

INTRODUCTION

1.1 Background

Eating disorders, namely anorexia nervosa, bulimia nervosa and compulsive eating, are characterized by clinical disturbances in body image and eating behaviors (Markino, Tsuboi, and Dennerstein, 2004). Those suffering from anorexia nervosa have the feeling of being fat even when emaciated (Aronson, Fitzgerald, and Hewes, 1991). They deny the seriousness of low body weight and have morbid fear of weight gain with the relentless pursuit of thinness (Patel, Phillips, and Pratt, 2002). Bulimia nervosa is defined by an over evaluation of weight shape and the behavioral symptoms of recurrent binge eating accompanied by purging and fasting (Markino, et al, 2004). The Eating Disorders Not Otherwise Specified (EDNOS) category reflects the many cases of eating disorders that can be quite severe but do not meet the diagnostic criteria for anorexia nervosa and bulimia nervosa (Markino, et al, 2004).

Eating disorders are more prevalent in the western cultures where food is in abundance and for females attractiveness is equated with thinness (Patel, et al, 2002). However as western social cultural ideals become more widespread, cases of eating disorders in non western societies have been reported (Patel, et al, 2002). Recently eating disorders have been reported in non-western countries, such as the Middle East, The People's Republic of China, South Africa and Nigeria (Bennet, Sharpe, Freeman, and Carson, 2004). These recent studies suggest that the prevalence of eating disorders has been rising among non-

western countries as well. However, eating disorders may present differently in various cultures, and diagnostic criteria based on Western norms may not always be appropriate. One of the reported explanations for the development of eating disorders is the social pressure resulting from the standards of female beauty imposed by modern industrial society or Western culture (Markino, et al, 2004).

The increasing globalization and exposure to Western media ideals have been suggested to increase the rate of eating disorders in non-western countries. Research carried out by the National Eating Disorders Association (NEDA, 2000) suggests that about one percent (1%) of female adolescents have anorexia and about four percent (4%), college-aged women have bulimia.

Extrapolated statistics on the prevalence of eating disorders in the East African Region, according to the US Census of Bureau of Statistics (CBS, 2004) indicate that Kenya had 606,288 cases of eating disorders, while Tanzania reported 663,066 cases and Uganda 485,115 cases. Of these cases Kenya had 230,874 cases of binge eating disorder, with Tanzania reporting 184,731 cases and Uganda 252,495 cases.

Disordered eating is not a problem experienced by a single gender or racial group. It crosscuts gender, ethnicity, and sexual orientation. Eating disorders affect more females than males because body image concerns increase in females through their developing years (Burrows and Cooper, 2002). Of individuals who develop an eating disorder 90% to 95% are young females between the ages of 18 and 26 years (Hesse-Biber, 2000).

Many young females do not positively regard the changes in their body composition at puberty (Thompson and Chad, 2002). In fact the rapid physical changes experienced cause many young females to feel uncertain, insecure and anxious about their bodies (Eklund and Bianco, 2000). The increase in body fatness that young females experience as they mature is often viewed as taking them further from the society's ideal body shape hence predispose them to unhealthy eating attitudes (Hesse-Biber , 2000). In addition, during and following pubertal development, young females are particularly sensitive to the evaluation of their appearance by others. Being overweight seems to be a risk factor associated with disordered eating among young females. Females who are more dissatisfied with their weight and who perceive themselves overweight are more likely to engage in disordered eating behaviors than their counterparts of normal weight (Croll, Neumark-Sztainer, Story and Ireland, 2005)

Although the problem of disordered eating does present it self in young females, those attending hair and beauty colleges are more at risk since they are in the beauty industry which is likely to be mostly affected due to its nature of business. Modeling is a key component of the beauty industry and models have always been portrayed to be slender and "fat free". Thus young female college students in the beauty industry in the pursuit to achieve and maintain a particular body shape and size may engage in disordered eating behaviors.

1.2 Statement of Problem

Physical appearance is a major preoccupation, especially of many young female adults both in developed and developing countries. Weight dissatisfactions and attempts at weight modifications through disordered eating have become the norm rather than the exception (Neumark- sztainer, 1995).

Millions of women try to change their body to meet the perfect "standard" that has been presented by TV, magazines, movies and commercials. Although most young women are struggling with the idea of weight loss or gain to meet the perfect "standard" there are no laid down procedures that are available to these young females on how to go about weight loss or gain. This has led to adoption of several methods that are harmful to the individual. Unhealthy practices such as unhealthy dieting, binge eating, vomiting, laxative abuse, skipping meals and excessive exercising are on the increase. From personal communication with some of the young females, they had no idea on how these unhealthy practices would adversely affect them.

There is also the need for nutrition education among young female adults on the dangers of some of these practices adopted for weight loss or gain, thus a growing concern among nutritionists that "we may be eating our way to malnutrition". The notion that being overweight is dangerous to health has also been taken up by commercial industries to sell products thus reinforcing messages that weight gain is a bad thing. An adequate intake of all required nutrients provides the basis for optimal health now and in the future.

Obtaining an adequate nutrient intake is a balancing act: eating a variety of foods to supply the nutrients needed by body but not too much of other food components. Knowing which foods contain which nutrients is the first step towards eating a balanced diet (Aronson, et al., 1990)

Most young women in Kenya today believe that a healthy body is slender and "fat free" (Shah, 2006). Consequently in the rush to get a 'health' message out to the population, advice about overweight has been oversimplified. Public health is failing to consider how messages are being taken up by different groups and thus emphasizing weight loss for health is often interpreted as a dieting message thus a remarkable increase in disordered eating behaviors among young adult females attending hair and beauty colleges in Nairobi.

Eating disorders can have adverse effects on an individual such as damage to the heart, kidneys, stomach lining and other internal organs as well as leading to psychological problems. It is in this view that the findings of this study will help in formulating guidelines on safe weight loss and also highlight risk factors that are amenable to change.

1.3 Purpose of study

The purpose of this study was to investigate the nutritional status and socio-behavioral factors leading to disordered eating habits among female hair and beauty college students in Nairobi, Kenya

1.4 Specific Objectives

1.4.1   Assess the nutritional status of female college students attending hair and beauty colleges in Nairobi.

1.4.2   Determine the prevalence of disordered eating habits among female college students attending hair and beauty colleges.

1.4.3   Determine the risk factors associated with eating disorders among female college students attending hair and beauty colleges in Nairobi.

1.4.4   Determine the relationship between nutritional status and disordered eating habits.

1.5 Hypotheses

H0. There is no relationship between disordered eating behaviors and the nutrition status among female college students attending hair and beauty colleges in Nairobi.

1.6 Significance of study

Eating disorders influence the nutritional status of an individual. An individual who engages in eating disorders with the main aim of losing weight is likely to be of poor nutritional status. People suffering from anorexia nervosa and bulimia nervosa usually are underweight as they engage in practices that amount to great loss of weight. Binge eating could result in an individual gaining weight thus being overweight or obese. The study therefore sought to find out the relationship between eating habits and the nutrition status of young females in hair and beauty colleges in Nairobi.

1.7 Limitations of the study

The study also focused on young female college students in Nairobi only, and did not cover other regions within Kenya. The study did not take into considerations other intervening factors that could lead to eating disorders such as disease.

1.8 Operational definition of terms

Overweight-weight between 10%-20% above desirable weight for height (FAO 2005).

Underweight- weight of 10% or more below desirable weight for height ((FAO 2005).

Activity level – participation in co-curricular activities such as games, sports, walking and household chores.

Anorexia – a psychological condition manifested by refusal to eat to achieve a thin- usually abnormally thin appearance.

Bulimia- an eating disorder where one eats a lot of food in a short time and then tries to prevent weight gain by vomiting.

Fasting- going without food for some time.

Binging- excessive eating or drinking.

Disordered eating- an abnormal eating pattern characterized by severe disturbance in eating behavior or excessive concern on body weight.

Normal eating- realizing you owe your body daily fuel and nutrients to keep healthy, but without keeping a running "food calculator" going in your brain or being too restrictive.

Nutrition status- health condition of an individual as influenced by food intake, absorption and utilization of nutrients in the body

1.9 Conceptual Framework of eating disorders

The conceptual frame work explains the relationship between an individual and factors that could lead to one developing an eating disorder. Development challenges in adolescence and individual and family risk factors, coupled with cultural pressures to be thin and beautiful could lead to feelings of loss of control and low self esteem hence one engaging in dieting behaviour thus developing an eating disorder.

Development challenges in adolescence
E.g. changes in body shape, becoming independent, developing relationships, pressures at school and developing identity

Individual and Family Risk Factors
Personal History: depression, obesity, adverse childhood experience
Family History: depression, eating disorder, obesity, alcoholism

Stress

Feelings of loss of control. Low self-esteem

Dieting

Eating Disorder

Psychological social & physical effects. Including low self-esteem

Cultural pressures to be thin and beautiful, including adverse comments about shape and weight

Negative thinking

Source: Adapted from Stewart (1998)

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Eating is vital to life. Everyone must eat on a daily basis in order to keep the body functioning efficiently. But sometimes people find it difficult to eat in ways that are healthy. Emotions, stress and peer pressure can cause people to alter their eating habits in unhealthy ways. The result can be an eating disturbance or disorder (Croll, et al., 2002). Eating disorders are one of the key health issues facing young women (Fisher, Golden and Katzman, 1995). An eating disturbance is similar to an eating disorder, but is less severe and does not meet the specific clinical definition for an eating disorder (Croll, et al., 2002). This study sought to find out the nutrition status and prevalence of eating disorders among young females attending hair and beauty colleges.

The literature is reviewed under the following subtopics; eating disorders, types of eating disorders, risk factors to eating disorders, effects of eating disorders, and nutrition status.

2.2 Eating disorders

In the United States, conservative estimates indicate that after puberty, 5-10% of girls and women struggle with eating disorders including anorexia, bulimia, binge eating disorder, or borderline conditions (Margo, 2000). At least 50,000 individuals die as a direct result of eating disorders. Because of the secretiveness and shame associated with eating disorders, many cases are probably not reported. In addition, many individuals struggle

faulty messages from "out there". There is evidence from dieting studies that of all people who diet, half are not even overweight (Patricia, Dianne and Jess, 2000).

According to the National Eating Disorders Association, the signs of eating disorders are;

Physical

- Marked weight loss
- Fluctuations in weight of up to 10 pounds or more
- Amenorrhea; menstrual cycle irregularities
- Chronic sore throat or stomach problems
- Decay of tooth enamel
- Dizziness and/ or fainting episode
- Growth of fine "lanugo" or babylike hair on body
- Chronic fatigue
- Hair loss
- Dehydration
- Swollen cheeks

Emotional and behavioral

- Preoccupation with food and calories
- Fear of eating foods that contain fat
- "Good" and "bad" food categories
- Restricted number of foods in diet
- Intense fear of weight gain or becoming fat
- Avoiding situations where food is served

2.3.2 Bulimia

People with bulimia are involved in a binge-purge cycle of trying to control their weight and food intake. Bulimia is characterized by eating large amounts of food in a short period of time; often foods which are "forbidden" or "bad" such as candy, ice cream and cakes. This is followed by guilt, which results in an attempt to purge the food and calories from the body (Middleman, Vasquez and Durant, 1998). The abuse of laxatives, diuretics and/or enemas is also considered to be purging behaviors. Excessive exercise (most often done daily and for an hour or more) for the purpose of getting rid of calories is also considered to be a method of purging.

As with anorexia, depression, anxiety and withdrawal occur in bulimia. The bulimic believes that self worth requires being thin. Suicidal thoughts may also accompany the depression as well as social phobia and fear of humiliation. Denial of the eating problem or purging is common. Bulimia can also result in death if untreated. People struggling with Bulimia Nervosa often evaluate themselves extremely critically on the basis of their body shape and weight (Dixon, 1996)

2.3.3 Compulsive Overeating/Binge Eating Disorder

Many people eat in response to emotional rather than physical hunger. Compulsive eaters often feel a void in their lives, which leaves them feeling "empty." They may eat to attempt to fill this emptiness. Many people will choose "comfort" foods to fill emotional hunger (NEDA, 2000). Weight management becomes difficult for the

compulsive overeater. This can cause the person to resort to drastic diets or purging methods to compensate for the excessive food intake.

Compulsive overeaters can be at risk for developing bulimia (NEDA, 2000). Many compulsive overeaters suffer from a lack of self-esteem. Behavior modification and other counseling techniques can be used to overcome the food addiction and to deal with the underlying feelings that cause the overeating. Just like anorexia nervosa and bulimia the main goal of the compulsive eater is to maintain a body weight that is "ideal" (thin) and acceptable to peers and this is mainly achieved through dieting regimes (Hirschman and Munter, 1998).

This study sought to find out what types of eating disorders were present in the young females attending hair and beauty colleges in Nairobi. The various characteristics of how each eating disorder manifests were included in the questionnaire in order to be able to ascertain what kind of eating disorder the respondents were involved in. The characteristics were analyzed to determine what eating disorder was more prevalent.

2.4 Risk factors to eating disorders

2.4.1 Peer pressure

Young females have in most cases, a role model who has a perfect body, so they want to be like her and possess the same attractiveness that she gets from her body. As a result, and as it is explained by Harvey (2002), young females undergo many eating disorders such as bulimia and anorexia. In fact, adolescents care a lot about their appearance in the

teen age; however, peers add more pressure that in most of times influence youth's identity and make them loose their choice and their personal way of expression. Appearance is of prime importance thus there is a strong relationship between appearance and self-esteem during adolescence. Since adolescents pay more attention to others' feedback and appearance is the link between self and the others, each remark about appearance goes directly to the self (Morrison, Kalin, & Morrison 2004). Accordingly, adolescents get their self esteem from their peers and never forget their comments. Peer pressure thus plays an important role in the process of identity development.

2.4.2 The media

It is hard to separate the influence of the media in the development of eating disorders. Various studies point to the correlation between low self-esteem in young girls and high scores on eating distress measures as they grow. Self-esteem is a dynamic construct, like body image, which is influenced by a whole variety of factors such as parenting, childhood experiences, core personality and body image especially in girls (Harrison, 1997). It follows thus by logical reduction that influences on body image will affect self esteem and promote the risk of developing an eating disorder as a person turns to the control of their body in order to feel acceptable. In this respect the media may contribute to low self-esteem by promoting slenderness as the pathway to gaining love, acceptance and respect while at the same time reflecting a trend in society to demonize fat (Heinburg and Thompson, 1999). When women are asked what they fear most in life, most will cite the possibility of gaining weight (Heinburg et al., 1999). When women are asked what they least like about themselves most will describe a part of their body (usually stomach,

thighs, legs) rather than no physical attributes like laziness or low confidence (Shah, 2006).

The use of the average model is wide spread in the media, especially among print advertisements in popular magazines. Beauty or fashion magazines use images of thin female bodies to model clothes or sell products and are viewed by women all over the world. After exposure to such advertisements a women's body image may become distorted causing dissatisfaction with one's own body. Popular women's magazines are often credited for exposing unrealistic, unobtainable body images to women of all ages (Heinburg and Thompson, 1999).

The relationship between mass media consumption and symptoms of women's eating disorders appears to be stronger for magazine reading than for television viewing. However, watching "thin" shows is a consistent predictor of a woman's drive for thinness and viewing "heavy" shows is significantly related to body dissatisfaction (Harrison, 1997).

2.4.3 Family Relations

Many individuals with eating disorders are also members of troubled families from whom the problem serves to diffuse interpersonal conflicts. Family connectedness and school connectedness are also factors contributing to eating disorders (Croll, et al., 2002). Young females living in single households report a higher prevalence of disordered eating compared to those living in two parent households (Croll et al., 2002).

Eating disorders also present in households where parents are under involved, show little affection and emotions are not openly expressed (Stellefson, 2002). According to Stellefson (2002) parents who are perfectionists and highly critical of their children may drive the young adults to eating disorders.

2.4.4 Excessive physical activity

Exercise is extremely beneficial in weight management because it helps to regulate appetite, increases the basal metabolic rate and reduces the fat deposit "set point" level (Petrie, 1993). Together with a well planned diet, physical exercise corrects the energy balance in favor of increased energy output and decreased energy intake. There is need for programs to emphasize the importance of combining physical activity from a variety of sources with healthy food choices in management of weight.

Excessive exercise can be very dangerous when the balance between healthy exercise and healthy living are neglected. Exercisers with a preoccupation and drive for thinness feel that "if moderate exercise is good then excessive is better" (Keski-Rahkonen, 2001). With this attitude, women can partake in obligatory exercise rituals, which own similar characteristics of addiction The difference with healthy exercisers and those doomed to abuse exercise remains in their attitudes towards exercise. Instead of promoting exercise as a health requirement (healthy exercisers), exercise abusers (obligatory exercisers) smother their entire life with the preoccupation to exercise (Hubbard, Gray and parker, 1998).

In order for exercise to be identified as a problem, a person must meet one or more of the following criteria: - Exercise becomes the first and sometimes only priority of the obligatory exerciser. They also continue to push through their rigorous exercise routines regardless of injury or sickness. Like substance abusers or other extreme addictions, most obligatory exercisers experience withdrawal symptoms if they cannot work out such as: anxiety, irritation, extreme mood swings and even depression (Keski-Rahkonen, 2001). Although exercise abuse is extremely dangerous and can produce serious injuries, it is not considered a diagnosed addiction (Keski-Rahkonen, 2001).

Each of the risk factors that are documented as contributing to eating disorders were investigated in order to find out how each was related to the development of eating disorders in the young females attending hair and beauty colleges.

2.5 Effects of Eating Disorders

Whatever the cause of eating disorders, the effects can be damaging- if not downright devastating and life threatening. People who weigh at least 15% less than the normal weight for their height may not have enough body fat to keep their organs and other body parts healthy (Patel, et al., 2004).

According to Aronson, Fitzergerald and Hewes (1991), a person with anorexia can do damage to the heart, liver, and kidneys by not eating enough. The body slows everything down as if it were starving, causing a drop in blood pressure, pulse, and breathing rate. For girls, this starvation mode may mean they stop getting their periods. Lack of energy

can lead people with anorexia to feel light-headed and unable to concentrate. Anemia and swollen joints are common in people with anorexia, have brittle bones (Aronson et al., 1991). Anorexia can cause a persons hair to fall out, fingernails to break off, and a soft hair called lanugo to grow all over the skin. In severe cases, eating disorders can lead to severe malnutrition and even death (Aronson, et al., 1991).

People with bulimia often have constant stomach pain. In fact, bulimia can actually damage a person's stomach and kidneys as a result of constant vomiting. Bulimia can also cause persons teeth to decay because of the acids that come up into the mouth while vomiting (Thomsen, Weber and Brown, 2002). The person may also develop "chipmunk cheeks" which occur when the salivary glands permanently expand from throwing up so often. Like girls with anorexia, girls with bulimia may stop getting their periods. And most dangerous of all, the constant purging can lead to a loss of the mineral potassium, which can contribute to heart problems and even death (Thomsen, et al., 2002).

The emotional pain of an eating disorder can take its toll too. When a person becomes obsessed with weight, it's hard to concentrate on much else. Many times people with eating disorders become withdrawn and less sociable (Fisher, Golden and Katzman, 1995). Both anorexia and bulimia can lead to feelings of guilt and depression. Some individuals with eating disorders begin using drugs or other substances to help mask their feelings, which only makes the situation worse (Kottke, Brandel, Brekke, Hoffman and Thomas, 2003). The most common cause of death in anorexia is suicide (Patel, et al., 2002).

Frequent vomiting can damage the esophagus and stomach, cause salivary glands to swell, induce gum recession and erosion of tooth enamel (Aronson et al., 1991). Starvation, repeated vomiting and laxatives may also induce major changes in water and electrolyte balance. Normal stores of sodium, potassium, magnesium, calcium, and chloride are depleted. Electrolyte disturbances may cause fatigue, muscle cramps, cardiac arrhythmia, seizures and sudden death (Thompson and Chad, 2002).

The body reacts to severe caloric restriction with a specific set of metabolic adaptations known as the 'starvation response'. Physiological processes slow down, so respiration and the basal metabolic rate decrease, menstruation ceases and thyroid and other hormones diminish in function (Aronson et al., 1991). With significant loss of body fat, women may experience estrogen deficiency and decreased bone density, increasing the risk for developing osteoporosis (O'Dea and Abraham, 2000).

Although the effects of eating disorders are discussed in the literature review the study did not investigate them.

2.5 Nutrition status

Evidence of good nutrition includes a well developed body, ideal weight for body composition (ratio of muscle mass to fat) and height and good muscle development and tone. The skin is smooth and clear, the hair is glossy, and eyes are clear and bright. Posture is good and the facial expression is alert. Appetite, digestion and elimination are normal.

It is therefore necessary for young female adults to be of good nutrition status by not only meeting their day to day needs but also maintaining essential nutrient reserves for resisting infections and disease. The interaction of malnutrition and infection are recognized as major public health issues (Marcus, 2001). Measures of nutritional status are extremely powerful advocacy tools because they allow us describe the current national status of the population and household food security.

The nutrition status of the young females attending hair and beauty colleges was investigated in order to find out the relationship between the nutrition status of the respondents and eating disorders. The study sought to find out if ones eating habits affected the nutrition status.

This chapter looked at eating disorders in totality by defining what an eating disorder is, the different types of eating disorders, risk factors to developing an eating disorder, effects of eating disorders and the relationship between eating disorders and ones nutrition status.

CHAPTER III

METHODOLOGY

3.1 Introduction

This chapter describes the ways in which the study was undertaken and how data were

collected. It focuses on; research design, variables, location of study, target population,

sampling techniques and sample size, pilot study and data collection techniques and

analysis.

3.2 Research Design.

The study adopted descriptive survey design. Descriptive survey design aims at providing

accurate information about the phenomena and allow for collection of quantifiable data in

a standardized manner from a large sample (Gall and Gall, 1986). The study was

essentially non- experimental in that it sought the relationships between non-manipulated

variables in a natural rather than artificial setting (Best and Khan, 1991). Descriptive

survey design was chosen for this study because it is also convenient in collecting data

from a large sample of respondents within a short time (Miller, 1991).

3.3 Variables

The independent variable in this study was nutrition status while the dependent variables

were;- eating disorders, frequency consumption of selected food groups, peer support,

media, physical activity and family relations.

3.4 Location of the Study

The study was carried out in Nairobi. Nairobi is the capital city of Kenya and has a population of 3 million with that of females being lower than that of men (GOK, 2003). Nairobi was selected, since it is a cosmopolitan city, which has a large proportion of colleges. Being, the capital city of Kenya, the extent to which the western culture has infiltrated people's life style is relatively higher than the rest of the country. In addition it has a large population of people from diverse cultural settings.

3.5 Target Population

The population comprised of female college students aged between the 18-26 years attending hair and beauty colleges. Eating disorders are more prevalent in women than males (Akan and Grilo 1995) hence the choice of female students. This group was selected since they are in touch with first hand information on beauty and are likely to be influenced by the emerging perception of beauty.

3.6 Sampling Techniques and Sample Size

A list of all hair and beauty colleges registered with the Ministry of Education and Technology was drawn. From each college simple random sampling was used to come up with a representative sample of respondents to be included in the study sample.

The Ministry of Education and Technology had 17 registered hair and beauty colleges in Nairobi each with an estimated population of 30 females in each college undertaking courses in hair and beauty. The total population of students taking hair and beauty

courses at the time of study were 510. To obtain a representative sample, the Fisher's et al., (1995) method of sample determination was employed. That is to determine the sample size for population more than 10,000.

$n = [z^2pq/d^2]$

Where

n- The desired sample size

z- The standard normal deviate at the required confidence interval (95 probability error equal to 1.96)

p- The proportion of occurrence of the phenomenon (0.5 for unknown)

q- The proportion of non-occurrence is (1-p) = 0.5

d- The level of statistical significance (0.05 for 95 percent level of significance)

$n = [(1.92)^2 (0.5) (0.5) / (0.05)^2]1 = 384$

The value of n thus is 384

The following formula when used to determine sample size when the population is less than 10,000

$Nf = n/1 + (n/N)$

Where Nf is desired sample when population is less than 10,000

n is sample when the total population is more than 10,000

N is the estimated population of the area being studied

Therefore, the sample consisted of 219 female students from the following calculation:

$$nf = \frac{384}{1 + (384/510)}$$

$$= 219.$$

3.7 Research Instruments

Data were obtained by the use of self administered structured and semi-structured questionnaires. These had questions on demographic information, factors influencing eating habits, the eating attitudes test and frequency intake of selected food items (Appendix 4). Eating disorders (Appendix 5) were assessed by the Eating Attitudes Test (EAT-26), (Garner and Garfinkel ,1979). Anthropometric measurements were measured by the use of a weighing scale to take the weights; heights were taken by the use of a stadiometer.

3.8 Pre-testing

The pilot study was carried out in two colleges offering hair and beauty courses within Thika town since it had similar characteristics to Nairobi where the actual study took place. Pilot centers were selected randomly and questionnaires administered to students in order to test for validity and reliability of the questionnaire. A total of 10 questionnaires were used for the pre-test. The respondents were also selected randomly for the pre-test. Using the information from the questionnaires, the questions were moderated and others altered in order to get the desired information.

3.8.1 Validity and Reliability

A total of 10 questionnaires were administered to a sample of respondents to test for their validity. The 26 items of the Eating Attitudes Test were subjected to the Alpha reliability analysis to test for their reliability and yielded an alpha of 0.6542 which is above the recommended range of 0.5 and thus the item was found to be reliable.

3.9 Data Collection Techniques

Data were collected by use of a questionnaire that was administered to the students to respond to. The questions in the questionnaire were structured with options and the students were required to check among the given options their answer. With the help of research assistants the student weights in meters were taken using a bathroom scale. The students were supposed to be in minimal clothing while the weights were being taken. The weights in kilograms were taken three times for each individual and the average computed and taken as the true value. Heights of the students were taken using a stadiometer and the individual stood straight without shoes and the height taken three times and average used.

3.10 Methods of Data Analysis.

Data obtained from fieldwork including questionnaire and measurements of height and weight, were entered into a computer spreadsheet. Quantitative data were analyzed using the Statistical Package for Social Sciences (SPSS) to generate frequencies, means standard deviations and computation of inferential statistics. To determine the nutritional

status anthropometric data were analyzed using Epi Info 2000 to compute Body Mass Index (BMI) that was used to define the nutrition status. Those respondents with a BMI of 30+ were classified as obese, those with a BMI of 25-29.9 were classified as overweight, and those with a BMI of 18.5-24.9 were classified as normal while those with a BMI of below 18.5 were classified as underweight. This classification was adopted from FAO. The information was then merged with the data from the questionnaire.

The Eating Attitudes Test (EAT-26) was used to measure disordered eating behaviors in the respondents. Those who scored 20 points and above were thought to have eating disorders thus classified as having abnormal eating habits while those that scored below 20 points were considered normal hence having no eating disorders. Cut off points for physical activity were chosen in a manner consistent with WHO 2005 National Health Objectives and Recommendations: 20 minutes of vigorous physical activity ≥ 3 days per week; muscle strengthening exercise ≥ 3 days per week and 30 minutes of moderate physical activity ≥ 5 days per week. A food frequency was also used to determine the frequency at which some food groups were consumed. These groups were starchy (cereals), starchy (non-cereals), legumes and nuts (fresh), legumes and nuts (dry), vegetables, fruits, eggs, meat and fish.

Cross tabulation was used to determine the relationship between the various demographic characteristics, factors that could lead to disordered eating habits, frequency of consumption of food groups and eating habit categories. The results were then subjected to a Chi-square test to test the significant levels.

3.11 Ethical considerations

Confidentiality was maintained by explaining the purpose of the study and seeking consent from the respondents (Appendix 1). No information received from the study was given or disclosed to unauthorized persons external to the team implementing the study. Only the required data were collected and used for the purpose of the study.

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Introduction

The results derived from the various variables investigated which were; demographics of the study population, risk factors to developing eating disorders, nutrition status and results of the eating attitudes test are described in this chapter and discussed.

4.2 Demographic Characteristics

The demographic information included, age, marital status, education level, religion, and social economic status. These factors were investigated because they have a relationship with the risk of an individual developing an eating disorder. Table 4.1 shows the various demographic variables that were investigated in the study population and the results.

The respondents were classified according to age. Out of 215 respondents 20.5% were aged between 18-19 years, 69.3% were aged between 20-24 years and 10.2% were aged 25 and above. Of all the respondents aged between 18-19 years, 95.5% had normal eating habits, while 4.5% reported eating disorders. Those aged between 20-24 years had 78.6% of the respondents with normal eating habits and 21.4% with eating disorders. Those aged 25years and above had 77.3% reporting normal eating habits, while 22.7% reported eating disorders. Age is an important factor in eating disorders. Studies indicate that

(Shisslak et al., 2006) eating disorders tend to pick between adolescence and early adulthood, however the incidence and prevalence has shown an increase in all age groups.

Table 4.1 Demographic characteristics of the respondents.

Variables		Frequency N	Percentage %	Normal	Disordered
Age	18-19 years	44	20.5	42(24.8%)	2(5.4%)
	20-24 years	149	69.3	110(65.1%)	30(81.1%)
	25 and above	22	10.2	17(10.1%)	5(13.5%)
	Total	215	100.0	169(100%)	37(100%)
Marital status	Single	191	88.8	150(88.7%)	32(86%)
	Married	24	11.2	19(11.3%)	5(14%)
	Total	215	100.0	169(100%)	37(100%)
Education level	College	178	82.8	139(82.2)	31(83.8%)
	Secondary	30	14.0	26(15.4%)	3(8.1%)
	Primary	7	3.3	4(15.4%)	3(8.1%)
	Total	215	100.0	169(100%)	37(100%)
Religious affiliation	Catholic	69	32.1	52(30.7%)	11(29.7%)
	Protestant	140	65.1	114(67.4%)	23(62.2%)
	Other	6	2.8	3(2.9%)	3(8.1%)
	Total	215	100.0	169(100%)	37(100%)
Duration of stay in Nairobi	Less than 1 year	58	8.1	46(27.2%)	12(32.4%)
	1-3 years	45	32.4	39(23.1%)	3(78.1%)
	More than 3 years	112	59.5	84(49.7%)	22(59.5%)
	Total	215	100.0	169(100%)	37(100%)
Socio economic status	High income	30	14.0	28(16.6%)	2(5.4%)
	Middle income	162	75.3	124(73.4%)	32(86.5%)
	Low income	23	10.7	17(10%)	3(8.1%)
	Total	215	100.0	169(100%)	37(100%)

Results of this study showed that there was a significant relationship (p>0.05) between the development of eating disorders and age at age 20-24 years at 0.05 level of significance. According to studies (ANRED, 2006) the most common explanation for why eating disorders occur in early adulthood is the amazing number of stressors that arise at this time. Bodies change in early adolescence, so those who feel pressure from the demands of growing older sometimes use eating disorders to stay smaller. The results of this study were in agreement with these findings from previous studies.

Classified according to marital status 88.8% of the respondents were single and 11.2 % were married. Of all the single ladies 82.4% had normal eating habits and 17.6% reported eating disorders. In the married group 79.2% had normal eating habits and 20.8% had eating disorders. Consistent with other studies (ANRED, 2006) the results of this study showed no significant relationship between eating disorders and ones marital status.

Most of the respondents 82.8% had post secondary education at college level, 14.0% had an education level of up to secondary school and the remaining 3.3% had an education level of up to primary school. This study found no significant relationship between an individual's level of education and the risk of developing an eating disorder. Eating disorders were reported among all levels of education, with those that had college education reporting 18.2% eating disorders, secondary reporting 10.3% and primary 42.9%. Research by the American Psychiatric Association (2000) found no relationship between an individual's level of education and eating disorders. 2000).

Out of all the 215 respondents 32.1 % were Catholics, 65.1 % Protestants and 2.8 % were affiliated to other religious groups. Of all the Catholics 17.5% had eating disorders, 10.8% of the Protestants too reported eating disorders and all the other religions combined reported 50% eating disorders. Eating disorders were evident in all religious affiliations. A study on religion and eating disorders found out that there was no relationship between ones' religion and the development of eating disorders. Eating disorders cut across all religions (Grenfell, 2006).

The respondents were classified according to their socio-economic status depending on the locality that they lived in, using the classification used by the Central Bureau of Statistics. Results indicated that of all the respondents 14.0% were of high income level, a majority of them were from the middle income group 75.3% and only 10.7% came from low income areas. However this would not really determine the socio economic status of the individuals since a majority of them were living with relatives and were not household heads.

4.2 Nutrition Status

4.2.1 Introduction

Good nutrition status includes a well developed body, ideal weight for body composition (ratio of muscle mass to fat) and height and good muscle development and tone. It is therefore necessary for young female adults to be of good nutrition status by not only meeting their day to day needs but also maintaining essential nutrient reserves for

resisting infections and disease. Nutrition status of the respondents in this study was determined by investigating on the consumption patterns of the various food groups and calculating the respondent's body mass index.

4.2.2 Frequency consumption patterns of selected food groups

The consumption patterns were assessed by determining the frequency intakes of selected food groups in specified times which included; daily, 1-2 times a week,3-6 times a week, once a month and after a long time (Appendix 6). These foods were classified into starchy cereals, starchy non-cereals, legumes and nuts (dry), legumes and nuts (fresh), vegetables, fruits, eggs and meat and fish.

Table 4.2 gives the consumption patterns of the various food groups at various intervals.

Starchy cereals included foods such as maize, rice, millet, wheat and sorghum. The maize included the food items made from it such as ugali (stiff porridge) and githeri (mixture of maize and beans). Results indicated that the highest consumption for starchy cereals for both groups was at 1-2 times a week.

The high consumption of starchy cereals could be because cereals are the Kenyan staple food. Consumption of starchy cereals for those that had eating disorders was highest in 1-2 times a week with 25%, followed by those who consumed daily at 15% and then those who consumed 3-6 times a week at 11.6%. Chi-square results indicated that there was no significant relationship (p>0.05) between consumption of starchy cereals and development of eating disorders at 0.05 significant levels.

Table 4.2 Frequency intakes of various foods

Food	Eating habit	Frequency					
		Daily	1-2times a wk	3-6 times a wk	Once a month	After a long time	Total
Starchy cereal	Normal	34(20.1%)	69(40.8%)	61(36.1%)	2(1.2%)	3(1.8%)	169(100%)
	Disordered	6(16.2%)	23(62.2%)	8(21.6%)	0(0.0%)	0(0.0%)	37(100%)
Starchy non cereal	Normal	8(4.7%)	64(37.9%)	48(28.4%)	27(16.0%)	22(13.0%)	169(100%)
	Disordered	6(16.2%)	14(37.8%)	10(27.0%)	7(18.9%)	0(0.0%)	37(100.0%)
Legumes and nuts (fresh)	Normal	10(5.9%)	80(47.3%)	41(24.3%)	25(14.8%)	13(7.7%)	169(100.0%)
	Disordered	1(2.7%)	16(43.2%)	15(40.5%)	3(8.1%)	2(5.4%)	37(100.0%)
Legumes and nuts (dry)	Normal	4(2.4%)	95(56.2%)	29(17.2%)	29(17.2%)	12(7.1%)	169(100.0%)
	Disordered	3(8.1%)	12(32.4%)	15(40.5%)	6(16.2%)	1(2.7%)	37(100.0%)
Vegetables	Normal	88(52.1%)	23(13.6%)	56(33.1%)	2(1.2%)	0(0.0%)	169(100.0%)
	Disordered	23(62.2%)	8(21.6%)	6(16.2%)	0(0.0%)	0(0.0%)	37(100.0%)
Fruits	Normal	77(45.6%)	32(18.9%)	59(34.9%)	0(0.0%)	1(0.6%)	169(100.0%)
	Disordered	25(67.6%)	3(8.1%)	9(24.3%)	0(0.0%)	0(0.0%)	37(100.0%)
Eggs	Normal	5(3.0%)	69(40.8%)	32(18.9%)	32(18.9%)	31(18.3%)	169(100.0%)
	Disordered	3(8.1%)	7(18.9%)	12(32.4%)	8(21.6%)	7(18.9%)	37(100.0%)
Meats and fish	Normal	32(18.9%)	66(39.1%)	40(23.7%)	16(9.5%)	15(8.9%)	169(100.0%)
	Disordered	9(24.3%)	8(21.6%)	16(43.2)	3(8.1%)	1(2.7%)	37(100.0%)

Starchy non-cereals included foods such as potatoes, sweet potatoes, cassava, yams, and green bananas. The results indicated that consumption of starchy non-cereals was also

high at 1-2 times for those with normal eating at (82.1%) and at daily consumption for those reporting eating disorders with (42.9%). Chi-square results *(p=0.02)* however indicated the observed variations in eating habits in relation to consumption of starchy non-cereals was significant at 0.05 probability of error.

Legumes and nuts (fresh), included French beans, green peas and all types of fresh beans. The findings indicate that consumption was highest at daily consumption (90.9%) for those reporting normal eating habits and at 3-6 times for those with eating disorders (26.8%). Subjected to chi-square test there was a significant relationship (p>0.05) between consumption of legumes and nuts (fresh) and eating disorders at 0.05 level of significance.

The dry legumes and nuts included all beans, peas, green grams and ground nuts. The findings indicated that the highest consumption of legumes and nuts (dry) was evenly distributed at all intervals for both of the groups. Chi-square results also indicated that the observed variations in eating habits in relation to consumption of legumes and nuts (dry) was significant at 0.05 probability of error.

Over half of all the respondents interviewed (53.8%), consumed vegetables on a daily basis. Contrary to popular belief that consumption of vegetables is high in people reporting eating disorders, results of this study showed that there was no significant relationship between consumption of vegetables and eating disorders. Analysis using the

contingency coefficient measure of association showed that consumption of vegetables explained for only 10 percent of the observed variations in eating habits.

Over half of the respondents in both groups also consumed fruits on a daily basis. Although fruit consumption is deemed a healthy way of controlling weight, chi-square results in this study indicated no significant relationship between consumption of fruit and eating disorders. Only 1.7% of the eating disorders in this study could be attributed to fruit consumption.

Consumption of eggs on a daily basis was very minimal (3.8%). Majority of the respondents reported consumption of eggs 1-2 times a week (36.4%) which is the stipulated range of consumption by nutritionists due to their high level of cholesterol, followed by 3-6 (21.3%), once a month (19.4%) and after a long time (18.4%). There was no significant relationship between consumption of eggs and eating habits.

Meat and Fish Meats included beef, chicken, fish, rabbit, pork and goat meat. Consumption of meats was high in the 1-2 times (35.9%) , followed by 3-6 times a week (27.1%), then on a daily basis (19.9%), once a month (9.2%) and after a long time (7.7%). There was no significant relationship between consumption of meats and eating habits. Table 4.3 gives chi- square results of the selected food groups.

Table 4.3 Chi results of selected food groups and eating habits

Food group	Coefficient value	X^2	Df	P value	Significance
Starchy cereals	0.173	6.32	4	0.176	NS
Starchy non-cereals	0.224	10.884	4	0.028	S
Legumes and nuts fresh	0.152	4.87	4	0.0301	S
Legumes and nuts dry	0.260	14.96	4	0.005	S
Vegetables	0.108	2.45	3	0.484	NS
Fruits	0.017	6.312	3	0.095	NS
Eggs	0.202	8.73	4	0.068	NS
Meat and fish	0.203	8.84	4	0.065	NS

NB: NS denotes no significant relationship

S denote significant relationship

Although these were the results obtained in this study on consumption of various foods at various intervals, there was no documented literature on consumption of various foods and the risk to developing an eating disorder.

4.2.3 Body Mass Index

The nutrition status of the respondents was determined by computing their Body Mass Index (BMI) and then classified accordingly as follows (FAO, 2000)

- BMI ≥ 30 obese

- BMI $\leq 25\text{-}29.9$ overweight

- BMI $\leq 18.5\text{-}24.9$ normal

- BMI ≤ 18.5 underweight.

Body mass index (BMI) is a statistical measure of the weight of a person scaled according to height. BMI provides a simple numeric measure of a persons "fatness" or "thinness" allowing health professionals' to discuss over- and under- weight. The medical establishment has generally acknowledged some short comings of BMI. Because BMI is dependent only upon net weight and height, it makes simplistic assumptions about distribution of muscle and bone mass (National Institute of Health, 2007)

The results of the nutrition status after computing the respondents' body mass index are shown in Figure 2.

Respondents Nutrition Status
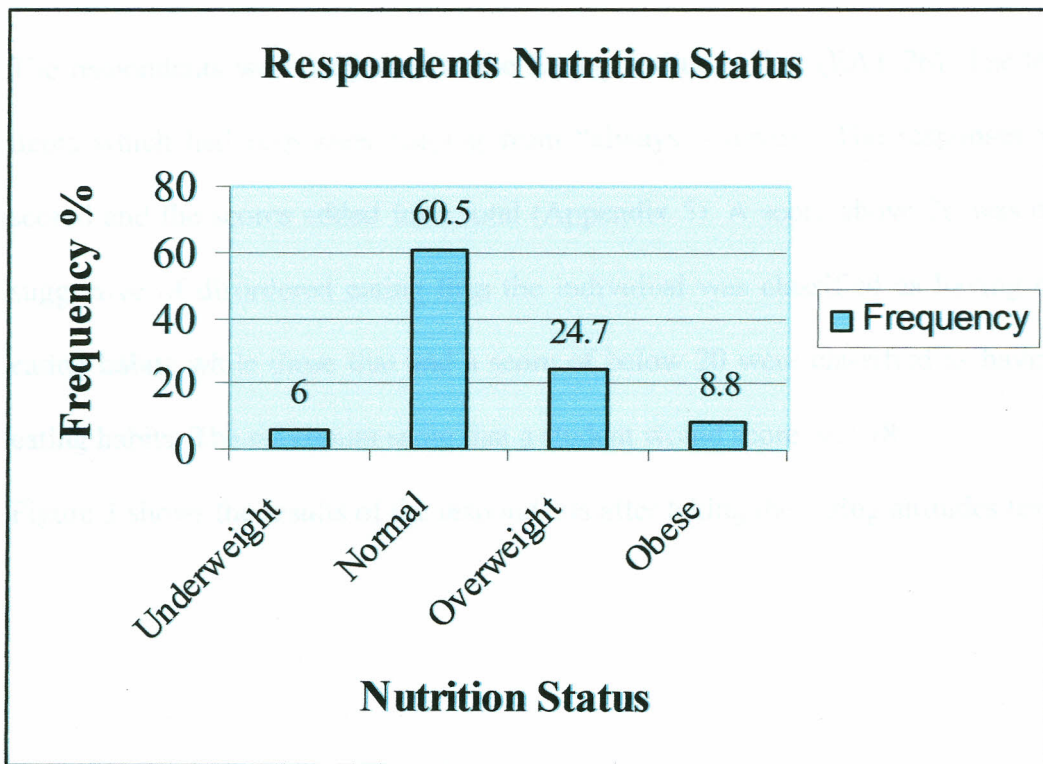
Figure 2 Nutrition status of the respondents

Results of this study showed that over half of the respondents (60.5%) were of normal weight and close to (40.0%) of undesirable weight, with 6% being underweight, 24.7%

overweight and 8.8% obese. From this study it was also observed that close to 33% of the respondents' were either overweight or obese raising concern about obesity which has become a public health issue. It is therefore likely that those that are overweight or obese are likely to engage in eating disorders in pursuit of weight loss. More studies should therefore be carried out on obesity since the findings of this study show that the problem of obesity is also being faced in the beauty industry.

4.3 Eating Habits

4.3.1 Eating Attitudes Test

The respondents were subjected to the Eating Attitudes Test (EAT 26). The test had 26 items which had responses ranging from "always – never". The responses were then scored and the scores added for a total (Appendix 5). A score above 20 was considered suggestive of disordered eating thus the individual was classified as having disordered eating habits while those that had a score of below 20 were classified as having normal eating habits. The maximum score that a student would score was 78.

Figure 3 shows the results of the respondents after taking the eating attitudes test.

Respondents eating habits

Disordered
18%

☐ Normal
☐ Disordered
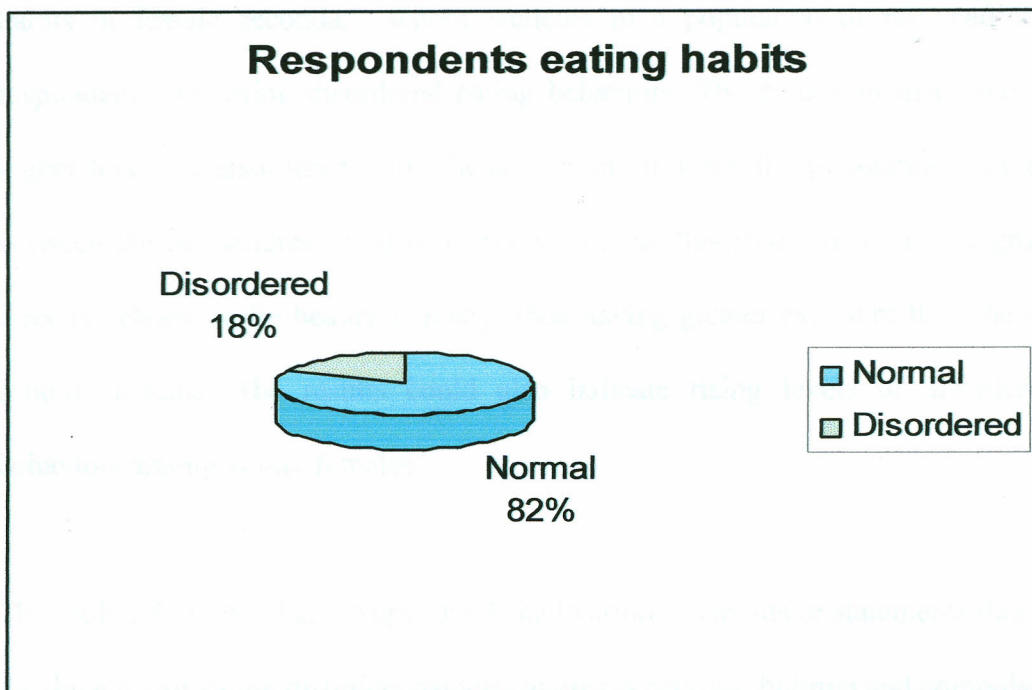
Normal
82%

Figure 3 Eating habits of the respondents

An abnormal eating pattern was characterized by severe disturbance in eating behavior or excessive concern on body weight and exhibiting most of the characteristics shown in appendix 5, while normal eating was considered as realizing that an individual owes the body daily fuel and nutrients to keep healthy, but without keeping a running "food calculator" going in the brain or being too restrictive, not eating the exact same way everyday, but rather balancing eating habits out over several days, feeling hungry and then eating until satisfied and trusting the body's hunger and satiety cues and responding to them.

Results indicated that 82.0% of the respondents were classified as having normal eating habits while 18.0% were classified as having disordered eating habits. A study carried out in Ghana (Bennett, Sharpe, Freeman and Carson 2004) to determine disordered eating

habits in female secondary school students in a population of 668 had 7% of the respondent's reporting disordered eating behaviors. The results in this study indicated higher levels of disordered eating behaviors and in a smaller population. The difference between the two studies could be explained in that this study focused on a group that is directly related to the beauty industry, thus having greater exposure than the secondary school students. The results could also indicate rising levels of disordered eating behaviors among young females.

The Eating Attitudes Test (Appendix 3) had various elements or statements that described the three major eating disorders namely; anorexia nervosa, bulimia and compulsive eating disorder. The elements were analyzed according to the disorder they represented to be able to ascertain the trends in the various eating disorders.

4.3.2 Anorexia nervosa

Anorexia was assessed by using a total of 11 elements drawn from the eating attitudes test that describe the characteristics of an individual suffering anorexia. These elements included; terrified about being over weight, avoid eating when hungry, aware of calorie content of foods eaten, others prefer I ate more, preoccupied with desire to be thin, people think am too thin, preoccupied with the thought of having fat on body, eat diet foods, others pressure me to eat, and like my stomach being empty.

Table 4.4 Anorexic elements

Element describing disorder	Frequency					
	Always	Usually	Often	Sometimes	Rarely	Never
Terrified about being overweight	61(28.4%)	8(3.7%)	13(6.0%)	50(23.3%)	16(7.4%)	67(31.2%)
Avoid eating when hungry	3(1.4%)	5(2.3%)	10(4.7%)	63(29.3%)	30(14.5%)	100(46.5%)
Aware of calorie content in food eaten	42(19.5%)	12(5.6%)	25(11.6)	53(24.7%)	28(13.0%)	55(25.6%)
Others prefer I ate more	11(5.1%)	8(3.7%)	11(5.1%)	33(15.3%)	22(10.2%)	130(60.5%)
Preoccupied with desire to be thin	23(10.7%)	8(3.7%)	8(3.7%)	39(18.1)	27(12.6%)	110(51.2%)
Others think am too thin	12(5.6%)	1(.5%)	6(2.8%)	47(21.9%)	32(14.9%)	117(54.4%)
Fear having fat on my body	24(11.2%)	13(6.0%)	10(4.7%)	42(19.5%)	27(12.6%)	99(46.0%)
Eat diet foods	85(39.5%)	20(9.3%)	17(7.9%)	47(21.9%)	15(7.0%)	31(14.4%)
Others pressure me to eat	9(4.2%)	6(2.8%)	9(4.2%)	43(20.0%)	39(18.1%)	109(50.7%)
Like stomach being empty	5(2.3%)	6(2.8%)	9(4.2%)	57(26.5%)	41(19.1)	97(45.1%)
Engage in dieting behavior	33(15.3%)	12(5.6%)	20(9.3%)	58(27.0%)	29(13.5%)	63(29.3%)

The most prominent anorexic elements in this study were; eat diet foods, terrified about being overweight, aware of caloric content in foods eaten and engaging in dieting behavior.

The results in Table 4.4 show that over half of the respondents (57%) in this study indicated that they always, usually and often eat diet foods. Eating of diet foods was the most prominent anorexic element of all. Eating of diet foods was a way of dealing with weight problems. Most people with anorexia usually engage in consumption of diet foods which could most likely lead to developing an eating disorder. Thus 57% of the young women had a problem with this element of anorexia, which is far much higher than the cumulative prevalence of eating disorders in the respondents.

The results in Table 4.4 indicate that a high proportion (60%) of young women in hair and beauty colleges in this study indicated that they are never, rarely or sometimes terrified about being overweight. In contrast (40%) of the women interviewed were always, usually or often terrified about being overweight. Thus, 40% of the respondents had a problem with this component of anorexia. This is far much higher than the general prevalence of eating disorders in the respondents.

Similarly a good number of the respondents (37%) were also always, usually and often aware of the caloric content of the food consumed. Studies (ANRED, 2006), show that most people with anorexia are always aware of the caloric content of foods eaten and some even go to extents of calculating the calories in the foods eaten and end up restricting calories in meals. Engaging in dieting behavior was also practiced among the young women in beauty colleges, with 30.2% of the respondents reporting that they engaged in dieting behavior. A higher proportion (70%) however never, rarely or sometimes engaged in dieting behavior. Thus 30% of the respondents had a problem with this component of anorexia.

4.3.3 Bulimia

Bulimia was investigated by a total of 10 elements which included; cutting food into small pieces, avoid high carbohydrate foods, exercise to burn calories, take long to eat meals, avoid foods with sugar, display self control around food, food controls ones life, too much thoughts on food, uncomfortable with sweets, enjoy new foods.

Table 4.5 Bulimic elements

Element describing disorder	Frequency					
	Always	Usually	Often	Sometimes	Rarely	Never
Cut food into small pieces	38(17.7%)	17(7.9%)	12(5.6%)	65(30.2%)	34(15.8%)	49(22.8%)
Avoid high carbohydrate foods	23(10.7%)	8(3.7%)	22(10.2%)	59(27.4%)	40(18.6%)	63(29.3%)
Exercise to burn calories	31(14.4%)	30(14.0%)	13(6.0%)	29(13.5%)	34(15.8%)	78(36.3%)
Take long to eat meals	25(11.6%)	11(5.1%)	14(6.5%)	72(33.5%)	33(15.3%)	60(27.9%)
Avoid foods with sugar	19(8.8%)	8(3.7%)	19(8.8%)	67(32.1%)	27(12.6%)	70(32.6%)
Food controls my life	45(20.9%)	11(5.1%)	10(4.7%)	31(14.4%)	31(14.4%)	87(40.5%)
Display self control around food	60(27.9%)	17(7.9%)	14(6.5%)	51(23.7%)	25(11.6%)	48(22.3%)
Too much thoughts on food	3(1.4%)	7(3.3%)	10(4.7%)	50(23.3%)	52(24.2%)	93(43.3%)
Uncomfortable with sweets	23(10.7%)	5(2.3%	7(3.3%)	62(28.8%)	32(14.9%)	86(40.0%)
Enjoy new foods	88(40.9%)	12(5.6%)	21(9.8%)	67(31.2%)	12(5.6%)	15(7.0%)

The most prominent bulimic elements were; burning of calories when exercising, display control around food and trying new foods. A large proportion (65%) of young women in this study indicated that they are never, rarely or sometimes think of burning calories when exercising. In contrast 35% of the young women were always, usually or often thinking of burning calories when exercising. When burning of calories becomes the only preoccupation when exercising it could lead to compulsive exercising which is an element of bulimia an eating disorder.

Displaying of control around food was indicated by 43% of the respondents who therefore had a problem with this bulimic content. Similarly 56.3% of the respondents had a problem of trying new foods.

4.3.4 Compulsive/binge eating.

Table 4.6 Compulsive elements

Element describing disorder	Frequency					
	Always	Usually	Often	Sometimes	Rarely	Never
Preoccupied with food	7(3.3%)	3(1.4%)	19(8.8%)	53(24.7%)	52(24.2%)	81(37.7%)
Go on binge eating	3(1.4%)	1(0.5%)	21(9.8%)	45(20.9%)	40(18.6%)	105(48.8%)
Vomit after eating	1(0.5%)	1(0.5%)	0 (0.0%)	8(3.7%)	0 (0.0%)	205(95.3%)
Feel guilty after eating	4(1.8%)	5(2.3%)	4(1.9%)	35(16.3%)	14(6.5%)	153(71.2%)
Impulse to vomit after eating	6(2.8%)	2(0.9%)	0 (0.0%)	14(6.5%)	25(11.6%)	168(78.1%)

The results in Table 4.6 show that very few respondents had a problem with the compulsive elements listed. The cumulative percentages were very low indicating that bulimic tendencies had almost negligible contribution to eating disorders in this study. Compulsive/binge eating was very minimal in this study accounting for less than 1%.

4.4 Risk Factors Influencing Eating Disorders.

4.4.1 Introduction

Several factors could lead to development of eating disorders in an individual. The following factors; physical activity, peer support, family relations, and media influence were investigated in this study and the results were as discussed.

4.4.1 Physical activity

Exercise is extremely beneficial in weight management because it helps to regulate appetite, increases the basal metabolic rate and reduces the fat deposit "set point" level (Petrie, 1993). Together with a well planned diet, physical exercise corrects the energy

balance in favor of increased energy output and decreased energy intake. Excessive exercise can be very dangerous when the balance between healthy exercise and healthy living are neglected.

Table 4.7 Physical activity trends

Physical activity	Eating habits	Frequency					
		None	Once	Twice	Thrice	Four	Five
Vigorous for 20 minutes	Normal	87(51.5%)	41(24.3%)	20(11.8%)	10(5.9%)	8(4.7%)	3(1.8%)
	Disordered	8(21.6%)	14(37.8%)	3(8.1%)	2(5.4%)	2(5.4%)	8(21.6%)

(C=0.361; X^2 = 30.78; df = 5; *p*= 0.500

Physical activity	Eating habits	Frequency					
		None	Once	Twice	Thrice	Four	Five
Moderate for 30 minutes	Normal	38(22.5%)	0 (0.0%)	50(29.6%)	26(15.4%)	15(8.9%)	40(23.7%)
	Disordered	8(21.6%)	0 (0.0%)	12(32.4%)	10(27.0%)	1(2.7%)	6(16.2%)

(C=0.149; X^2 = 4.69; df = 4; *p*= 0.321)

Physical activity	Eating habits	Frequency					
		None	Once	Twice	Thrice	Four	Five
To strengthen or tone muscles	Normal	94(55.6%)	31(18.3%)	19(11.2%)	25(14.8%)	0 (0.0%)	0 (0.0%)
	Disordered	13(35.1%)	5(13.5%)	9(24.3%)	10(27.0%)	0 (0.0%)	0 (0.0%)

(C=0.208; X^2 = 9.35; df = 3; *p*= 0.025)

The results presented in Table 4.7 show that those who engaged in vigorous physical activity for 20 minutes five times a week had the highest proportion (72.7%) of those with eating disorders, followed by once (25.5%), four times (20.0%), three times (16.7%), twice (13.0%) and none (8.4%) in that order. The results of chi-square test of significance indicated that the observed variations in eating habits in relation to involvement in vigorous physical activities for 20 minutes was significant (p>0.05) at 0.05 probability of error. The contingency coefficient measure of association showed that

engagement in physical activity for 20 minutes explained 36 percent of the observed variations in eating habits.

Those who engaged in moderate physical activity for 30 minutes three times a week had the highest proportion (27.8%) of those with eating disorders, followed by twice (19.4%), no exercise at all (17.4%), five times (16.7%), twice (13.0%) and four times (16.3%). Chi-square results showed no significant relationship (p>0.05) between involvement in moderate physical activity for 30 minutes and the observed variations in eating habits. Involvement

Of all the respondents who exercised to strengthen or tone their muscles, those that exercised twice in a week had the highest proportion of respondents with eating disorders. There was a significant relationship (p>0.05) between exercising to tone or strengthen muscles at 0.05 significant level. The contingency coefficient measure of association showed that engagement in exercise to tone muscles explained 20 percent of the observed variations in eating habits. This means that exercising to strengthen or tone muscles increases the risk of developing an eating disorder.

The results of this study found that, the National Health Objectives and Recommendations by WHO on physical activity were not been adhered to. From the findings it can be deduced that some of the young females in hair and beauty colleges are compulsive exercisers. According to ANRED (2006), compulsive exercise is another way to "purge" and compulsive exercisers will usually have episodes of repeatedly exercising

beyond the requirements. The main goal of the exercise can be burning calories and relieving the guilt from just having eaten or binged or to give permission to eat.

4.4.2 Peer support

While there are endless pressures that influence the way we feel about our bodies, peer influences help to shape a person's sense of themselves and their bodies (Morrison et al, 2004). Figure 4 shows the response when the respondents were asked if they felt that friends influenced the way they felt about their looks.

The results from Figure 4 indicated that 50.5% of the respondents felt that their peers influenced the way they felt about their looks, while 49.5% felt that their peers did not influence them at all. Peer influence can be very instrumental in the development of eating disorders (Lowry et al., 2002). Most young adults will always want to conform to the "standards" set by their peers.

Peer influence on looks
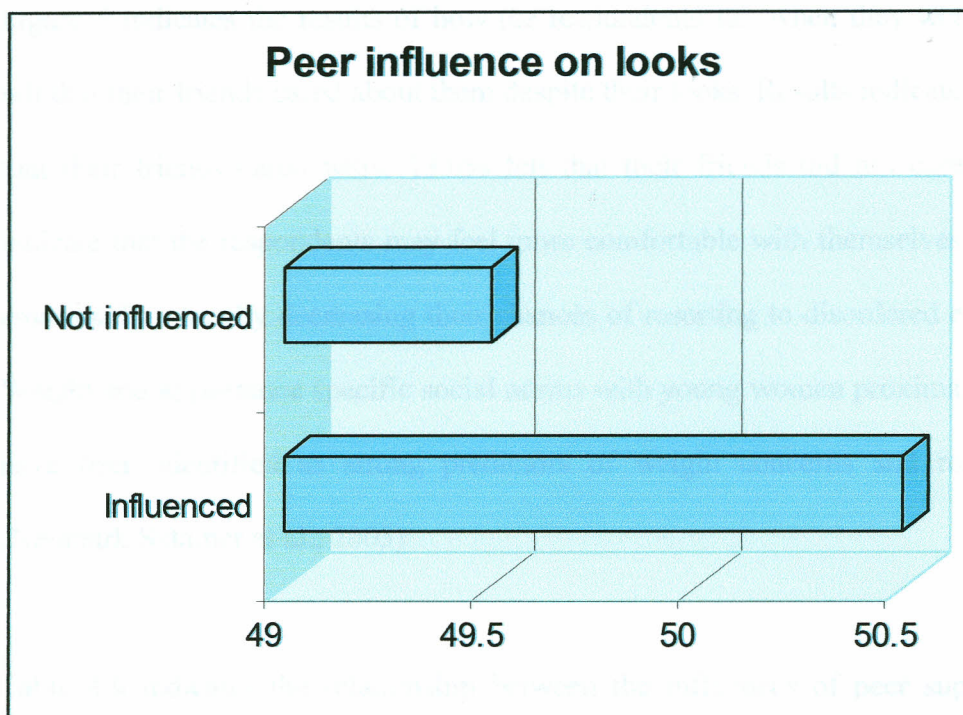
Figure 4 Peer influence on looks

Friends care despite looks
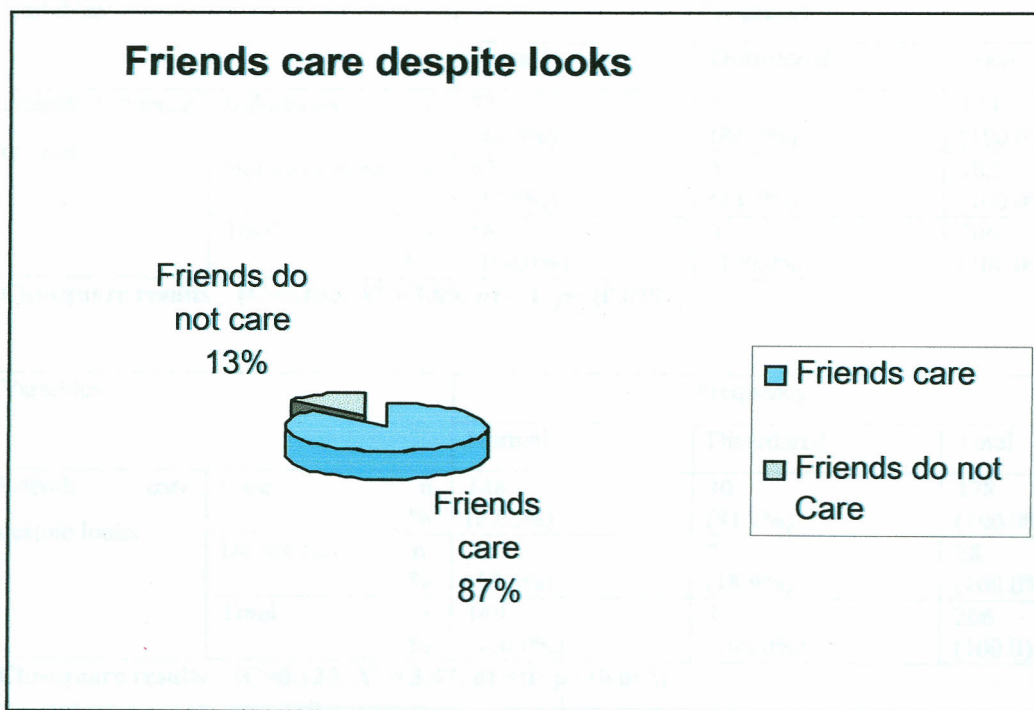
Figure 5 Friends care despite looks.

Figure 5 indicates the results of how the respondents felt when they were asked if they felt that their friends cared about them despite their looks. Results indicate that 87.0% felt that their friends cared while 13.0% felt that their friends did not care. These results indicate that the respondents may feel more comfortable with themselves physically and emotionally, thereby decreasing their chances of resorting to disordered eating practices. Weight and appearance specific social norms with young women proximal peer networks have been identified as strong predictors of weight concerns and restrained eating (Neumark Sztainer et al., 2003)

Table 4.8 indicates the relationship between the influences of peer support on eating habits.

Table 4.8 Peer support and eating habits

Variables			Frequency		
			Normal	Disordered	Total
Friends influence on looks	Influenced	n	72	32	104
		%	(42.6%)	(86.5%)	(100.0)
	Not influenced	n	97	5	102
		%	(57.4%)	(13.5%)	(100.0%)
	Total	n	169	37	206
		%	(100.0%)	(100.0%)	(100.0%)
Chi-square results	(C=0.183; X^2 = 1.09; df = 1; p= (0.0297)				

Variables			Frequency		
			Normal	Disordered	Total
Friends care despite looks	Care	n	148	30	178
		%	(87.6%)	(81.1%)	(100.0%)
	Do not care	n	21	7	28
		%	(12.4%)	(18.9%)	(100.0%)
	Total	n	169	37	206
		%	(100.0%)	(100.0%)	(100.0)
Chi-square results	(C=0.129; X^2 = 3.47; df = 1; p= (0.062)				

Results show that of all those that had abnormal eating habits, 27.0% felt that their friends influenced how they felt about themselves while 5% felt there was no influence. Chi- square results indicated that there was a significant relationship (p>0.05) between influence by friends about how one felt about their looks and eating habits at 0.05 significant level. This finding may reflect a high level of concern of friends in response to observing disordered eating in their friend, or conversely, it may reflect a group norm of disordered eating which bonds the group together by which members experience high peer support via their common experience in disordered eating.

Respondents were further asked if they felt that their friends cared about them despite their looks. Of those reporting disordered eating felt 25% that their friends did not care. Results from chi-square indicated that there was no significant relationship (p>0.05) between friends caring about one despite their looks and eating habits at 0.05 significant level. These results indicate that the respondents may feel more comfortable with themselves physically and emotionally, thereby decreasing their chances of resorting to eating disorders.

A study (Stice et al., 1996) on the impact of peer pressure to be thin on young women's body dissatisfaction, found a direct relationship between peer pressure to be thin and body dissatisfaction. Similarly this study found a relationship between peer pressure and development of eating disorders among young women attending hair and beauty colleges in Nairobi.

4.4.3 Family relations

Family connectedness was investigated by finding out what kind of family an individual came from and how close to the other family members the individual was. Table 4.9 shows what kind of families the respondents were drawn from and how close they felt to the other family.

Results indicated that 27.9% of the respondents were from single parent households, 58.1% were from two parent households and the rest 14.1% from extended families. On family relations 36.3% of the respondents felt they were close to the other families, 54.4% were very close with other family members and 9.3% felt that they were not close with the other family members.

Table 4.9 Family relations and eating habits

Variables		Frequency		
		Normal	Disordered	Total
Kind of family	Single parent	40 (23.7%)	19 (51.4%)	59 (100.0%)
	Two parent	110 (65.1%)	11 (29.7%)	121 (100.0%)
	Extended	19 (11.2%)	7 (18.9%)	26 (100.0%)
	Total	169 (100.0%)	37 (100.0%)	206 (100.0%)
Chi-square result (C=0.268; X^2 = 16.0; df = 2; *p*= 0.000)				
Variables		Frequency		
		Normal	Disordered	Total
How close are family members	Close	60 (35.5%)	10 (27.0%)	70 (100.0%)
	Very close	96 (56.8%)	10 (27.0%)	106 (100.0%)
	Not close	13 (7.7%)	17 (46.0%)	30 (100.0%)
	Total	169 (82.0%)	37 (18.0%)	206 (100.0%)
Chi-square result (C=0.148; X^2 = 4.594; df = 2; *p*= 0.001)				

Consistent with other studies (Croll et al., 2002) a significantly higher percentage of students living in single parent households reported disordered eating compared with those living in two parent households and extended family households (32.2%, 9.9% and 26.1%) respectively . Subjected to chi-square the results indicated there was a significant relationship between (p>0.05) the kind of family a respondent came from and eating habits at 0.05 significant level. People from single households are thought to have more personal problems than those from 'normal' families (Weiss, et al., 1985).

According to the ANRED (2006), most people with eating disorders feel smothered in overprotective families. According to a study published in March 2006, issue of the journal of family psychology says that children in joint custody situations (living and interacting with both parents) appear to reflect fewer behavior and emotional difficulties than do children who live and interact with just one parent

On family relationships those that relationship between them and family members were not close had the highest proportion 56.7% of those with abnormal eating habits followed by those that were close 14.2%, and then those that were very close 9.5% in that order. Consistent with other studies (Croll et al., 2002), Chi-square results indicated there was a significant relationship (p>0.05) between family relations and eating habits at 0.05 significant level. According to Stellefson (2002) people who come from households whereby relations are sore and emotions and affection are not openly expressed are more likely to suffer eating disorders.

4.5.4 Media Influence

The media is an important aspect of life in our culture. In addition, people interact with a wide variety of other media such as music delivered by CDs or videos, and communications via personal computers. The use of the average model is wide spread in the media, especially among print advertisements in popular magazines. Popular women's magazines are often credited for exposing unrealistic, unobtainable body images to women of all ages (Heinberg and Thompson, 1999).

Media influence was investigated by looking at trends in magazine reading. The study looked at whether the respondents were reading any magazines, and if so, what the preferred choices of magazines they read were, and of the influence the information from the magazines had on food issues. Table 4.10 shows the results obtained.

Results indicated that most of the respondents (87.4%), read magazines and (12.6%) did not read magazines. Fashion magazines were the most preferred by the respondents (48.4%), followed by fitness and health (41.9%) and then news (9.7%). When the respondents were asked if what they read from the magazines had any influence on food issues 63.7% felt that they did not influence food choices but 36.3% felt that they had an influence.

Although chi-square results in this study indicated that there was no significant relationship (p>0.05) between reading magazines and eating habits at 0.05 significant level, results indicated that those that read magazines had more abnormal eating habits 18.2% than those that never read magazines at all 16.0%. A study that appeared in the

Journal of Communication 2004 showed that magazine reading and television viewing, especially exposure to thinness-depicting and thinness-promoting media, significantly predict symptoms of women's eating disorders (Harrison, 1997). This could probably be attributed to the kind of magazines that the respondents read. It could be that they were reading magazines that did not have articles about dieting and weight loss that could influence them.

Table 4.10 Media and eating habits

Variables		Frequency		
Reading magazines	Eating habit	Normal	Disordered	Total
	Read	148(87.6%)	33(89.2%)	181(100.0%)
	Did not read	21(12.4%)	4(10.8%)	25(100.0%)
	Total	169(100.0%)	37(100.0%)	206(100.0%)

(C=0.19; X^2 = 0.074; df = 1; p= 0.785)

Variables		Frequency		
Preferred choice of magazine	Eating habit	Normal	Disordered	Total
	Fashion	76(45.0%)	25(67.6%)	101(100.0%)
	Fitness and health	74(43.8.0%)	10(27.0%)	84(100.0%)
	News	19(11.2%)	2(5.4%)	21(100.0%)
	Total	169(100.0%)	37(100.0%)	206(100.0%)

(C=0.39; X^2 = 23.42; df = 4; p= 0.043)

Variables		Frequency		
Magazine influence on food issues	Eating habit	Normal	Disordered	Total
	Influenced n	109(64.5%)	24(64.9%)	133(100.0%)
	Not influenced n	60(35.5%)	13(35.1%)	73(100.0%)
	Total n	169(100.0%)	37(100.0)	206(100.0%)

(C=0.003; X^2 = 0.002; df = 1; p= 0.966)

Results indicate those that read fashion magazines were more inclined to abnormal eating habits 24.8%, followed by those that read news 12.0% and then those that read the fitness and health magazines 9.6%. The results of Chi-Square test of significance indicated that the observed variations in eating habits in relation to reading fashion magazines was significant at 0.05 probability of error. Reading fashion magazines in particular is significantly related to a woman's drive for thinness and her dissatisfaction with her body (Thomsen et al., 2002). Chi-square results indicated no significant relationship (p>0.05) between magazine influence on food issues and eating habits.

While reading magazines may not necessarily cause eating disorders, many young women who peruse these magazines increase their risk of developing an eating disorder. According to (Thomsen et al., 2002), reading beauty and fashion magazines leads many young women to internalize and embrace the socio cultural "thin ideal" and in turn motivates them to attain it, sometimes through eating disorders.

4.6 Relationships between nutrition status and eating habits.

A chi-square test was done to determine if there was any relationship between the nutrition status of an individual and the risk of developing an eating disorder. The results were as reported in Table 4.11

The results of Chi-Square test of significance (p>0.05) indicated that the observed variations in eating habits in relation to nutrition status was not significant at 0.05 probability of error though further analysis using Contingency Coefficient measure of

association showed that nutrition status explained for 23 percent of the observed variations in eating habits. This means that the nutrition status of an individual could still be associated with developing disordered eating habits especially for the underweight and overweight.

Table 4.11 Nutrition status and eating habits

Nutrition Status		Normal	Disordered
Underweight	n	10	3
	%	(5.9%)	(8.1%)
Normal	n	101	23
	%	(59.8%)	(62.2%)
Overweight	n	44	6
	%	(26.0%)	(16.2%)
Obese	n	14	5
	%	(8.3%)	(13.5%)
Total	n	169	37
	%	(100.0%)	(100.0%)

(C=0.107; X^2 = 2.366; df = 3; p= 0.500)

A study on the possible risk factors in the development of eating disorders in overweight college girls (Burrows and Cooper 2002) found out that overweight girls had more concerns about weight, shape and eating and attempted dietary restraint more often. They had more negative self-esteem related to their athletic competence, physical appearance and global self-worth and more symptoms of depression. There was an association between concerns and self-esteem based on physical appearance in the overweight group.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the findings that were discussed in chapter four. The author also details the conclusions accruing from the findings of study and suggests areas of further research as well as recommendations for practice.

5.1 Summary of Findings

Nutritional status was determined by computing the body mass index of the respondents 6% were underweight, 60.5% were of normal weight, 24.7% were overweight and 8.8% were obese. Although most of the respondents were of normal nutrition status, still 40% of the respondents were of undesired nutrition status being underweight, overweight or obese. The study thus implies that a majority of the females are not able to maintain the required nutrition status thus posing a danger to their health.

Eating disorders among female students attending hair and beauty colleges was found to be 18.0%. The results implicated that there is evidence of eating disorders among young female students attending hair and beauty colleges in Nairobi. The most prevalent eating disorder was anorexia nervosa.

Several risk factors were investigated to ascertain if they had any influence in the development of abnormal eating habits.

In physical activity it was noted that most of the respondents were exercising for longer periods than recommended by the WHO national health objectives and recommendations for physical activity. There was a significant relationship between those that engaged vigorously in exercise and also for those that exercised to strengthen or tone muscles and eating disorders .For peer support there was a significant relationship *(p=0.0297)* when respondents were asked if they felt that their friends influenced the way they felt about their looks and abnormal eating habits. However when asked if they felt that their friends cared about them despite their looks there was no significant relationship.

There was a significant relationship between what kind of family an individual came from and eating disorders. Results indicated that a higher percentage of students in single parent households reported abnormal eating habits 32.2% compared to those in two parent households 9.9% and those in extended families 26.1%. Media influence was investigated through reading of magazines and television viewing. There was no significant relationship between reading of magazines and eating disorders. However when asked what type of magazines they read, there was a significant relationship between reading fashion magazines and eating habits with those that read fashion magazines reporting 24.8% of abnormal eating habits. The results of this study found no significant relationship between one's nutrition status and the risk of developing an eating disorder.

5.2 Conclusions

On the basis of the outlined findings, the following conclusions were drawn.

➢ Young females in beauty colleges are engaging in disordered eating habits that may be harmful to their health.

➢ Majority of the respondents (60.5%) were of normal nutrition status.

➢ Factors that influence the development of eating disorders included: peer pressure, family connectedness, the media, and physical exercise.

➢ There was no significant relationship between the nutrition status of an individual and the risk of developing an eating disorder.

5.3 Recommendations

The following recommendations have been made based on the findings of this study.

➢ Nutritionists should offer nutrition education to young females attending hair and beauty colleges on the dangers of engaging in disordered eating habits and proper nutrition. The nutritionists could come up with a "Nutrition Week" for the beauty industry where such education could be disseminated.

➢ Nutrition education though offered as part of the curriculum in the beauty colleges needs more emphasis by making nutrition a core/compulsory unit for all the students attending the colleges.

5.4 Suggestions for further research.

The researcher would like to propose the following areas for further research based on this study.

1. This study was based on respondents in the beauty industry, the study could be carried out in females not in the beauty industry and compare the results and find out which group is more vulnerable.

2. The study could also be carried out in other vulnerable groups such as the adolescents, athletes and other people in the beauty industry.

3. The study could also be done by involving more respondents and even carried out for a longer period thus observing the respondents eating habits over a longer period of time.

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APPENDIX 1: LETTER TO RESPONDENT

NUTRITIONAL STATUS AND EATING DISORDERS AMONG FEMALES ATTENDING HAIR AND BEAUTY COLLEGES IN NAIROBI, KENYA

Dear respondent,

My name is Esther Nduku Muia, a student at Kenyatta University, and I'm carrying out a study in fulfillment for the Degree of Master of Science (Msc) in investigating the nutritional status and eating disorders among females' attending hair and beauty colleges. I need information as required by each of the following questions. Answer the questions as honestly as possible. Your cooperation will be highly appreciated. All information will be treated with strict confidentiality.

Thank you.

Yours faithfully

MUIA ESTHER NDUKU

APPENDIX 2: QUESTIONNAIRE

Interview number_____

DEMOGRAPHIC INFORMATION

1. Age _____

2. What is your marital status? (Circle one number only)

1	2	3	4	5	6
Single	Married	Divorced	Separated	Widowed	Other (specify)

2. What is your highest formal education level? (Circle one number only)

1	2	3	4	5
University	College	Secondary	Primary	None

3. What is your religion? (Tick as appropriate)

1	2	3	4	5
Catholic	Protestant	Islam	Hindu	Other(specify)

4. Where do you live in Nairobi (state estate)

_____ -

4. For how long have you lived in Nairobi
   - less than 1 year

   - 1-3 years

   - More than 3 years.

RISK FACTORS INFLUENCING EATING HABITS

A) Physical activity

Patterns of physical activity

5. On how many of the past 7 days did you exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard such as basketball, soccer, running, swimming laps, fast cycling, or similar aerobic activities?

    a)   None   ( )
    b)   Once   ( )
    c)   Twice   ( )
    d)   Thrice   ( )
    e)   Four times ( )
    f)   Five times ( )

6. On how many of the past 7 days did you exercise to strengthen or tone your muscles such as sit-ups, push-ups or weight lifting?

    a) None   ( )
    b) Once   ( )
    c) Twice   ( )
    d) Thrice   ( )
    e) Four times ( )
    f) Five times ( )

7. On how many of the past 7 days did you exercise or participate in physical activity for at least 30 minutes that did not make you sweat or breathe hard such as fast walking, mopping floors, running, slow cycling etc

    a) None   ( )
    b) Twice   ( )
    c) Thrice   ( )
    d) Four times ( )
    e) Five times ( )

B) Peer support

8. Do you feel that your friends care about you despite your looks?
    a) Yes
    b) No

9. Do your friends in any way influence the way you feel about your body looks?
    a) Yes

b) No

C) Family connectedness

10. What type/kind of family do you come from?
    a) Single parent   ( )
    b) Two parent   ( )
    c) Extended family   ( )

11. How would you describe the relationship between you and your family members?
    a) Close   ( )
    b) Very close   ( )
    c) Not close   ( )

D) Media Influence

12. Do you read magazines?
    Yes _____
    No _____

13. If your answer to 15 above is yes, rank the following three categories of magazines according to preference. (Give numbers 1-3 whereby 1 is the most favorite and 3 the least in that order)
    a) Fashion   ( )
    b) Fitness and health   ( )
    c) News   ( )

14. Does what you read from the magazines influence your way of thinking about food issues in any way?
    Yes _____
    No _____

15. Do you watch TV programmes?
    Yes _____
    No_____

17. EATING ATTITUDES TEST

(EAT 26)

Please check a response for each of the following statements:

	Always	Usually	Often	Sometimes	Rarely	Never
1.Am terrified about being overweight						
2. Avoid eating when I am hungry						
3. Find myself preoccupied with food						
4. Have gone on eating binges where I feel I may not be able to stop						
5. Cut my food into small pieces						
6.Aware of the calorie content of foods that I eat						
7. Particularly avoid food with high carbohydrate content (that is bread, rice, potatoes, extra)						
8. Feel that others would prefer if I ate more						
9. Vomit after I have eaten						
10. Feel extremely guilt after eating						
11. Am preoccupied with desire to be thin						
12. Think about burning calories when I exercise						
13. Other people think that I am too thin						
14. Am preoccupied with the thought of having fat on my body						
15. Take longer than others to eat my meals						
16. Avoid foods with sugar in them						

	Always	Usually	Often	Sometimes	Rarely	Never
17. Eat diet foods						
18. Feel that food controls my life						
19. Display self-control around food						
20. Feel that others pressure me to eat						
21. Give too much time and thought to food						
22. Feel uncomfortable after eating sweets						
23. Engage in dieting behavior						
24. Like my stomach to be empty						
25.Enjoy trying new rich foods						
26. Have the impulse to vomit after meals						

NUTRITION STATUS

A). Frequency of intake of some food items

18. How often do you take the following foods? Check a response for each from the options given.

Frequencies

Food group	Specific food	Every day	3-6 times a week	Once or twice per wk	Once per month	After long ti
Starchy (cereals)	Maize, Rice, Millet, Wheat, Sorghum Others *(Specify)* _____ _____					
Starchy (non-cereals)	Potatoes, Sweet potatoes, Cassava,					

	Green bananas Others *(Specify)*_____ _____					
Legumes and nuts(fresh)	French beans, Green Peas, All types of beans					
Legumes and nuts (dry)	Beans, Peas, Green grams, Ground nuts Others *(specify)*_____ _____					
Vegetables	Green leafy vegetables, Carrots Others *(Specify)* _____ _____					
Fruits	Oranges, Avocadoes, Tomatoes, Passion, Pawpaw Mangoes Pineapples Others *(Specify)* _____ _____					
Eggs	Chicken eggs, Duck eggs					
Meat and fish	Beef, chicken, Fish, Rabbit, Pork, Goat meat					

B) Anthropometric measurements

19. Weight_____kg

20. Height _____m

APPENDIX 3: THE EATING ATTITUDES TEST

EATING ATTITUDES TEST
(EAT 26)

Please check a response for each of the following statements:

	Always	Usually	Often	Sometimes	Rarely	Never
1.Am terrified about being overweight						
2. Avoid eating when I am hungry						
3. Find myself preoccupied with food						
4. Have gone on eating binges where I feel I may not be able to stop						
5. Cut my food into small pieces						
6.Aware of the calorie content of foods that I eat						
7. Particularly avoid food with high carbohydrate content (that is bread, rice, potatoes, extra)						
8. Feel that others would prefer if I ate more						
9. Vomit after I have eaten						
10. Feel extremely guilt after eating						
11. Am preoccupied with desire to be thin						
12. Think about burning calories when I exercise						
13. Other people think that I am too thin						
14. Am preoccupied with the thought of having fat on my body						
15. Take longer than others to eat my meals						
16. Avoid foods with sugar in them						

	Always	Usually	Often	Sometimes	Rarely	Never
17. Eat diet foods						
18. Feel that food controls my life						
19. Display self-control around food						
20. Feel that others pressure me to eat						
21. Give too much time and thought to food						
22. Feel uncomfortable after eating sweets						
23. Engage in dieting behavior						
24. Like my stomach to be empty						
25.Enjoy trying new rich foods						
26. Have the impulse to vomit after meals						

APPENDIX 4: FREQUENCY OF INTAKE OF SOME FOOD ITEMS

How often do you take the following foods? Check a response for each from the options given.

Frequencies

Food group	Specific food	Every day	3-6 times a week	Once or twice per wk	Once per month	After long time
Starchy (cereals)	Maize, Rice, Millet, Wheat, Sorghum Others *(Specify)* _____ _____					
Starchy (non-cereals)	Potatoes, Sweet potatoes, Cassava, Green bananas Others *(Specify)*_____ _____					
Legumes and nuts(fresh)	French beans, Green Peas, All types of beans					
Legumes and nuts (dry)	Beans, Peas, Green grams, Ground nuts Others *(specify)*_____ _____					
Vegetables	Green leafy vegetables, Carrots Others *(Specify)* _____ _____					
Fruits	Oranges, Avocadoes, Tomatoes, Passion, Pawpaw Mangoes					

MINISTRY OF SCIENCE & TECHNOLOGY

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MOS&T 13/001/36C/322/2

REPUBLIC OF KENYA

JOGOO HOUSE "B"
HARAMBEE AVENUE
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NAIROBI
KENYA

23rd May 2006

Esther Nduku Muia
Kenyatta University
P. O. Box 43844
NAIROBI

Dear Madam

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *'Nutritional Status and Socio Behaviourial Factors Leading to Disordered Eating Habits Among Female Hair and Beauty College Students in Nairobi Kenya'*

I am pleased to inform you that you have been authorized to carry out research in Nairobi for a period ending 31st December 2006.

You are advised to report to the Provincial Commissioner and the Provincial Director of Education Nairobi before commencing your research project.

On completion of your research, you are expected to submit two copies of your research report to this office.

Yours faithfully

B.O. ADEWA
FOR: PERMANENT SECRETARY

Copy to: The Provincial Commissioner – Nairobi

The Provincial Director of Education - Nairobi