EATING PROBLEMS AMONGST FEMALE LEARNERS AT SELECTED KWAZULU-NATAL HIGH SCHOOLS: A COMPARATIVE STUDY

BY

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submitted in partial fulfillment of the requirements for the

Master of Educational Psychology

at the

University of Zululand

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2010

Declaration

I herewith declare that the work on “Eating problems amongst female learners at selected Kwazulu-Natal high schools: A comparative study” is my own work, both in conception and in execution and that the sources that I have used or quoted have been indicated and acknowledged by means of complete reference.

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Andrea Kellerman

Acknowledgement

I would like to thank, my supervisor Dr. S. Govender for her patience, hard work and support, Prof. Nzima for his help and input and Dr. Moolman for his precise, statistical work.

I would like to thank my husband, Jaco Kellerman for his consistent support, encouragement and love, my children for their understanding when I had to work long hours and could not spend time with them, my mother Mrs. Riemer-Trebes for her encouraging words and positive suggestions and my parents-in-law Prof. and Mrs. Kellerman for their support and consistent interest in my work.

Abstract

In this study the researcher wanted to find out if there were more adolescents with eating problems in single-gender or co-educational schools, if there was a specific age group that is more prone to develop a problem with eating and if there were any specific common factors that cause the development of eating problems.

The study has been conducted with 200 subjects at four randomly selected high schools and 50 members of the Eating Disorder Support Group of the Westville Hospital in Durban, KwaZulu-Natal.

Research questionnaires were developed with help of a panel of experts and clinicians in the field of Educational Psychology and two different institutions. Schools were chosen randomly and the principals of the schools, the parents and participants were debriefed and consent was given to conduct the study. Female learners from four (two single-gender and two co-educational) schools were selected with the stratified sampling method. One questionnaire with closed-ended questions was given to the learners of the different high schools and a questionnaire with open-ended questions was given to the members of the Eating Disorder Support Group. The quantitative data was analyzed with the help of the SPSS statistics programme and the Chi-square and linear-by-linear Chi-square correlation test was used to analyse the data. The qualitative data was

captured by summarising common specific themes from responses to the open-ended questions.

The study confirmed the researcher's hypothesis that there are more adolescents with eating problems in single-gender schools than in co-educational schools. It was found that the older age group (17-18 years) seemed to be more prone to develop problems with eating. Furthermore, common themes such as low self-esteem, influences from the media, family unit and peers and pressure at school were identified as being reasons for developing eating problems.

The research findings were important for the development of prevention and intervention programmes and added information to better understand the development of the problem in Durban, KwaZulu-Natal.

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Chapter One

Outline of study

1.1. Introduction

Eating Disorders seem to have become a growing concern for parents of teenagers in South Africa. Research studies by Wolpe, Quinlan & Martinez (1998) suggest that Eating Disorders are no longer reported primarily in Western countries. It seems that problematic eating behaviours and diagnosable Eating Disorders are growing in developing countries at an alarming rate.

In the following sections the researcher will explain why it is necessary to conduct more research in the field of Eating Disorders in Durban, KwaZulu-Natal.

1.2. Motivation for the study to be commissioned

In this study the researcher sought to identify whether or not there was a relationship between the number of learners experiencing difficulty with eating and the attendance at a co-educational or single-gender school. Furthermore, the researcher–sought to identify which age group was more prone to developing problematic eating practices and to examine other factors which might have causative roles in the onset of problematic eating in teenagers in Durban, KwaZulu-Natal, South Africa. The researcher has worked with teenagers for the past 16 years, in various contexts and has noticed that in recent years there has been a marked increase in the number of cases of Eating Disorders in Durban. Problematic eating behaviours can develop into chronic Eating Disorders. Thus

the increase of problematic eating in adolescents is affecting our society at large. In general, problematic eating can be destructive to the individual and the family and might lead to the death of the adolescent who has an Eating Disorder. According the DSM-VI-TR, the death rate in America for Anorexia Nervosa is 10% (American Psychiatric Association, 2005).

Therefore more research is needed in order to firstly: prevent problematic eating and Eating Disorders from developing; and secondly: to develop programmes to help adolescents who suffer from problematic eating.

1.3. Problem statement

Research articles from Limbert (2001), Marsh (1989) and Mensinger (2000) suggest that there is a significant relationship between problematic eating and attendance at single-gender schools.

It has been found that this aspect of the development of problematic eating has not yet been extensively researched in Durban, KwaZulu-Natal. KwaZulu-Natal is a province in South Africa with many single-gender schools, and was, therefore, ideal for such a comparative study as there was a larger sample size to draw from than in some other provinces.

Having spoken to parents of children who have Eating Disorders, the researcher found that many of those children were attending a single-gender school.

Hence, the researcher wanted to find out, through this study if there are indeed more adolescents with eating problems in single-gender schools than in co-educational schools.

Apart from the type of school it was found that there are additional factors that may contribute to the onset of an Eating Disorder. Studying research articles and other literature (Tobin, Molteni & Elin, 1995; Lieberman, 1995; Evans & Street, 1995; and Barlow & Durand, 2005) about Eating Disorders showed that factors such as the family system, pressure of the media to look thin, peer influences and the self- esteem of the adolescents (Cotton, 1989) seem to play an important role.

The cause of problems with eating is a complex issue, thus the more research that can be conducted in the, field the better the prevention and treatment of Eating Disorders will potentially be.

1.4. Research questions

This study will investigate the following:

1.4.1. Is there a relationship, if any, between a possible manifestation of an eating problem and the attendance at a co-educational school?

1.4.2. Is there a relationship, if any, between a possible manifestation of an eating problem and the attendance at a single-gender school?

1.4.3. Whether younger females (age 13-16) are more prone to develop problems with eating than girls in older age groups?

1.4.4. Whether additional themes be found e.g., common family structures, problems with peers, media and self-esteem that may contribute to the onset of an eating problem in adolescents in Durban, KwaZulu-Natal.

1.5. Aim of the study

The aim of this study is:

1.5.1. To determine whether there is a relationship between a possible manifestation of an eating problem and attendance at a co-educational school.

1.5.2. To determine whether there is a relationship between a possible manifestation of an eating problem and attendance at a single school.

1.5.3. To determine whether younger females (age 13-16) are more prone to develop problems with eating than girls in older age groups.

1.5.4. To determine whether or not additional themes can be found e.g. common family structures, problems with peers, media and self-esteem that may contribute to the onset of an eating problem in adolescents in Durban, KwaZulu-Natal.

1.6. Hypotheses formulation

The following hypotheses are based on the above-mentioned aims of the study:

1.6.1. H_1: There is not a relationship between a possible manifestation of an eating problem and the attendance at a co-educational school.

1.6.2. H_2: There is not a relationship between a possible manifestation of an eating problem and the attendance at a single gender school.

1.6.3. H_3: Younger girls (age 13-16) are not more prone to develop problems with eating than girls in older age groups.

1.6.4. H_4: Additional information can not be found e.g., common family structures, problems with peers, media and self-esteem that might contribute the onset of an eating problem in adolescents in Durban, KwaZulu-Natal.

1.7. Organization of the study

The researcher worked extensively with adolescents in schools and at leading hospitals in Durban for the past six years. She ran an Eating Disorder Support Group once a week where she and other counsellors helped adolescents to cope with their disorders.

In order to be able to determine if there are more female learners who have eating problems in single-gender or in co-educational schools, as well as which additional factors might cause the onset of an eating problem, the researcher developed two questionnaires which were evaluated by experts and clinicians in the field of Educational Psychology as well as two independent institutions (appendix A). One questionnaire contained close-ended questions and was given to learners in co-educational and single-gender schools. The other questionnaire contained open- ended questions and was given to members of the Eating Disorder Support Group.

1.7.1. Literature Review

The researcher conducted a literature review on the topic. It was found that, in comparison to articles from other nations, few articles have been written by South African researchers. Thus mostly research from foreign sources was used in the literature review.

1.7.2. Field study

The researcher is currently placed at a Behavioural Clinic for Anxiety and Depression patients. Noting that the numbers of Eating Disorder cases referred to the clinic had increased, the researcher decided to start an Eating Disorder Support Group. Only patients who had been to counselling before were allowed to join this Support Group. The psychiatrists or psychologists of each member of the group confirmed an Eating Disorder diagnosis. The Support Group helped female adolescents to cope with their everyday life situations, equip them with life skills, and help them avoid regressing into their old symptomatic habits.

The Support Group ran once a week for two hours for the duration of a whole school term and commenced anew each school term for two years. There were three counsellors who were part of the Support Group. The group consisted of up to 15 members each term. The members had to be female and had to be between 13 and 18 years of age. The age range ensured that the adolescents had similar problems and could be assessed and researched in a homogenous group (Tobin, Molteni, & Elin ,1995). The members had to go to school and were from a middle-to-upper socio-economic background.

For the other sample group, the researcher travelled to two separate co-educational and single-gender schools in Durban, KwaZulu-Natal to conduct the research. The districts and the schools were selected randomly. The principals and counsellors of the schools were contacted and upon agreement to participate the researcher informed the principals, counsellors and teachers about the study (Appendix B). The stratified sampling method was used when handing out the questionnaires to the female participants of each grade in the high school. The female learners were informed that their participation would be voluntary and confidential.

1.7.3. Instrument

Two questionnaires were designed: One for the female learners at the single-gender and co-educational schools and one for the members of the Eating Disorder Support Group.

The questionnaires consisted of closed-ended and open-ended questions. The first questionnaire with the closed-ended questions was designed by keeping the Eating Disorder criteria of the DSM IV-TR in mind. It was evaluated by experts in the field of Educational Psychology and at two independent institutions, in order to ensure the reliability and validity of the study. The questions were designed such that the female participants at the single-gender and co-educational schools were able to tick the applicable answers, using a Likert scale. The research questionnaire was structured as follows:

1) Biographical information

2) Questions about the participants' "relationship with food"

The second questionnaire contained only open-ended questions where the participants of the Eating Disorder Group had to write down their thoughts, opinions and feelings about the Disorder, their school, family, media, peers and themselves.

1.7.4. Sample

The researcher used female learners in co-educational and single-gender schools who fell in the age group of 13 and 18 years as this is the age of onset stated in the DSM-IV-TR (American Psychiatric Association, 2005, p.587). The members of the Eating Disorder Support Group also fell in the same age group and gender. According to the DSM-IV-TR more than 90% of Anorexia Nervosa and Bulimia Nervosa occur in females (American Psychiatric Association, 2005).

Participants from four different schools in Durban took part in the study. Two of the schools were private (one single gender and one co-educational school) and two schools were government schools (one single-gender and one co-educational school). The participants at the schools were selected with the stratified sampling method.

1.7.5. Method of scoring

Scoring of the closed-ended questions of the questionnaires was done with the help of the Statistical Program for Social Sciences (SPSS) programme which was run by a statistician. Chi-square correlational and linear-by-linear Chi-square

tests were used to find out if there was a relationship between the number of learners with problematic eating in co-educational and in single-gender schools, whether there was an age group that was more prone to developing problems with eating and whether there were common themes that might cause a problem with eating. The questionnaire was designed to determine whether the participants display problematic eating behaviours or not. Face validity was used and the questionnaire was not intended to be used a tool to diagnose an Eating Disorder.

The questionnaire with the open-ended questions was evaluated by the researcher in the form of a qualitative study. Similar answers were grouped together and summarized, according to identifying themes.

1.7.6. Method of analysis

The Chi-square correlation test of the SPSS programme was used to evaluate the data to find out if there is a significant relationship with eating problems in single-gender and co-educational schools. Furthermore, the Chi-square test was used to determine if there was a specific theme that might be a significant factor that caused eating problems. Finally a linear-by-linear Chi-square test was used to see if a specific age group was more prone to develop a problem with eating. Graphs and tables were drawn up to show the correlation and possible significance of the relationships.

The open-ended questions that were answered by the members of the Eating Disorder Support Group were analysed by the researcher. The data was

compiled and the evaluation of the open-ended questions indicated whether there were other common factors that played a role in the development of problematic eating, for female adolescents in Durban, KwaZulu-Natal.

1.8. Ethical considerations

The schools which were willing to participate were contacted. The researcher visited to the schools and met with the teachers, school counsellors and principals. They were informed about the reasons for and steps of the research. A letter of consent was given to the parents (appendix C) who signed this document giving permission for their child to participate. The researcher handed out the questionnaires. The female learners of the different High Schools were not asked to write their names on the questionnaires, thus ensuring confidentiality. They were informed that they were participating voluntarily. None of the subjects were harmed or deceived in any way.

The second questionnaire was given only to the members of the Eating Disorder Support Group. The parents were informed about the study and had to complete a letter of consent that allowed their children to participate. The adolescents were told that they could participate or decline freely. The members of the Eating Disorder Support Group who wanted to participate in the study were encouraged by the researcher to elaborate on what they thought about their family structure, peers, school, media, their appearance, self-esteem and feelings. The group members could answer the questions truthfully as they did not have to try to make an impression on anyone, or be concerned about being evaluated. The

members did not have to write their names on the questionnaires in order to ensure their confidentiality. This enhanced the validity and reliability of the research.

Once the researcher completes the analysis, the schools will receive a copy of the research findings in writing. The researcher will talk to the learners, teachers and principals in a feedback session if further clarification was needed. The results will also be discussed with the members of the Eating Disorder Support Group, and a session was used to attain feedback about the study from the members.

1.9. Value of the study

This research study shows that there is a relationship between the number of eating problems and attendance at co-educational or single-gender schools. If this relationship is significant in the development of a problem with eating; and there is a specific age group that is more prone to developing an eating problem, intervention programmes could be created with the new research results in mind which could reduce the number of female adolescents who have problematic eating patterns.

1. 10. Operational definitions

1.10.1. Anorexia Nervosa

In this research study Anorexia Nervosa refers to a psycho-physiological disorder that normally occurs in young women (onset between 13 and 18 years), that is characterized by an abnormal fear of becoming obese, even if the person is

underweight, a distorted self-image, a persistent unwillingness to eat, a denial of the seriousness of the low body weight, the absence of at least three consecutive menstrual cycles in females who are postmenarcheal, severe weight loss and the refusal to maintain the body weight at or the above minimum of the normal weight for their age and height (Barlow & Durand, 2005).

There are two subtypes of Anorexia Nervosa:

1. The bingeing and purging type, where the person will binge-eat and purge through self-induced vomiting or the usage of diuretics and/or laxatives or enemas; and
2. the restricting type, where the person eats very little and exercises excessively (American Psychiatric Association, 2005).

Many patients are 15% under their normal weight when presenting for therapy. These disorders have many medical side effects, such as malnutrition, amenorrhoea, and other physiological changes that can even lead to death (Lieberman, 1995).

1.10.2. Bulimia Nervosa

Bulimia Nervosa, in this research study, shall mean an Eating Disorder that is common especially among young women (onset between 14 and 16 years) of normal or nearly normal weight. Such patients often have binge-eating and purging episodes. During the binges the adolescent with Bulimia Nervosa will eat huge amounts of food in a relative short period of time. They feel a sense of lack of control over food and feel that they cannot stop eating.

There are two subtypes:

1) Purging type: after having eaten large amounts of food the person will purge, use laxatives, diuretics or enemas in order to avoid gaining weight.
2) Non-purging type: after having eaten large amounts of food the person uses other behaviours to avoid weight gain such as fasting and excessive exercise.

The inappropriate behaviours must occur at least two times a week for three months. Adolescents suffering from Bulimia Nervosa often have feelings of guilt, depression, and self-condemnation (McClelland, Mynors-Wallis, Fahy & Treasure, 1991). Their weight is quite normal, thus many adolescents suffering from Bulimia Nervosa are not easily identified by outsiders. As with adolescents suffering with Anorexia Nervosa; adolescents suffering with Bulimia Nervosa have a distorted body image and their self-evaluation is highly influenced by their weight and shape.

1.11. Conclusion

This chapter informed the reader about the framework of the study and why it was important to attain more clarity on the topic. Furthermore, an explanation was given regarding the methodology of the research.

The following chapter will discuss relevant research articles by researchers from various countries in an attempt to examine if Eating Disorders are more prevalent in single-gender or in co-educational schools and if there are common factors that might lead to the onset of an Eating Disorder.

Chapter 2

Literature review

2.1. Introduction

This chapter considers and discusses findings on the different factors that contribute to the development of problematic eating. The researcher also investigates the various factors which play an important role in their onset and maintenance of Eating Disorders. While this studies focused mainly on the influence of attendance at a single-gender or co-educational school, it was important to include other possible influencing factors in the discussion.

Previous research focused on the impact of personality traits, family structure and socio-economic environments on the development of Eating Disorders (Barlow & Durand, 2005), but in the researchers opinion, an insufficient amount of research has been conducted on the role of attendance at a single-gender or co-educational school. The researcher wanted to find out if there was a relationship between problematic eating and the attendance at a single-gender or co-educational school. KwaZulu-Natal has more single-gender schools than many other provinces in South Africa (www.saprivatschools.co.za, 2009). Thus research on whether attending a single-gender or a co-educational school would influence the development of an eating problem has relevance in this province.

2.2. Eating Disorders

A study conducted by Gowers and Bryant-Waugh (2004) showed that Eating Disorders were Disorders primarily afflicting First World countries. However, a study by Thomson (1992) revealed that if rural African people moved into urban settings, their children would become “Westernized” and may also develop Eating Disorders. They would be exposed to unfamiliar factors such as television and fashion and lifestyle magazines (Monro & Huon, 2005) as well as the different values of their peers and a different school set-up, all of which might lead to the development of an Eating Disorder (Barlow & Durand, 2005). As countries become more Westernized, their rates of Eating Disorders increase. In the USA and in South Africa there is a lower rate of Eating Disorders among African women, possibly because a fuller female body type is valued, but this appears to be changing (Thomson, 1992).

The Eating Disorders seem to have moved beyond the stereotype. They were previously considered primarily a health issue for affluent white, teenage girls. Now, the problem has crossed socio-economic, ethnic and gender boundaries (Neuman & Halvorsen, 1999).

Eating Disorders affect a small percentage of the population in the USA. Bulimia affects about 1.1 percent of females and 0.1 percent of males. Anorexia Nervosa affects about 1.62 percent of the population (Barlow & Durand, 2005). However, these figures might be inaccurate as the Disorders are often well hidden. Bulimia is a lot harder to detect because sufferers are often of normal weight. Ninety

percent of females with an Eating Disorder are young and white. They come from upper-middle and upper socio-economic groups living in socially competitive environments (Barlow & Durand, 2005). Hsu (1995) points out that Eating Disorders are culture specific – that is, they are Caucasian, Westernized illnesses. An abundance of food and fewer infectious illnesses have led to an increasing average body size in the middle-upper socio-economic class in the Western world. In contrast to the increased average body size, the Western ideal is to be thin. This is often reflected in the media and creates conflict with the increasing body size (Hsu, 1995). The number of diet-related articles has risen in the past couple of decades and the cover pages of magazines frequently feature thin models (Monro & Huon, 2005). The self-esteem of young females is correlated with thinness and physical attractiveness. Thinness is equated with being successful, intelligent, and attractive and in control. It is therefore common in the West to be preoccupied with one's body and with being thin (Beers & Berkow, 2000).

To understand Bulimia Nervosa and Anorexia Nervosa, it is necessary to look at the clinical picture portrayed by the DSM IV-TR (American Psychiatric Association, 2005). This research study only focused on Anorexia Nervosa and Bulimia Nervosa and will therefore not discuss other Eating Disorders such as Eating Disorder Not Specified.

2.2.1. Anorexia Nervosa

The person suffering from Anorexia Nervosa has an extreme fear of becoming fat or gaining weight. They will starve themselves because they want to lose weight. They generally lose more than 15 percent of their body weight. Their self-esteem is directly related to their weight loss and they feel a great sense of achievement when they loose more and more weight (American Psychiatric Association, 2005, p. 584). They cannot judge their body size accurately and have a disturbed body image (Barlow & Durand, 2005). People suffering from Anorexia Nervosa are preoccupied with food, and will often collect it or prepare big meals without eating the food. Research has found an imbalance in the Neuro-peptide Y at the level of the hypothalamus, which enhances the onset of the Disorder (Lieberman, 1995). Anorexia Nervosa might cause severe physical damage such as: cardiac arrhythmias, hypotension, dry skin, brittle hair, sensitivity to cold temperatures, and hair growth on the side of the face and arms.

The DSM-IV-TR criterion for Anorexia Nervosa are: refusal to maintain normal body weight and losing more than 15 percent of it, fear of gaining weight even when they are already underweight, disturbance in body perception, denial of seriousness of low body weight and amenorrhoea with the absence of at least three consecutive menstrual cycles.

The DSM-IV-TR describes two subtypes:

1. The bingeing/ purging type, where the person has regular binge eating or purging behaviour such as self-induced vomiting, misuse of laxatives, diuretics or enemas, or

2. The restricting type where the person is not engaged in regular binging or purging behaviour but mainly restricts herself from eating any food (American Psychiatric Association, 2005).

Positive feedback on weight loss from peers or family members in the initial stages of the Disorder may reinforce the desire to continue losing weight (Monro & Huon, 2005). The Eating Disorder may give the sufferer a feeling of power, self-control or virtue.

Anorexia Nervosa can be interpreted differently from culture to culture. Some cultural factors might influence the manifestation of the disorder such as having distaste for certain foods, different eating habits and even religious reasons (e.g. fasting).

Most cases of Anorexia Nervosa occur in females (90 percent) and the prevalence is about 0.5 percent. Anorexia Nervosa begins in the mid- to late adolescence (age 14-18) and might be associated with a stressful life-event, enmeshed or closed family setting or influence from society, e.g. media programmes that promote thinness (Monro & Huon, 2005). The course and outcome of Anorexia Nervosa differs from person to person. Some sufferers recover make a full recovery, some relapse, some develop Bulimia Nervosa and some chronically deteriorate over many years. The death rate with people suffering from Anorexia Nervosa is 10 percent which often results from starvation, organ failure and suicide. An increased risk of Anorexia Nervosa and

Mood Disorders amongst first-degree relatives, such as parents, has been found (American Psychiatric Association, 2005). Co-morbid Disorders can be found in females suffering from Anorexia Nervosa, such as Obsessive-Compulsive Disorder, Major Depressive Disorder, General Anxiety Disorder and Body Dysmorphic Disorder.

2.2.2. Bulimia Nervosa

The main sign of this Disorder is binge eating together with purging techniques such as vomiting, using laxatives or diuretics, or non-purging techniques such as dieting, excessive exercising and fasting. This leads to a sense of self-disgust and loss of control. Adolescents suffering from Bulimia Nervosa are over-concerned with their weight and shape, and often overestimate their body size (Barlow & Durand, 2005). However, most of them are within 10 percent of their normal body weight range.

The DSM IV-TR criteria for Bulimia Nervosa are recurrent binge eating, and recurrent compensatory behaviour to prevent weight gain, such as excessive exercise or purging. The person suffering from Bulimia Nervosa eats larger amounts of food in a relatively short time in comparison to other people. High calorie foods seem to be the preferred choice. People suffering from Bulimia Nervosa feel out of control when trying to refrain from eating. Compensatory behaviour, such as purging, using laxatives, diuretics and enemas is used to keep the body weight down. This behaviour has to occur at least twice a week for three months to warrant diagnosis. Adolescents suffering from Bulimia Nervosa

evaluate themselves by their body shape and weight, and Anorexia Nervosa needs to be ruled out as a diagnosis (Barlow & Durand, 2005).

The DSM-IV-TR describes two subtypes:

1) the purging type where the person has had regular binges and purging through self-induced vomiting, misuse of laxatives, diuretics and enemas and
2) the non-purging type where the person uses fasting and excessive exercise as a method to lose weight after binges (American Psychiatric Association, 2005).

Research suggests that adolescents who suffer from Bulimia Nervosa have been more overweight than their friends before they developed the disorder. When dieting, low-fat and low-sugar foods are eaten which avoid the onset of a binge (Barlow & Durand, 2005). However, high sugary and fatty foods seem to be triggers for binges. It has been found that people suffering from Bulimia Nervosa might also be diagnosed with other Mood Disorders such as Major Depressive Disorder and/or Anxiety Disorders. Substance Abuse has been found in 30 percent of people who were diagnosed with Bulimia Nervosa. First degree-family members of the people who suffer from Bulimia Nervosa show an increased occurrence of Bulimia Nervosa, Substance Abuse and Mood Disorders (American Psychiatric Association, 2005). The disorder seems occur more in westernised females than in males with as much prevalence as 90 percent. The life-time prevalence rate lies between 1 and 3 percent. The onset of Bulimia Nervosa is in late adolescence or early adulthood (14-16 years) and persists over

many years. It seems that some individuals might have chronic, some intermittent symptoms and some overcome the symptoms of the disorder completely. A good out-come can be achieved if the person is in remission for over a year (American Psychiatric Association, 2005).

2.2.3. Comparing Anorexia Nervosa and Bulimia Nervosa

Researchers have compared Anorexia Nervosa with Bulimia Nervosa to attain a better understanding of the two disorders. There are similarities, as shown here. Many people with Bulimia Nervosa have a history of having been afflicted with Anorexia Nervosa. Many patients suffering from Anorexia Nervosa and Bulimia Nervosa used to suffer with obesity, or live in a family that is characterised by obesity. The biggest difference between the two disorders is the degree of success in losing weight. Adolescents suffering with Anorexia Nervosa are much more successful at losing weight than adolescents suffering from Bulimia Nervosa. Binge-eating, purging adolescents suffering with Anorexia Nervosa purge more regularly than adolescents suffering with Bulimia Nervosa (Rome & Ammerman, 2003). There is a greater incidence of Bulimia Nervosa than Anorexia Nervosa, and the average age of onset of Bulimia is 16 to 18 years as compared with 13-18 years for adolescents suffering with Anorexia Nervosa.

Another study by Gowers and Bryant-Waugh (2004) shows that an alarming 0.5 percent to 3.7 percent of females suffer with Anorexia Nervosa, while 1.1 percent to 4.2 percent suffer with Bulimia Nervosa. Furthermore, the onset age of both Eating Disorders has dropped steadily over the years. Primary school children

are reported to be dieting at an early age, with Anorexia Nervosa being reported among nine-year-olds. Recent studies in America show that 42 percent of first, second and third grade girls want to be thinner. In a survey of 500 fourth grade girls by the Harvard Eating Disorders Centre in Boston, 40 percent were found to be on a diet, binge eating or afraid of getting fat (Gowers & Bryant-Waugh, 2004).

According to the American Psychiatric Association (2007), eating behaviour is related to thoughts and emotions. People with Anorexia Nervosa and Bulimia Nervosa tend to be perfectionists who suffer from low self-esteem and are extremely critical of themselves and their bodies. They usually feel fat and consider themselves overweight, sometimes despite life-threatening semi-starvation.

Eating Disorders need to be taken seriously because they are potentionally life-threatening conditions that affect the individual's physical, emotional and behavioural development, and may lead to premature death. Among all mental disorders, Eating Disorders have the highest rate of death. They can be seen as a slow form of suicide because self-starvation is an attempt to destroy the body. Seemingly innocent dieting might develop into life-threatening Bulimia Nervosa or Anorexia Nervosa (American Psychiatric Association, 2005).

Eating Disorders seem to have a 90 percent prevalence rate in females from Western countries who have been overweight. The individual begins dieting, but at some point normal dieting can develop into an eating problem (Markey &

Markey, 2005). Taylor's research (1991) showed that dieting efforts among teenage girls are more likely to lead to weight gain than weight loss, and females who had dieted had a 300 percent greater risk of obesity than those who had not dieted (Taylor, Agras, Losch & Plante, 1991). This information is relevant for the study in KwaZulu-Natal, Durban, as it gives a better indication of how adolescents start developing a problem with eating in general. According to the aforementioned findings it appears that girls who have a weight problem in their teenage years already, are more likely to develop an Eating Disorder compared to girls who do not have a weight problem at the same age.

2.3. Factors which impact on the development of an Eating Disorder

2.3.1 Biological factors

Barlow and Durand (2005) point out that there is more evidence of a genetic predisposition to Anorexia Nervosa than Bulimia Nervosa. There is a four to five times higher chance that a child will develop Anorexia Nervosa if immediate family members have it or have had it. However, it also afflicts people with no family history of an Eating Disorder.

Eating Disorders themselves are not inherited; rather, the sufferer's autonomic nervous system is overly reactive or vulnerable to stressors. Hsu (1989) mentions abnormalities in the hypothalamus of adolescents suffering with Anorexia Nervosa, which may result in abnormal levels of noradrenalin and substance P (a neuropeptide), and low levels of serotonin, which may result in depressive symptoms. It is suggested that the starving body releases

endogenous opioids, causing a pleasurable feeling and worsening the starvation (Barlow & Durand, 2005). There is also the theory that adolescents suffering with Anorexia Nervosa may be unable to perceive their bodies objectively because of biochemical abnormalities in the limbic system. However, this has not been proven (Rome & Ammerman, 2003).

Recent research has found serotonin deficiencies in the orbito-basal frontal cortex of adolescents suffering with Anorexia Nervosa. This is also common in people with Obsessive-Compulsive Disorder (Phelps, Sapia, Nathanson & Nelson, 2000).

The genetic variant in serotonin receptors found in adolescents suffering with Anorexia Nervosa may predispose them to high levels of serotonin. At high levels, serotonin can lead to Mood Disorders. A lack of food decreases serotonin levels and the self-starvation associated with Anorexia Nervosa will leave the person feeling calmer. As starvation reduces serotonin to very low levels, depression may set in (Barlow & Durand, 2005). Serotonin levels rise when a person eats again, because the body requires certain amino acids for its manufacture. This increase in serotonin may retrigger anxiety symptoms. Some researchers fear this causes a vicious cycle in people predisposed to Anorexia Nervosa. Over time, the person suffering with Anorexia Nervosa subconsciously learns to avoid anxiety by avoiding food, thereby maintaining low serotonin levels (Gowers & Bryant-Waugh, 2004).

2.3.2. The influence of the family structure

In families with individuals suffering with Bulimia Nervosa the interpersonal boundaries between mother and daughter are often porous. The mother might be under involved or disengaged. Extreme behaviour and acting out may be a regular pattern in the family. It is thought that food is satisfying and is symbolic for being taken in, accepted and appreciated (Cotton, 1989). The adolescent binge eats and purges because of the confusion of wanting to be accepted by her mother but also anger at her mother's rejection.

Barlow and Durand (2005), state that adolescents who suffer with Anorexia Nervosa tend to be perfectionistic and try to ignore signs of conflict. Lieberman (1995) explains that there is usually an unspoken family rule, in a family with an individual suffering with Anorexia Nervosa, that appearance is everything. The outside world only sees a picture of a perfectly intact and beautiful looking family. Problems and conflict stay within the rigid family home. There tend to be firm boundaries between mother and daughter, and emotions are kept in check. The mother is often overinvolved and restricts the development of the child. She does not necessarily understand the needs of her child, and overrides them with her own needs. The father in such families tends to be emotionally absent. The individual suffering with Anorexia Nervosa seems to be overly in control of her food intake which often might be the only control she has in her life because the mother controls all the other areas (Beers & Berkow, 1999).

Adolescents who grow up in families which are very weight-conscious might start to diet early. In such families, looking good is more important than inner values, and adolescent family members might begin to believe that looks are all-important (Cotton, 1989). This can lead to disturbed eating behaviour, such as an extreme and unhealthy reduction in food consumption or severe over-eating, as well as feelings of distress or extreme concern about body shape or weight and constant checking up on body weight. Research has found that girls who said that they frequently weighed themselves were more likely to develop problems with binge eating and with risky weight-control tactics such as skipping meals, using diet pills, purging and abusing laxatives than their peers (Norton, 2006).

Hsu (1989) finds a clear link between family histories of eating behaviour and the interaction patterns in families. If a family is too enmeshed and closed, the adolescent cannot progress into the different development stages of independence and socialisation with peers of the same age. On the other hand, parents might neglect an adolescent because they are going through a divorce, suffer with a Mood Disorder or have lost a loved one. In such cases the adolescent might turn to food for comfort and to block out the painful feelings of rejection (Evans & Street, 1995).

A child may also develop an Eating Disorder because her parents are too involved and too critical, and do not allow her to express her feelings. Often, such children feel out of control, and may develop an Eating Disorder to give themselves a sense of being in charge of this part of their lives. Over-controlling

parents might also put pressure on a child to be academically successful, which is very stressful for some children. They might fear that if they do not achieve the academic results expected of them, their parents will be disappointed in them and will not love them. They might feel like a failure, which can lead them to starve themselves as a form of self-punishment (Evans & Street, 1995). Most adolescents with an Eating Disorder avoid conflict at all costs. They try to please people and present an image of happiness. They might use food to “swallow” down their negative feelings and purge it up again as a sense of relief (Barlow & Durand, 2005). It seems that most individuals who suffer with an Eating Disorder have similar personality traits.

2.3.3. Personality traits

Barlow and Durand (2005) found the following common personality characteristics for adolescents suffering with Bulimia Nervosa: poor coping skills, external locus of control, low self-esteem, poor self-efficacy, emotional immaturity, passive-aggressive behaviour, social anxiety, feelings of inadequacy, a tendency to perceive events as highly stressful and to use food as an emotionally soothing response. Common co-morbid disorders are Panic Disorders, Social Phobias, Mood Disorders and Substance Abuse.

Self-restricting adolescents suffering with Anorexia Nervosa are usually introverted and more in denial about these problems, whereas purging adolescents suffering with Anorexia Nervosa tend to be more extroverted, more in psychological distress and more impulsive. McClelland (1991), states that 52

percent of adolescents suffering with Anorexia Nervosa have a co-morbid Personality Disorder such as Avoidant or Borderline Personality Disorders. He found that adolescents suffering with Anorexia Nervosa often tend to be shy, neurotic, obsessional, over-controlled, dependent, perfectionist, self-mutilating, have low self-esteem and have a poor self-image. However, it is important to note that many of these personality characteristics might be the consequence of the Eating Disorder rather than the cause of it. At least 33 percent of adolescents suffering with Anorexia Nervosa suffer from a Mood Disorder at some point in the disorder. A disorder that frequently co-occurs with Anorexia Nervosa is Obsessive-Compulsive Disorder, with sufferers developing obsessions about food and weight gain, as well as compulsions, which are often ritualised (Beers & Berkow, 1999).

Adolescents suffering with Anorexia Nervosa become extremely anxious before or during eating, which is relieved to some extent by purging. Recent research suggests that people with Eating Disorders have difficulty tolerating any negative affect, and binge or purge to regulate their moods (Lieberman, 1995). Anxiety might be triggered by different events or stimulus, such as with the media being a recognised trigger.

2.3.4. The influence of media

The idea that public opinion and social pressure cause Anorexia Nervosa has been considered for some time. Many Western cultures associate thinness with an ideal body image. Thinness and low body-weight is equated with beauty and

success. By association, overweight or obese individuals are equated with ugliness, a lack of success, and an implied lack of self-control (Monro & Huon, 2005).

However, most people cannot attain the "perfect" body. Biological factors prevent the average female from conforming to the body image embodied by fashion models. These models are also generally under intense pressure to conform to this ideal body image, and are at a higher than normal risk of Eating Disorders. The conflict between actual and desired body image is thought to trigger Anorexia Nervosa in some people. Teenagers are especially vulnerable to social and peer pressure, which may explain why peak rates of Anorexia Nervosa occur in the adolescent years. According to statistics from the National Eating Disorders Association stated in research by Markey (2005), by the time young women reach tertiary education, 92 percent have tried to control their weight through dieting, and 22 percent often or always diet.

Fashion magazines reinforce adolescents' belief that they have to be thin to be accepted, happy and successful. Harrison (1997) found that 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 shows featuring thin and beautiful people is significantly related to body dissatisfaction. Harrison found that the drive for thinness is a learned behaviour from sources such as magazines (e.g., how to diet and exercise). Body dissatisfaction, on the other hand, is a set of attitudes rather than

intentions (Harrison, 1997). It is not associated with a particular action or behaviour. Individuals who watch eight or more hours of TV a week show higher rates of body dissatisfaction compared to those who watch fewer (Harrison, 1997).

In a related study using the same sample of women, Harrison (1997) found that an interpersonal attraction to thin media personalities is related to disordered eating over and above the influence of mere exposure to media, even media which portray or promote thinness. An attraction to thin and beautiful characters in media can lead to the development of Eating Disorder symptoms such as a drive for thinness, perfectionism and ineffectiveness. These symptoms were not found among women attracted to media personalities with an average or heavier body weight. According to Harrison (1997, p.78), “it seems that young women's patterns of disordered eating, including both attitudinal and behavioural tendencies, are related not only to the types of media they expose themselves to, but also to the way they perceive and respond to specific mass media characters."

Brownell (2002) agrees and argues that the mass media contributes to a toxic environment in which Eating Disorders are more likely to occur. The media promote the paradox that to be thin is also to be beautiful and healthy. This paradox puts a lot of pressure on adolescents who might already be confused by the changes in their bodies during puberty. Suddenly, they are not as thin as they used to be, and yet society seems to be telling them they should stay thin even though this might not be genetically possible. Body weight and shape are largely

determined by genetics, with some females inclined to carry more weight than others.

Analyses of media content show it to provide a stream of articles on weight control, either through fitness or food control, and physical beauty, as embodied by models whose curvaceousness declined steadily between 1959 and 1978 (Irving, 2001). In all cases, the emphasis on diet or fitness is designed to help someone become more physically attractive, and thus acquire status.

In the late 1990s, there was a fair degree of comment in the media about Barbie dolls sold to prepubescent girls. It was argued that Barbie, with her unattainable bust-to-waist ratio and impossibly long, lean legs, would encourage Anorexia Nervosa by providing young girls with an adult body shape that they would aspire to but never achieve. Various experts appeared on radio and TV accusing the manufacturer of social irresponsibility (Beers & Berkow, 2000).

Rome and Ammerman (2003) suggest that the media may act as a negative reinforcer of body size overestimation, which may lead to Eating Disorders. In other words, rather than making women feel that they need to be thinner, it may make them feel bigger than they already feel. The starting position for many females is thus a built-in vulnerability, which is reinforced by the culture of the media.

This view must be considered alongside other parallel studies on body image. The development of body image over time, a more useful predictor of protection from eating distress, is dynamic and affected by many variables, including exposure to traumatic events, body issues in childhood, and general self-esteem derived from core personality traits.

It must be pointed out, however, that while it is true that growing and adult women are exposed to thin images and many articles on diet and fitness, they might not feel pressurised by the media's influence, and many do not develop an Eating Disorder (Beers & Berkow, 2000).

However, while there is no question that social pressure and an idealised body image play a role in Anorexia Nervosa, social pressure alone does not cause the Eating Disorder. The majority of people exposed to the social message of the "ideal body" do not develop an Eating Disorder. Nor does every female who is unhappy with her body image develop Anorexia Nervosa. It seems that social pressure may be a trigger for Anorexia Nervosa, but some other underlying problems must be present as well (Harrison, 1997).

2.3.5. Life events

Traumatic life changes have been known to trigger Anorexia Nervosa, although this is thought to occur only if the individual is already predisposed to developing an Eating Disorder. Such life changes may include bereavement, the onset of adolescence, going to a new school, failing at schoolwork and ending a

relationship. Many people experience these life events for the first time in their adolescent years, which may partially explain why Anorexia Nervosa affects more adolescents than adults (McClelland, Mynors-Wallis, Fahy & Treasure, 1991).

2.3.6. Body dissatisfaction and peer pressure

The perceived influence of family and peers on body dissatisfaction, binge eating behaviour and weight loss among adolescents has been researched by Vincent and McCabbe (2002) in a study of 306 girls aged 11 to 17, and 297 boys aged 11 to 18. It found that the direct influences of family and peers, rather than the quality of these relationships, predicted body dissatisfaction and disordered eating. Specifically, parental and peer discussion and encouragement of weight loss predicted disordered eating behaviour in females, while parental and peer encouragement of being muscular and trim predicted binge eating and weight loss behaviour in boys. Fathers played a significant role in the expression of more severe forms of eating problems. Siblings played a small yet important role in cognitive self-control among females. The results of the study emphasised gender differences in the importance of significant others in the expression of body dissatisfaction and disordered eating in adolescence (Vincent & McCabbe, 2002).

Peers are an important influence in the development of Eating Disorders. Research shows that peers share similar ideas about weight and body image,

and concerns about weight and dieting strategies are often passed on within friendship groups (Shroff & Thompson, 2006).

In a study that followed more than 1 000 girls in grade 7 and grade 8 in an effort to understand what factors promote the onset of poor body image and Eating Disorders, Jones (2004) found that the early signs of Eating Disorders could be detected at a young age. Furthermore, it was found that, while some females were predisposed to the problems, peer environment also contributed. Perceived peer influence, teasing about weight and talk of eating behaviour all contributed to the onset of problems. Moreover, it was found that females in friendship groups had similar attitudes to and behaviour in dieting, extreme weight loss and binge eating. While similar attitudes in peer groups were expected, the strength of these similarities among young females has surprised researchers. They conclude that females do tend to mirror and copy each other. There seems to be a tendency for them to behave as a group and learn from each other. Mazur and Betz (1988) described this as a socialisation effect.

The Jones study (2004) discovered that those girls whose behaviour was similar to their friends' did not necessarily share similar body concerns. Once these kinds of behaviour were established, they were difficult to break and could lead to an Eating Disorder. Fear, Bulik and Sullivan (1996) found that once a person was stuck in a certain behaviour, their perception of ideal body shape and their body image also changed.

Body image is closely connected to self-esteem. It is possible to have a low sense of self-worth and a good body image. On the other hand, it is hard to maintain good self-worth if one's body image is disturbed (Jones, 2004).

It is believed that both men and women configure an internalised ideal body image and compare their actual or perceived shape against the socially represented ideal. This presents a body image which is elastic in that it will feel different at different times and in different contexts (Jones, 2004).

Body image and the media are not the only influences and factors that might lead to the development of an Eating Disorder (Jones, 2004). Girls undergoing puberty are suddenly more aware of the opposite sex. They want to look good for males, and often start to diet to look beautiful for them. Research by Markey and Markey (2005), shows that males and females have different ideals in judging each others' body shape. For males, the perfect female body seems to be heavier than females think it is, and for females, the ideal male body is lighter than males think it is. Caucasian males tend to prefer their females thinner than African men, which might account for the greater incidence of Eating Disorders among white females (Paxton, Schutz, Wertheim & Muir, 1999).

Some females find it difficult to accept the fuller figure of their adolescent selves compared with their thin figures as children, and therefore might develop an Eating Disorder to change their figure back into the thin child-like figure (Paxton, Schutz, Wertheim & Muir, 1999).

2.3.7. Developmental changes

Cotton (1989) states that the years of adolescence are one of the most stressful periods in a person's life. During this stage adolescents start to become independent and discover who they are. They establish friendships and their bodies start to develop. For some teenagers, this can be quite emotional, stressful, confusing and frightening. Some make the change from childhood into adolescence with few problems; others may have a difficult time handling the pressures and develop Eating Disorders as a way to cope. There are some children who enter puberty early and are subjected to teasing by their peers (Thomson, 1992). Many fear that weight gained during this time is permanent and will frantically try to lose it. If they manage to lose weight then they might get complimented for this, leading to the belief that weight loss will make them happier and better able to cope with the stresses they feel (Markey & Markey, 2005). Teenagers are under a lot of pressure to succeed and to fit in. Many of them spend a lot of time worrying about what others think, and will desperately try to conform to society's unachievable "ideal" body weight. They begin to believe that, if they are thin, they will be accepted.

Researchers have tried to understand why it is mostly young females who suffer with Eating Disorders, and which factors play a role in triggering a problem with eating. Hsu (1989) states that pubescent girls tend to be more anxious, self-conscious and insecure than boys, and generally suffer a poorer self-image. Underweight females seem to be less depressed than normal or overweight females. Teenage girls who perceive themselves as overweight are likely to

experience more depression than those who do not consider themselves fat. Females who go through puberty early tend to have lower-self esteem than females who develop later. The father seems to have an increased parental control over early developers, which can cause disengagement in the family (Hsu, 1989). Often, the emotional maturity of a female adolescent does not match her physical maturity and might cause conflict in her self-esteem. Adolescent girls suffer more role confusion, turmoil and stress than teenage boys, which could worsen Eating Disorders (Mensinger, 2000).

2.3.8. Environmental factors

At the same time as other stressors, the environment provides an increasing array of foods high in fat and calories, and compelling pressure to consume them. As a result, people are getting heavier and the gap between the “ideal” and normal body weight is growing, giving rise to anxiety (Liebermann, 1995). Females seek to reduce this anxiety by losing weight. Many believe that weight can be controlled, and that weight lost will not be regained. However, dieting often causes rebound binge eating, and attempts to deal with this by going on further diets will lead many people into a disturbed relationship with food (Neumark-Sztainer, Faulkner, Story, Perry, Hannan & Mulert, 2002).

There are other dangers arising from this cultural paradox. The models and actors who promote consumption of calorie-laden foods are usually slim and attractive, which would be impossible if they actually ate these foods. This adds

to the cultural confusion said to nurture the onset of eating distress (Neumark-Sztainer et al., 2002).

Apart from genetics, family, peer and media influences on the development of an Eating Disorder, it is important to find out if schools play a role. The following discussion focuses mainly on the results of the different research findings on whether attendance at a co-educational or single gender school could in some way be viewed as an additional reason behind the onset of an Eating Disorder.

2.4. The reason behind the single-gender and co-educational schooling system

It is important first to consider the reasoning behind single-gender and co-educational schools. Advocates of single-gender schools have long argued that children, particularly girls, achieve more academically when they are taught separately, taking as evidence the fact that all-girls schools generally achieve the best results (Frean & Watson, 2000).

The benefits of single-gender schools are shown in a research by Wolpe (1998) where he states that separating the genders results in improved academic achievement, increased college enrolments and better graduation rates. As they enter puberty, girls' self-esteem normally drops, and it has been found that attendance at a single-gender school can give girls a boost in self-esteem. Girls-only schools also offer young females an increased sense of refuge from harassment and violence. In South Africa, girls-only schools also offer affirmation

programmes designed to equip learners with a higher level of consciousness on the rights of women and girls (Wolpe, 1998).

A study by Marston (1993) argues that it is preferable to separate boys and girls for middle and high school as there is a difference in their learning styles. Single-gender schools also get rid of stereotypes such as *"boys are better at maths than girls"*, and this in turn increases the girls' confidence. Thus single-gender schools seem to help build self-esteem, which is important for future life skills.

Considering the benefits of co-educational schools, Mensinger (2000) states that learners at these establishments enjoy the benefit of working with peers of the opposite sex, which equips them to be more socially skilled and popular. Co-educational schools reflect daily life more realistically. Children who attend these schools are not overly protected from stressors that might be caused by the other gender, and learn to cope better with conflicting situations involving the opposite sex.

Studies show that girls feel comfortable in single-gender schools as they do not have to worry about looking good for the opposite sex (Cairns, 1990). They feel that they are not distracted and can concentrate on their schoolwork. Furthermore, they feel more encouraged to speak up in class and are not "overridden" by boys, who are generally viewed to be louder and noisy. Boys are known for being good at maths and sport, whereas girls seem to be overwhelmed by these and tend to withdraw in the classroom (Cairns, 1990). This is not the

case in single-gender schools. Girls can discuss matters openly and can overcome stereotypes that boys are better at certain subjects (Harvey & Stables, 1986).

Intimate relationships are formed at this time, and may distract learners from their schoolwork. Learners in single-gender schools do not have to battle with this distraction or face the rejection that their peers in co-educational schools might face when a relationship ends (Shroff & Thompson, 2006). Girls feel safe in their classroom, and this gives them a greater sense of control in their school lives.

2.5. The role single and co-educational schools play in the development of Eating Disorders

The role of co-educational or single-gender schools in the development of Eating Disorders is discussed in various studies from Mensinger (2000), Gilligan (1999), Markey and Markey (2005) and Dyer and Triggerman (1996) that were mainly conducted in America, Europe and Australia. Only a few concluded that co-educational schools show a higher percentage of girls with Eating Disorders (Gilligan, 1999, Markey and Markey, 2005, Shumurak, 1998 and Lee, 1994). On the contrary, other studies found the opposite, claiming that Eating Disorders are more prevalent in single-gender schools (Mensinger, 2000 and Dyer and Triggerman, 1996). Therefore the following discussion will look at the research findings that support one view or the other.

2.5.1. Co-educational schools

Of five million Americans who develop an Eating Disorder, 90 percent are female, according to Flicek and Urbas (2003). Their research found that girls living in co-educational gender residences have significantly higher levels of Bulimia Nervosa symptoms and higher degrees of body dissatisfaction compared with their counterparts in girls-only residences. The move from living at home to living at school with members of the opposite sex was seen as being very stressful. Rolls, Andersen, Moran, McNelis, Baier and Fedoroff (1992) agreed with Flicek and Urbas (2003) who found that, during this time of turbulence, weight is often perceived as something that can be controlled when everything else appears to be out of control. Dieting then becomes a way to take control and gain independence. Individuals who are psychologically vulnerable to developing Eating Disorders have difficulty adapting to changes in lifestyle (Neuman & Halvorson, 1999). Being with the other sex creates feelings of fear or rejection in some females.

Females' figures are also more dependent on physical attributes than males', and they are therefore under more pressure to conform to the physical ideal of slender flawlessness, as portrayed in the media (Mazur, 1986). In modern society, females are supposed to be thin and beautiful, whereas it is not perceived to be so important for males.

Girls' attitudes towards the opposite sex play a distinguishing role in their dissatisfaction with their bodies. As they grow older, teenagers typically become

increasingly interested in establishing intimate relationships. Gilligan (1999) specifies that it is during this time that girls start worrying about their weight and how they look to others, especially boys. Researchers in the field of body image and Eating Disorders have found that females strongly believe their attractiveness to boys lies in their weight and figure size (Markey & Markey, 2005). It has been found that girls who moved from girl-only to co-educational schools feel pressurised and anxious about having to look good for the opposite sex. Many learners feel that co-educational schools put too much pressure on girls to look good, which might lead to the development of Eating Disorders (Lee, 1994).

2.5.2. Single-gender schools

On the other hand, many research papers (Gilligan, 1999, Markey and Markey, 2005, Shumurak, 1998 and Lee, 1994) support the view that single-gender schools might enhance the development of Eating Disorders. Dyer and Triggerman (1996) have conducted a study in Australia examining Eating Disorder symptomatology in 142 teenage girls attending co-educational and single-gender schools. All the participants, aged 15 to 17, came from upper middle-class backgrounds. The study showed that girls in single-gender schools report significantly thinner ideal and attractive body perceptions as well as low body mass index (BMI). The BMI and the measure Eating Disorder Inventory (EDI) were found to be highly significant in the single-gender context and insignificant in the co-educational context. The BMI scores decreased and EDI scores increased for girls attending single-gender schools, while BMI had no

detectable effect on the EDI scores of the girls attending co-educational school. This suggests that heavier girls in single-gender schools were struggling more with their self-image and Eating Disorders than their equally heavy peers at co-educational schools. Girls at co-educational schools also had higher BMI scores, suggesting that these girls tend to accept a heavier ideal figure for themselves. The study further shows that learners at single-gender schools display higher disordered eating patterns despite the fact that they do not have to “fight” for the attention of males. This means that other factors beside the wish to be attractive to the opposite sex could cause Eating Disorders. Girls with a higher BMI seem to struggle more in single-gender schools than in co-educational schools (Tiggerman, 2001). The lack of statistical significance between the BMI and EDI in co-educational schools suggests that body size and eating patterns have much less importance for girls attending co-educational schools than for their peers at single-gender schools. It shows that girls at co-educational schools have a greater flexibility and acceptance of their bodies than girls at single-gender schools (Shumurak, 1998).

Research by Arnot and David (1996) suggests that females at single-gender schools might be quite rigid in accepting their bodies as a result of female empowerment, which could promote conflicting gender roles to the girls. According to Mensinger (2000), these gender issues must be tackled to get the adolescents, teachers and schools to understand the conflicting roles females have to face in single-gender schools.

Contradictory to the study conducted by Lee (1994), Cohn, Adler, Irwin, Millstein, Kegeles and Stone (1987) showed that girls at single-gender schools may have distorted body images. A Figure Rating Scale was used to demonstrate how adolescent females see their bodies, how they would like to look, and what figure size is seen as being most attractive to the opposite sex. The ideal female figure chosen by the girls was smaller than the figure they had chosen to be the most attractive to males. In addition, they considerably underestimated the size of the female figure to which males are most attracted.

This might contradict studies that have shown that co-educational schools have more Eating Disorder cases. Cohn, Adler, Irwin, Millstein, Kegeles and Stone's study (1987) concluded that males can offer females a reality check on figure size. It also showed that females do not want to be thin only to look good for the opposite sex, and this is evident when one realises that Eating Disorder cases at girls-only schools are also widely reported (Cohn et. al., 1987).

Moreover, research by Shumurak (1998) confirmed Cohn et al.'s findings, and showed that students at private girls-only schools have a thinner ideal figure in mind and display more Eating Disorder patterns than girls in private co-educational schools. Girls at single-gender schools also put more emphasis on achievement than their co-educational counterparts. Although the schools did not differ in role concerns, they had a different impact on how the females predicted their ideal figure. In single-gender schools, this idea was related to professional success; in co-educational schools it was not (Shumurak, 1998). This shows that

what motivates the wish for thinness differs between the two types of schools, and puts more stress on girls in single-gender schools than on girls in co-educational ones.

A study by Limbert (2001) following girls from school into their adult life found that females who had attended single-gender schools obtained a higher score in the Eating Disorder Inventory than their counterparts from co-educational schools.

A research study by Steiner-Adlair (1986) shows that Eating Disorders are prevalent among adolescents who are in high school. During this time the adolescents' main social interaction happens in the classroom. This may lead to the assumption that schooling might be related to the development of Eating Disorders. Steiner-Adlair (1986) found that more females develop Eating Disorders before the age of 22, which indicates an influence of schooling in the behaviour characterised by Eating Disorders. Furthermore he indicates that an increased stress level is the main factor that makes Eating Disorders more likely at girls-only schools than at co-educational schools. Females become more aware of their bodies during puberty as these change rapidly.

This new emphasis on body shape can cause females to think negatively and to disrespect their bodies (Shroff & Thompson, 2006). Additionally, an increase in hormone levels sometimes causes sexual feelings for the first time. These changes are often stressful and difficult to handle emotionally, and might scare teenage girls to the point that they try to regain control of these changes. Often

they do not see any other way but to starve themselves. They might starve themselves to look like a child again, and slip back into the well known role they used to live in before they changed into an adolescent. Stress is an important factor in developing Eating Disorders, and is seen to be one of the reasons single-gender schools have a higher prevalence of Eating Disorders (Fear, Bulik & Sullivan, 1996). Not only do the adolescents start to compare their bodies and looks, but the homework load increases drastically from primary school to high school. Combined with the worries about what they are going to do with their future lives, this period can be the most stressful in a female's life (Dyer & Triggerman, 1996).

In single-gender schools, females are expected to do well, and this is one of the reasons why parents send their children to these schools. Along with higher job placement rates come higher academic expectations, as well as heightened competition among learners. If learners do not do so well they often feel that they are failing because many other girls are able to attain the desired standard (Dyer & Triggerman, 1996). Parents might put pressure on the students to succeed, which can increase their stress levels even more. Parents who put pressure on their adolescents are usually idealists and perfectionists who not only expect perfection and superiority of themselves but also of their children. This tendency and the expectations of the parents put more pressure on the learner. Those who feel too pressurised might develop an Eating Disorder in order to relieve this pressure.

Being in a girls-only school can also make the learners feel restricted and constrained. They might feel inexperienced in interaction with males, which can heighten their stress further. This stress may cause them to act awkwardly when being around their male counterparts (Dyer & Tiggermann, 1996).

Moreover, girls are also expected to behave differently in single-gender schools. They are expected to be ladylike at all times. Harvey and Stables (1986) found that they are often expected to be more obedient than in co-educational schools. They are expected to exhibit proper ladylike manners, and yet they are asked at the same time to take over male roles (Harvey & Stables, 1986). They should, for instance, show a drive for success and competitiveness which is traditionally a male attribute. This leads to a contradiction in girls-only schools, in which students are expected to act like a “real man” but look like a “real woman”. Confusion about these expectations may cause further stress, and lead to the development of Eating Disorders (Harvey & Stables, 1986).

A study by Marsh (1989) revealed that one might expect learners at girls-only schools to be sheltered from the more “harsh” environment found at co-educational schools. This should have positive effects on the self-esteem and the perceptions of the females in single-gender schools as shown in the studies by Marston (1993), and Wolpe, Quinlan and Martinez (1998). In these studies it was also hypothesised that single-gender schools should be more aware of what girls are going through in puberty. They should be sensitive to their self-esteem, sexuality, body image and other issues which are of great concern during this

time. However, the study found that in single-gender schools there are more Eating Disorders, more negative body images, and increased overall emotional and environmental stress for the learners.

More findings by Marsh (1989) show that co-educational schools are perceived to have a more pleasant atmosphere, being more conducive to the development of self-confidence, and reflective of a less prejudiced and irritation-free environment. This shows that heightened levels of perceived environmental stress and socio-cultural pressures seem to be unique to the single-gender subculture.

Another study by Arnot and David (1996) aimed to find out if all single-gender schools were seen as having less understanding for their learners, and therefore causing extra stress for them by pressurizing them with physical conformity and academic achievement. It has been found that the gender politics of girls-only schools, and the overall school philosophy and politics, influence the attitude and behaviour of the students, and play a large role in the construction and maintenance of this subculture. Predominantly private single-gender schools are generally conservative in nature, either by virtue of religious beliefs, or as a result of financial pressure to reflect the values of the affluent and often conservative parents who send their girls there (Arnot & David, 1996). The girls might feel they are expected to marry into the upper class and raise children, even though they are academically talented. There is cause for conflict between being expected to do well in school on the one hand, and being expected to stay at home and look

after the children after marriage on the other. This conflicting role might also induce stress on female adolescents (Mensinger, 2000).

To students grappling with such a conflict, being thin might be seen as being feminine, and also as a rejection of femininity. Often the school's educational purpose is to teach females to become independent thinkers and to be progressive. However, this clashes with the conservative, traditional outlook of the school and issues such as sexuality and eating behaviours are rarely addressed (Mensinger, 2000). Adolescents get insufficient or distorted information from magazines and peers, as schools generally fail to provide adequate education about these issues. Students might then incorrectly internalize these conflicts and think that it is their fault for feeling confused and insecure. This can lead to the development of Eating Disorders to overcome their confusion and feelings of guilt. Research shows that single-gender schools´ superficial or non-existent responses to important issues of personal values and self-esteem perpetuate their learners' psychological and emotional problems (Mensinger, 2000).

Females in single-gender schools are trained to become proper ladies, but at the same time have to exhibit the stereotypic masculine characteristics of ambition, outspokenness and the desire for academic success (American Association of University Women, 1998). This is seen as a psychologically draining double standard, which can overwhelm the learners and lead to emotional dilemmas. Generally, ideals of marriage and motherhood are contradicted by ideals of achieving a high-status profession. These often unattainable, simultaneous

demands foster increased levels of stress and confusion. The highly idealised dual role is nevertheless perceived as the norm, and failure to adhere is consequently viewed as a personal failing. Research shows that females who have to play a great number of identity roles display more disordered eating than those who define themselves with fewer roles (Mensinger, 2000).

In a research study by Cohn et. al. (1987) it was found that females at single-gender schools viewed thinner bodies as the answer to the demands for a more masculine and more feminine role. They saw thinner bodies as equal to success and achievement.

Mensinger (2000) mentioned that there is a conflict of interests between the conservative world view of traditional families from which these students come, and a more modern ideology in which females are supposed to be empowered. This can lead to the students getting continuous mixed messages from parents, teachers and the general school ambience.

Such a highly competitive environment fosters not only high achievement and high academic competition, but also competition to achieve a thin body. This might explain the increased occurrences of physical symptoms and Mood Disorders at single-gender schools (Cairns, 1990).

Research by Cairns (1990) has also found that the peer interaction in single-gender schools plays an important role in competitiveness. Females in single-

gender environments may view the all-female context as a refuge from relationship and sexual issues. Males are not part of their normal school life, which could enhance their social stress further. However, while single-gender schools may reduce some of their students' anxiety, they may have a difficulty knowing what males like and prefer. Males are seen to serve an important reality check for distorted body image views (Cairns, 1990).

As seen from the above discussion many studies point to conflicting gender roles as a major cause of Eating Disorders. In other words, the importance of socially desirable masculine traits paired with the importance of appearance is a significant factor in the development of an Eating Disorder. It seems that the more roles a female has to play, the higher the likelihood of developing an Eating Disorder and the higher the rate of importance of masculine traits (Mensinger, 2001).

2.6. Eating Disorders according to the ecosystemic approach

The above literature discussion shows that it is not only the female adolescent who has an Eating Disorder, who is responsible alone for her disorder. It seems that the school ad family environment has a great influence on such adolescents. It can be seen that an ecosystemic approach should be followed which assumes a complementarity and circular causality which focuses on relationships, context, and wholeness (Becvar & Becvar, 1993). It also includes as part of its socialization process an awareness that one is being socialized into a paradigm, meaning the females who suffer from an Eating Disorder developed this Disorder

because of internal and external factors, such as self-esteem, school type, media, influence of peers and family and school pressure. This defines the ecosystemic paradigm and has far-reaching implications for the practice of mental health intervention (Dell, 1986).

Furthermore, differences between first-order and second-order cybernetics should be identified (Becvar & Becvar, 1993). Here the family needs to be considered and is largely part of a first-order cybernetics perspective. One of the basic assumptions of this perspective is that one should move away from the individual as an isolated, autonomous entity to viewing the individual in context. Hence, the focus shifts from pathology within the individual to the pathology of the system of which the individual is a part of. Dysfunctional behaviour in an individual comes to be seen as normal, or logical, in the context of the family. Similarly, the dysfunction of the family comes to be seen as normal in the context of community and society. The second- order cybernetics perspective puts emphasis on the beliefs and values of society, culture, family, and personal worldview (Becvar & Becvar, 1993). Females suffering from Eating Disorders believe that they are too fat, not pretty enough, have to fit in with society have to perform well in school and want to be liked by their peers. This has a great influence on their belief system and behaviour. Finding out what female learners in Durban, KwaZulu-Natal believe, is important in order to be able to perturb change perceptions and intervene in order to help learners with eating problems. Therefore it is important to approach the study from an eco-systemic point of

view, which includes the individual, family, school, peers and belief system of the sufferer, as well as the larger contexts of the society in which they exist.

2.7. Conclusion

As seen from the above discussion, many factors can lead to the development of an Eating Disorder and an ecosystemic-approach should be followed to view the problem in its entirety. All the elements of an ecosystem, such as the belief system, family unit, school, peers and media, influence individuals and each other in patterns of interdependencies (Becvar & Becvar, 1993).In the literature review it was shown that the family can play a very important role. Parents can influence their children by wanting them to look perfect and to perform in a way that they would consider to be perfect manner. They might inhibit the development of their children by being overly critical, overprotective, too enmeshed or not teaching the child to have an open family structure where everyone can communicate their feelings and develop individually (Evans & Street, 1995). As a result of these restrictions the female adolescent might develop an Eating Disorder to gain some control over her life. Peers also seem to have a strong influence on adolescents. As seen from the research, it was found that peers imitate each other's behaviour, even each others' bad eating habits. Negative comments from family members and peers who tell an adolescent that she is overweight might trigger the development of an Eating Disorder (Jones, 2004). The media enhances the need to have a thin body by showing young females what they should look like in magazines and TV programmes (Monro & Huon, 2005). Traumatic life events such as a death of a family member also play

a role in the onset of an Eating Disorder (McClelland et. al, 1991). If a co-morbid Mood Disorder runs in the family, the adolescent might be more vulnerable to developing an Eating Disorder. Certain personality traits, such as perfectionism, low self-esteem and being uncomfortable with change are more common in females who suffer with an Eating Disorder (Barlow & Durand, 2005).

The second aspect discussed was whether a single-gender school or co-educational school played a role in the development of Eating Disorders. It was found that co-educational schools seem to have fewer learners with Eating Disorders in comparison to single-gender schools (Dyer & Triggerman, 1996). The factors that seem to cause more Eating Disorders in single-gender schools are mainly the high expectation of parents, the conflict for female students to do as well as male students but to behave like ladies, the extra stress to fulfil different roles, fear of not looking good enough for males, and the confusion and low self-esteem that is developed with those factors (Harvey & Stables, 1986).

All these factors might play an interlinking role, thus not one factor alone seems to cause the onset of an Eating Disorder. This should be remembered against the purpose of this research, which is to find out if single-gender and/or co-educational schools have an influence on eating problems in Durban, KwaZulu-Natal. Having evaluated the different studies, it will now be interesting to see if there are more learners with eating problems in single-gender or in co-educational schools in Durban, KwaZulu-Natal. The following chapter will explain the method and steps of the research study in detail.

Chapter 3

Methodology and the research design

3.1. Introduction

In this chapter the methodology and the research design used for the study are discussed in detail. The reader will gain a comprehensive understanding of the sample design and of how the relevant data was gathered and analysed. A correlational analysis will show if there is a relationship between the number of females with eating problems and attendance at a single gender school or co-educational school, if there is a specific age group that is more prone to develop eating problems and if there are common themes that are indicative of the development of eating problems. The quantitative data was analysed with a Chi-square correlation and a linear-by-linear Chi-square test. The qualitative data was analysed by summarising common thematic analysis from the answers which were grouped together and interpreted.

The researcher, as a result of working at a Behavioural Centre at a leading hospital in KwaZulu-Natal and at various schools, hypothesized that there has been an increase in the number of adolescents who have developed problematic eating behaviours in Durban. Research conducted by Fear, Bulik and Sulliva (1996) revealed that there are many different factors that contribute to the development of an Eating Disorder. Factors such as co-morbid Disorders, economic and social status, family structures as well as peer and media influence

have already been researched (Fear, Bulik & Sullivan, 1996). Apart from all of the above-mentioned contributing factors, the researcher hypothesized as follows: that there would be a correlational relationship between whether the school was co-educational or single-gender and the development of eating problems.

3.2. Research methodology

It was important that the questionnaires developed for this study should be appropriate for the age group(s) of the subjects, their educational level and socio-economic status. The researcher had to investigate the level of understanding and coherence with regard to different constructs between different groups of people when the questionnaire was developed (Foxcroft & Roodt, 2005). As the participants were from different age groups and socio-economic backgrounds, the questionnaire had to be easy to understand and bias-free.

3.3. Sampling design

The sample of both groups consisted of adolescent girls aged 13 to 18 years. The age range ensured that the adolescents would have similar problems, and could be assessed and researched in a homogenous group (Tobin, Molteni & Elin, 1995). They were all in high school and came primarily from middle to upper socio-economic background.

The subjects from the Eating Disorder Support Group who participated in the research were adolescents who were referred by their psychologist, psychiatrist, school, or hospital, or sent by their parents. All of them had been diagnosed as

having an Eating Disorders by their psychologist or psychiatrist. For the purpose of the study only females who were diagnosed with Anorexia Nervosa and Bulimia Nervosa were asked to participate. The Eating Disorder Group consisted of up to 15 members each school-term. In total, fifty members agreed to participate in the qualitative aspect of this research study and ten did not agree to participate or were not diagnosed with Anorexia Nervosa or Bulimia Nervosa.

Table 3.1 – Members of the Eating Disorder Support Group

Type of Eating Disorder and Age

		Type of eating Disorder		Total
		Anorexia Nervosa	Bulimia Nervosa	
age	13	1	2	3
	14	4	1	5
	15	6	3	9
	16	5	5	10
	17	7	5	12
	18	7	4	11
Total		30	20	50

A second questionnaire was used for the learners at the single-gender and co-educational schools. The questionnaire assessed the extent of problems with eating at single-gender or co-educational schools. The researcher approached ten different single-gender and co-educational schools in the Durban area, and asked them to participate in the study. Four schools did not agree to participate in the study. Two single-gender and two co-educational schools were randomly chosen. Of the single-gender schools chosen, one was a private school and one was a non-private school, with the same standard being applied to the co-

educational schools, to secure an even spread of females from the middle to upper socio- economic backgrounds. The headmasters, school counsellors and parents of the schools who were willing to participate were briefed. The researcher handed the questionnaire to their female learners who fell into the right age group. The participants were selected with the stratified sampling method. There were only five learners all in all who did not want to participate in the study because their parents did not allow them to. However, two-hundred females participated voluntarily which ensured the reliability and validity of the study (Foxcraft & Roodt, 205).

Table 3.2 – Learners

Age and school type

		school type		Total
		Co-educational	Single gender	
age	13	16	16	32
	14	27	23	50
	15	21	15	36
	16	9	14	23
	17	9	19	28
	18	18	13	31
Total		100	100	200

3.4. Data collection

The researcher and independent clinicians developed both questionnaires with open-ended and closed-ended questions when compiling the questionnaire for the members of the Eating Disorder Support Group and the learners of the different high schools (see annexure A). The questionnaires were examined by a team of experts and clinicians from two different institutions thus increasing the

validity of the tools (Foxcraft & Roodt, 2005). The questionnaire with the open-ended questions allowed for the collection of qualitative data which revealed an insight into respondents' feelings and thoughts. Members of the Eating Disorder Support Group were able to answer the questions openly and honestly. They did not have to write their names on the questionnaire and felt that they were in a non-judgemental environment. Essay-styled answers permitted to allow for more freedom to discuss their perceptions. Common themes in their answers were then summarized.

The questionnaire with the closed-ended questions (see annexure A) was handed out to learners from randomly selected High Schools. This questionnaire consisted of two sections. The first section contained questions that revealed information related to the learners' biographical details, such as their age, and if they attended a single-gender or co-educational school. The second section enquired about their relationship with their body and with food. The DSM IV-TR criteria for Anorexia Nervosa and Bulimia Nervosa was used as a guide when formulating the questions, and a likert-type scale was devised where the participants had to select between the options "agree, "disagree" and "uncertain" for each question. Their responses were expected to reveal to the researcher whether more learners from single gender or co-educational schools have a problem with eating, which age group was more prone to develop problems with eating and if there were common themes that might indicate why females develop problems with eating. The questionnaire was not used for diagnostic purposes. This data was then used in the quantitative data analyses.

3.5. Validity and reliability

For the purposes of this study two different questionnaires were compiled. The first questionnaire was designed to gain a better understanding of why the young people who attend an Eating Disorder Support Group developed these Eating Disorders. Two questionnaires were necessary as the first one for the members of the Eating Disorder Support Group was more detailed and included open-ended questions which allowed the researcher to understand better what the adolescents who suffered from an Eating Disorder thought and felt.

The second questionnaire was used to establish how many learners suffer with eating problems in co-educational and single-gender schools, if there are any common themes in the development of eating problems and if there is a certain age range that is more likely to develop an eating problem. The questionnaires were handed to researchers in the field of Educational Psychology, clinicians and counsellors who were asked to peruse and provide feedback on them. They served as the panel of experts that had to determine if the items in the questionnaires were valid and reliable (Foxcraft & Roodt, 2005).

3.5.1. Validity

The validity of a test refers to the extent to which the test measures what it claims to measure (Terre Blanche & Durrheim, 2002). The items that were not clear, too long or biased were discarded after they had undergone the process of expert validity. According to Foxcraft and Roodt (2005), a constant awareness of bias is essential as it can be introduced either through the item stimulus, the mode of

response, or through the response set of the respondents. South Africa is particularly vulnerable to bias owing to its multicultural society. The researcher made every attempt to avoid items that could be deemed biased, by choosing language that is easily understood, not including any cultural comments and keeping the questions open to any possible answer, not indicating any favourable answer. The items had to be meaningful and valuable to different groups of the population (Foxcraft & Roodt, 2005). The questionnaires were designed using face validity. They were not designed to diagnose the participants but to gain a better understanding why problematic eating patterns occurred. Anastasi and Urbina (1997) explain face validity as follows: "Content validity should not be confused with face validity. The latter is not validity in the technical sense; it refers, not to what the test actually measures, but to what it appears superficially to measure. Face validity pertains to whether the test "looks valid" to the examinees who take it, the administrative personnel who decide on its use and other technically untrained observers (p.144)."

3.5.2. Reliability

The reliability of the questionnaire was also established when evaluating the questions. According to Foxcraft and Roodt (2005) the reliability of a measure refers to the dependability and consistency of an instrument, for instance the extent to which the instrument produces the same results on a repeated basis. The magnitude of a reliability coefficient is dependent on what the measure is used for. Approximately 0.8 and 0.9 reliabilities are recommended for standardised measures. When making decisions based on scores, Foxcraft and

Roodt (2005) suggest that the reliability coefficient is recommended to be 0.5 and higher for individuals and groups. There are a few factors that can affect the reliability of a test. Firstly, the variability of the characteristic being measured in the test sample can affect reliability. A second factor is that test reliability tends to be positively correlated with the number of items in the test (Smit, 1996). Therefore the more items the questionnaire has, the more reliable it will be. Conversely, if items are removed, it is likely that the reliability of the test will be reduced. Estimates of reliability tend to be higher when the test is used to measure stable characteristics of an individual, in other words not changeable or situation-determined characteristics. Finally, estimates of test reliability can be influenced by the method used to assess reliability, for example variations in the interpretation, assessment conditions or the administrators (Foxcraft & Roodt, 2005). To ensure high reliability, the same method is used to interpret the questions for all the samples. The researcher focused only on some aspects that might influence the sample's perception and belief system into developing problematic eating. Too many factors and too much information would have complicated the findings, and compromised the validity and reliability of the research.

The questionnaire that was designed by the researcher is not a standardized measurement and is also not normed (Terre Blanche & Durrheim, 2002). It mainly investigated individual's insight into the problem. It was given with the same instructions at the same time and place to enhance the reliability and diminish inconsistency and bias.

3. 6. Ethical consideration

In order to enhance the consistency of the study detailed explanations regarding the nature of the study were provided to the respondents by the researcher (Terre Blanche & Durrheim, 2002). They were briefed on how to complete the questionnaire and were assured that there is no right or wrong answer. This was done so as to attempt to allay any fears participants might have had of failure, or the need to answer in a socially acceptable manner. They were encouraged to answer as truthfully as possible, and were reassured that their name and personal details were confidential.

The respondents were informed about their rights when completing the questionnaire. They did not have to participate in the study if they did not want to, and were not forced to answer all the questions. The researcher made every effort to ensure that respondents were at ease with the questionnaire, and knew what to expect.

Some of the Eating Disorder Group members joined later than others. The group always met at the same venue and at the same time. There were two rooms available, one where the group met and one where a new member could complete the questionnaire. The counsellors were briefed on how to administer the questionnaire, to repeat the same instructions to all the respondents, and to ensure that all the respondents were well informed regarding their rights.

3.7. Analysis of data

The questionnaire of the Eating Disorder Support Group was analysed by the researcher and formed the qualitative data.

The questionnaire for the learners of the single-gender and co-educational schools was analysed only with the help of a statistician who used the SPSS computer programme as the data was purely quantitative in nature. The entire questionnaire for the learners of the different schools had closed-ended questions which yielded quantitative data, and was therefore analysed with a Chi-square and linear-by-linear Chi-square correlation test (Smit, 1996).

The Chi-square test was used to determine whether there was a significant difference between the two groups' agreements or disagreements regarding the questions and therefore the probability of having a problem with eating or not. A higher disagreement rate with the questions would show if the researcher's hypothesis should be rejected or not. Furthermore some questions with similar topics were grouped together to see if there was a common main theme that might enhance the development of an Eating Disorder. The Chi-square correlation test was used to determine possible significant relationships with certain questions. Finally the linear-by-linear Chi-square test was used to see if there is a certain age group that is more prone to developing problematic eating behaviours than others (Foxcraft & Roodt, 2005).

The open-ended questions in the questionnaire for the Eating Disorder Support Group members yielded qualitative data and was interpreted by the researcher. The researcher looked for similar information about the view of the family, media influence, self-esteem, school pressure and relationships with their peers. The information was summarized and thematically analysed. (Anastasi & Urbina, 1997). The quantitative data took longer to gather and analyze but provided the researcher with greater insight into the respondent's perceptions and opinions with respect to possible reasons for the development of an Eating Disorder.

3.8. Conclusion

Qualitative and quantitative data were gathered to gain a better understanding about the factors that might cause the development of an eating problem at both single-gender as well as co-educational schools. Open-ended and closed-ended questions were used when the researcher developed the questionnaires. The respondents were briefed and confidentiality was assured. All the participants were very open to answering the questions and wanted to participate in the study, as they were also interested in the results. Every attempt was made to ensure that the questionnaires did not contain any bias, and could be used with most groups within the general population and intended age group. The questions were short and easy to understand and took only a few minutes to complete. The subjects were offered feedback on the findings, and a special group session was allocated to discuss the results. Participants were also afforded the opportunity, should they so desire it, for individual more personalized feedback from the researcher. The results, which are discussed in detail in

Chapter Four, reveal that there are distinct factors that influence the development of an eating problem.

Chapter 4

Results and discussion

4. 1. Introduction

The researcher wanted to find out if there was a relationship between the number of females with problematic eating and attendance at either a co-educational or single-gender school. Furthermore, the researcher hoped to determine if there were some common factors that contributed to the development of an eating problem within the sample group and if there was a specific age group that was more prone to having problematic eating. As discussed in Chapter 3, the research questionnaires were handed out to learners in single-gender and co-educational schools and to members of the Eating Disorder Support Group in Durban. The relative quantitative and qualitative data was then collected.

The questionnaires contained open-ended and closed-ended questions, relative to the sample group. The questionnaires with the closed-ended questions were used to find out whether or not the adolescents who participated in this research study had problems with eating, which school they attended, if there are common themes and which age group has higher “agree” ratios which would show a probability of having problems with eating.

The members of the Eating Disorder Support Group were requested to respond to the questionnaire with the open-ended questions which were used to determine if there were other factors that might lead to the development of an

Eating Disorder (Tobin, Molteni & Elin, 1995). The answers were discussed and common themes were extracted.

The Chi-square correlation test was used to analyse the quantitative data and the qualitative data was gathered and summarized according to emerging key themes. This chapter discusses the qualitative and quantitative findings in detail.

4. 2. Characteristics of the sample

Two different questionnaires were distributed to a total of 250 participants. Fifty of the participants of this study were members of the Eating Disorder Support Group and they received the questionnaire with the open-ended questions. The second questionnaire which consisted of the closed-ended questions was administered to two hundred high school learners from selected single-gender and co-educational schools in Durban, KwaZulu-Natal. They were briefed fully and consent from the parents was sought. The participants were all between 13 and 18 years. The Eating Disorder Support Group sessions were free of charge and accessible to everyone who wanted to join. They took place every Tuesday evening between 5.30 and 7 pm so that adolescents would have finished school and extra-mural activities. The location was easy to find and easily accessible. There was sufficient and secure parking outside in order for all the participants to feel comfortable at the venue. Participants were from all of the different cultural groups as Eating Disorders are no longer seen to be primarily “Western” Disorders, but have now spread to all the various cultures in South Africa.

The parents of the Eating Disorder Support Group members normally accompanied their children to the weekly meetings. Therefore it was easy to explain to the parents what the study was about, and to get their consent. The participants were asked to complete the questionnaire as truthfully as possible. It took them approximately 15 minutes to complete. The questions were not too personal so as to avoid making them feel uncomfortable. They all understood the nature of the study and found it very interesting. This helped the researcher because the participants were very motivated to take part in the research.

The participants from the single-gender and co-educational high schools had to complete the questionnaire at school. The principals and teachers were contacted and briefed regarding the nature of the study. The parents were then requested to provide consent for their children's' participation in this research study. Four schools took part in this research to ensure that there was fair representation in terms of female learners.

4. 3. Findings

4. 3.1. Quantitative data analysis

Samples of 50 females (between 13 and 18 years) were drawn from each of the four co-education and single-gender schools. Each of the 200 females in the samples was asked to complete a questionnaire on food and body issues such as eating habits, weight control, body appearance and self esteem. The purpose

of the analysis was to compare responses to these questions according to type of school attended (co-educational or single-gender) and their age.

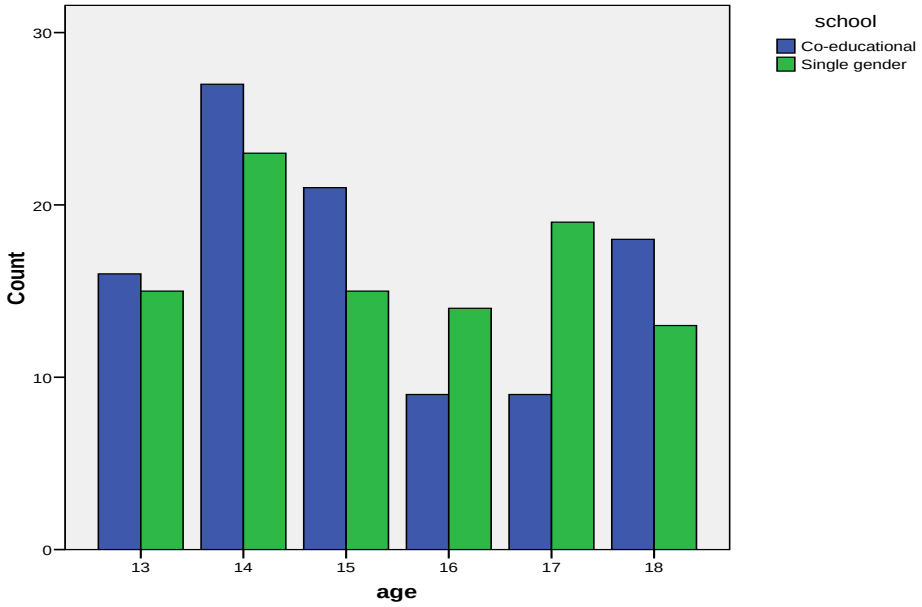
The researcher wanted to identify:

1. Whether there is a relationship between a possible manifestation of an eating problem and attendance at a co-educational school.
2. Whether there is a relationship between a possible manifestation of an eating problem and attendance at a single school.
3. Whether younger females (age 13-16) are more prone to develop problems with eating than girls in older age groups.
4. Whether additional themes can be identified e.g. common family structures, interpersonal problems with peers, media and self-esteem that may contribute to the onset of an eating problem in adolescents in Durban, KwaZulu-Natal.

When analysing the data, it was necessary to determined if the age distribution and ratio of the participants was equally spread to make sure that the sample was valid and reliable for the study.

4.3.2. Age distribution in single-gender and co-educational schools

Figure 4.1 – Age and school type



Chi-square = 6.812 with a p-value of 0.235. It was found that the age distributions for the two school types were not significantly different.

Table 4.1 – Mean and standard deviation of age for each school type

	School type	N	Mean	Std. Deviation	Std. Error Mean
Age	Co-educational	100	15.22	1.721	.172
	Single gender	100	15.38	1.676	.168

When testing for equality of means, t = 0.680 with a p-value of 0.497.The mean ages for the two school types were therefore not significantly different and could be used for the study, assuring for it to be validity and reliability.

4.3.3. Summary of responses of learners in co-educational and single gender schools.

All the questions and questionnaires had to be entered into the SPSS system. The questions were analysed according to their responses and thereafter the frequencies of the responses were calculated. The analysis was necessary to note how many participants agreed, disagreed or were neutral to the different questions. It was hypothesised that high levels of “disagree” show that the participant does not have a problem with eating and that high levels of “agree” shows that the participants have a problem with eating.

Next, the questions and responses of the female participants were compared to their school attendance. Appendix D (section 1) contains comprehensive tables and explanations of the data analysis. Each question was analysed in separate tables. A summary of the responses had to be calculated to test the hypothesis, alternative and the null hypothesis.

Table 4.2 – Summary of responses of the participants

		School		Total
		Co-educational	Single-gender	
Overall responses	Disagree	52	28	80
	Uncertain	23	27	50
	Agree	27	43	70
Total		100	100	200

To test the hypothesis H_1 “there is not a relationship between a possible manifestation of an eating problem and the attendance at a co-educational school” the nominal data had to be subjected to a Chi-square analysis.

Table 4.3 – Summary of “disagree” responses

	school type	N	Disagree
age	Co-educational	100	27
	Single gender	100	43

Chi-square = 23.497 p-value = 0.003

When testing the “disagree” responses, the Chi-square = 23.497 with p-value = 0.000, which shows the significance of the results. The null hypothesis could be rejected because the p-value of 0.000 was less than the significant level of 0.01. This means H_1, namely that there is no relationship between a possible manifestation of an eating problem and the attendance at a co-educational school, is not rejected.

Table 4.4 – Summary of “agree” responses

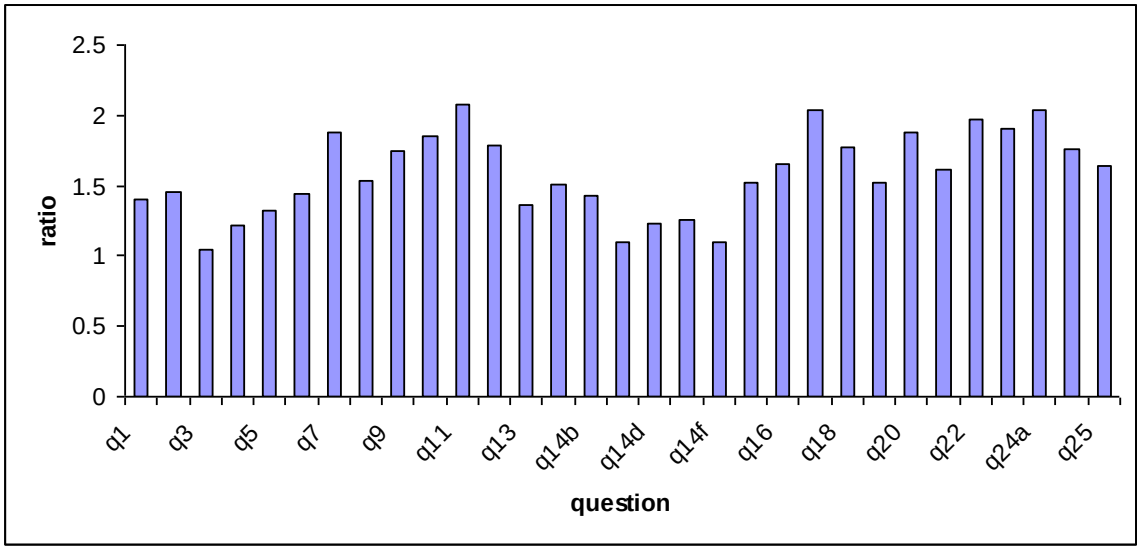
	school type	N	Agree
age	Co-educational	100	52
	Single gender	100	28

Chi-square = 34.587 p-value = 0.001

When testing the H_2 according to the “agree” responses the Chi-square = 34.587 with p-value = 0.001 shows the significance of the results. There are more female learners in single-gender schools than in co-educational schools who agreed with the questions. The alternate hypothesis, namely there is a relationship between a possible manifestation of an eating problem and the attendance at a single gender school, is therefore not rejected.

When comparing the responses it could be seen that the ratio of the “disagree” responses was significantly higher than the ratio of the “agree” responses. A table was drawn up to show the ratio of the “disagree” responses and their significance.

Figure 4.2 – Disagreement ratios for the different questions



A disagreement ratio of greater than 1 means that more co-educational school females (than single gender school ones) disagreed on the issue in question. These ratios are greater than 1 for all the questions (except questions 3, 5, 9, 13, 14c, 14f where they showed no significant difference between the school types and question 4 where there was a significant difference due to inconsistency in "uncertain" answers). The reason why the responses for the school types were different is that more co-educational school females than single-gender females disagreed with the questions which shows that more females in co-educational school have lesser problems with eating than females in single-gender schools.

In the case of co-educational and single-gender schools, there was a positive correlation found which showed a relationship between "agree" and "disagree" answers from the responses of the participants which indicates that there are potentially more eating problems in single-gender than in co-educational schools. This finding corresponds with the research findings from Tiggerman (2001, Cohn et. al (1987), Shumurak (1998) and Lieberman (2001).

To test the third hypothesis, it had to be tested if there was a specific age group that was prone to develop an eating problem.

4.3.4. Age groups ratings and responses

The responses to the questions had to be analysed according to the respondent's age.

For the purpose of getting larger counts in the table that were to be analyzed, the ages were grouped into 3 classes (13-14, 15-16, 17-18). Since both the variables for which the association was tested (age and response) were increasing, the tests for association was based on the linear-by-linear Chi-square statistic.

The tables in appendix D (section 2) show the responses of the female learners in detail. A summary of response has been drawn up to compare the answers to the specific ages of the female learners.

Table 4.5. Summary of responses according to age

		Age			Total
		13-14	15-16	17-18	
Summary of responses	Disagree	46	33	21	100
	Uncertain	11	12	15	38
	Agree	20	17	25	62
Total		81	59	60	200

Chi-square = 36.596 p-value = 0.000

When analysing the “agree” responses compared to the participant’s ages the Chi-square = 36.596 with p-value = 0.000 shows the significance of the results. The respondents who agreed with the questions increased with age and the relationship is significantly high. The H_3 (hypothesis) that “younger girls (age 13-16) are not more prone to develop problems with eating than girls in older age groups” is not rejected and the null hypothesis can be rejected. One can therefore conclude that the age group that is most affected with having a problem with eating is the oldest age group (17-18 years).

Lastly the researcher wanted to find out if the participants responded equally to a common theme in the questionnaire which could help to find a specific factor that might lead to the development of an eating problem.

4.3.5. Responses to thematically similar questions

The researcher grouped questions 1, 22, 23 and 23 together as they seemed to relate to the self-esteem and body-image of the respondents. As seen from the research study of Jones (2004) body-image and self-esteem are closely connected. The questions had to be correlated and analysed with each other to see if there was a significant relationship between them.

It had to be discerned if questions with a common theme might relate significantly with each other and would therefore show if that theme might be a relevant factor for the development of an eating problem. The common responses of the particular questions were related to the different school type, in order to discover if learners in single-gender or co-educational schools agree to the common theme that might have caused the development of an eating problem. Appendix D (section 3) shows all the tables in detail. Each question had to be compared with each other to determine the significance. A summary of the responses has been drawn up.

Table 4.6 – Summary of the comparison of questions 1, 22, 23 and 23 per school type

School type	Overall responses		Disagree	Uncertain	Agree	Total
Co-educational		Disagree	35	1	17	53
		Uncertain	8	4	6	18
		Agree	13	1	15	29
	Total		56	6	38	100
Single-gender		Disagree	15	2	11	28
		Uncertain	4	1	22	27
		Agree	11	4	30	45
	Total		30	7	63	100

Co-educational: Chi-square = 23.456 with p-value = 0.000.

Single-gender: Chi-square = 17.240 with p-value = 0.005.

When analysing the relationship of the responses of the learners of the co-educational schools (Chi-square = 23.456 with p-value = 0.000) and of the single-gender schools (Chi-square = 17.240 with p-value = 0.005) the significance of the results can be seen. H_4 which states that, "additional information can not be found e.g., common family structures, problems with peers, media and self-esteem that might contribute the onset of an eating problem in adolescents in Durban, KwaZulu-Natal", can be rejected. It can be confirmed that additional information can be found that might contribute the onset of an eating problem in adolescents.

As can be seen from the tables, all the questions have a strong enough significance to show that the underlying theme "self-esteem/body-image" is an indicator for the development of eating problems. Furthermore it can be seen that females in single-gender schools agreed more with those questions. When

comparing the single-gender and co-educational schools it was found that there were significantly more females in co-educational schools who disagreed with all the questions than females in single-gender schools. In the last section of the analysis it could be seen that the questions that were grouped together also had a significant relationship when being answered from females in single-gender and co-educational schools. It shows that more females in single-gender schools agreed to the questions than females in co-educational schools which indicates that the common theme is significant in the development of eating problems.

4.3.6. Discussion of quantitative findings

The research results showed that adolescents who attended single-gender schools might be at higher risk of developing an eating problem compared to adolescents who attended co-educational gender schools. The results have been supported by other studies that have already been done in other countries (Rosenberg, 1965, Vincent & McCabbe, 2002). It could also be shown that the older age group (17 and 18 years) seems to be at greater risk in developing a problem with eating as the respondent's "agree" answers increased consistently with age. Furthermore, it could be established that questions related to self-esteem and body-image have a significant relationship. Single-gender school participants agreed mostly with those questions. It seems that self-esteem plays an important factor in the development of an eating problem in females, especially in single-gender schools (Terre Blanch & Durrheim, 2002).

4.3.7. Qualitative data analysis

In the qualitative data analysis the information from the questionnaire was compiled and sorted according to common themes such as influence of the media, family, school, peers and self-esteem. The data was then summarized and interpreted. It was important to find out if there were common themes, in order to further determine if there were common factors that might enhance the development of eating problems (Terre Blanch & Durrheim, 2002). The members of the Eating Disorder Support group participated in this study. There were 50 participants who attended either a single-gender or co-educational school.

Table 4.7 – Members of the Eating Disorder Support Group

Age and school type

Age		school type		Total
		Co-educational	Single- gender	
	13	2	4	6
	14	2	5	7
	15	2	5	7
	16	4	6	10
	17	3	7	10
	18	3	7	10
Total		16	34	50

In this section, the researcher wanted to find out if there were specific factors that might have triggered the onset of an eating problem in the participants of the Eating Disorder Support Group. Shroff and Thompson (2006) indicate that, apart from the type of school, there were other factors which were important for the development of an eating problem.

The participants of the Eating Disorder Support Group were asked to complete open-ended questions which were designed to gain more insight into additional reasons why each person had an eating problem. The members were encouraged to write about their true feelings and thoughts, which helped to explain the reasons that led to the development of their Eating Disorder. The researcher summarized the main key themes that could be identified from the answers of the participants. Those key themes of media, family unit, school pressure, peers and self-esteem are discussed in the following section.

Table 4-8: Key Themes

Media **Question 9, 12**	Magazines and TV-programmes were seen to support the wish to be thin. Being thin meant to have a "perfect life", to be appreciated, successful and carefree. A total of twenty-five participants mentioned that they developed a wish to be thin after seeing beautiful actors or models in the media.
Family unit **Question 4, 5, 6, 12, 13, 14**	The family unit seemed to play a major role in the onset of an eating problem. Thirty-five participants described their families as being enmeshed, controlling and closed. They felt controlled, and

	free development was hindered. Thus food was used to cope with those feelings.
School pressure **Question 1,2,3,6, 12, 13, 14**	Pressure at school was reported to be a cause for the onset of eating problems. Competitiveness, expectations and fears not to do well drove thirty-two participants into developing an problems with eating.
Peers 10, 11, 12, 13, 14	The participants copied abnormal eating behaviour of peers, and "group dieting" was reported to trigger problems with eating. Thirty-four felt that peers had a great influence on the development of their Eating Disorder.
Self-esteem 6 ,7, 12, 13, 14	A major factor for the onset of eating problems was the low self-esteem for all of the participants.

4.3.7.1. Media

Thirty participants thought that they would only be successful and loved if they were thin and looked beautiful. They lost a lot of weight, but never seemed to be satisfied with their looks. Comments like: "I am fat and do not like myself when I

see myself in the mirror. Celebrities like Paris Hilton look so much better than me" or "I wish I could look like Victoria Beckham. She is so beautiful and I am so fat", were common answers of the members of the Eating Disorder Support Group. It seemed as if they were not living in a realistic mindset as others around them would tell them that they were not looking attractive any longer, and that they were too thin. One girl wrote: "I have gained 70gramm(s) and I can see every gram of it on me. I have a double chin now." The reassuring comments did not have much of an impact on them, and the girls said that they wanted to be even thinner. None of the participants were happy with their bodies, and thought that they were too fat. They seemed to compare themselves with super-models or movie-stars and the more they tried to become like the celebrities, the more they obsessed about their weight. It has also been shown in a study by Beers and Berkow (2000), that females who have an Eating Disorder lose their ability to see themselves as they are in the mirror and become more and more obsessed with the way they look because they want to look like their favourite movie celebrity.

The questionnaire revealed that twenty-five of the members of the Eating Disorder Support Group found that the magazines and TV shows were not the only reasons why they developed an Eating Disorder.

4.3.7.2. Family unit

Question four, five, six, twelve, thirteen and fourteen of the questionnaire were analysed and it was found that thirty of the participants answered that the

relationships with their mother and father were good. However, when asked to write more about their feelings towards their parents many said that the relationship was quite closed. They felt that their mother, especially, did not give them enough freedom to develop into becoming a young adult. The father was seen by twenty-five of them to be absent in trying to deal with the problem. This family pattern is supported by a study from Vincent and McCabbe (2002). Only one participant's father seemed to know more about the problems and feelings of his daughter, her exact weight and when the Disorder had started, than the mother did. One participant also openly admitted: "My family is the reason why I developed Anorexia Nervosa." It was seen that forty-five of the participants were very dependent on their families, especially on the mother. When falling back into their old behaviour, they would contact the mother for help first. Thirty-five members seemed unable to function without their mothers, who rushed in to help the child, even if the child had moved out of the house already. Vincent and McCabbe (2002) stated in their research that the females who developed Anorexia Nervosa often came from a family where the mother was quite enmeshed with the child and did not allow the child to develop fully. When being alone, the child would not be able to cope and needed the mother to help her in difficult situations. Four of the participants said that they thought they had a good relationship with their mother; however, they also admitted that they were scared to talk to their mothers because they did not want to be judged. Evans and Street (1995) found that mothers with children who suffered with Anorexia Nervosa seemed to be domineering and not easily approachable. It was found that such mothers wanted to portray the perfect family picture to the outside world and

were very autocratic. The four participants who mentioned that their mothers were not approachable also admitted that they depended on their mothers a great deal and always turned to them for help. One member said:”My mother is always strong. She finds a solution to every problem. She is much better than me.” Another member said: “No matter what I do, it is never good enough for my mother. She always has to pick on me.” As a consequence of this they did not become independent and could not solve their own problems (Evans & Street, 1995).

The participants revealed that thirty-four parents had attempted to force-feed their children. As a result of being watched and force- fed, the participants did not want to be at the same dinner table as the rest of the family anymore. This put a lot of pressure on the participants and they were torn between not wanting to eat and wanting to be with the family at dinner time.

Twenty-one of the participants stated that they felt that their parents’ expectations were too high, and that they would never be able to live up to those expectations. They also felt that they were not what the parents wanted them to be and thought, therefore, that they were a great burden to them. One girl said: “I wish I was never born. My parents are ashamed of me.” They felt hopeless and helpless, and seemed to have developed the Eating Disorder to gain some control in their lives (Shroff &Thompson, 2006).

The diagnoses of the psychiatrists of the members of the Eating Disorder Support Group showed that thirty of the participants suffered from Bulimia Nervosa, and in a stressful situation twenty-five of them used to binge eat and purge. Evans and Street (1995) found that females tend to binge and purge because they felt rejected on the one hand and wanted to fill the void with food but on the other hand relied on the mother for help and were unhappy that they could not solve the problem on their own.

Ten members of the Eating Disorder Support Group said that they were happy in their family in general. They said that their family was supportive and they did a lot of nice activities together. They said they were the happiest over the week-end when they were at home. It was found that the relationships with the siblings and other members of the family were generally healthy and did not cause the members to develop a problem with eating. Only one participant said that her uncle told her that she will never be thin which triggered her eating problem.

The research found that thirty-five members of the Eating Disorder Support Group were influenced by the family set up. They felt that their parents were not happy with them and tried to find a behaviour that would make them gain the love and respect they looked for from their family. They stated that their family was the reason why they developed a problem with eating.

4.3.7.3. School pressure

Another factor that seemed to cause problems with eating was the pressure to excel experienced at schools. Even though forty-three females said, in question

one, they liked their school and teachers, thirty-two mentioned that they felt pressurised because of the work load and the expectations parents or they themselves had to get good marks in school. Five members of the Eating Disorder Support Group revealed that they did not like their school and that wearing their uniform made them feel so unconformable that they started to diet to look nicer wearing it.

Previous research (Shumurak, 1998) shows that girls in single-gender schools have greater stress than girls in co-educational schools. Single-gender schools tend to be private schools, and parents generally have to pay high school fees and expect good results in return (Mensinger, 2000). The learners in private schools seemed to experience extra pressure to achieve a high standard of work from both the school and the parents. Question one to three showed that thirty-two of the Eating Disorder sufferers felt that they could never do as well as their parents expected them to. They said they developed the Eating Disorder and did not want to give that behaviour up because they felt they were at least good at losing weight (Mensinger, 2000). They stated that they felt useless in many other aspects of their lives, and losing weight was one thing they could do well. One girl said: “I feel good when I am in control over my hunger feelings. I am not hungry during the day, lose weight and feel good about it.” She mentioned: “I am confused in my life and feel out of control in many other aspects. At school there are so many girls who pass hurtful comments. I have so much work to do and stress about tests. I feel there is constant pressure.”

The questionnaire showed that thirty-two of the fifty members of the Eating Disorder Support Group were very competitive, and tried very hard to do well in school. Question thirteen revealed their fears and one participant said that if people were not happy with her she would take it very personally and do everything to please them. She would always try harder to be more successful better. However, she felt: “I can never please others. I am not good enough, no matter how hard I try.” This led to the development of Anorexia Nervosa because she saw other girls who did not eat, and she thought: “I can do that as well. If other girls can do it, I’ll be able to do it even better.” She became good at losing weight, and felt good about the fact that she was so successful in this behaviour.

This research established that the female participants were scared of not achieving enough in life, and not being loved. Their biggest fears were to be average in their school work or in their extra mural activities. Some of the participants were not driven to work harder by their parents, but put themselves under a lot of pressure (Cairns, 1990). One member mentioned: “I learn until midnight. I want to get my grades up. If I do well I can show the others that I am not as dumb as they told me I am.” Forty-five percent admitted that they work very hard to achieve their own goals, and were often anxious not to fail. This anxiety often hindered them in doing well, which created further doubt in their ability to achieve good results. Question eight established that twenty-one girls were diagnosed with General Anxiety Disorder and ten with Major Depressive Disorder as comorbid disorders. Those feelings of being anxious and helpless enhanced their fear of not performing well in school.

When put under pressure, thirty-eight girls felt so anxious that they binge-ate or refused to eat, depending on their type of Eating Disorder (Barlow & Durand, 2005). Most of them said that they were stressed when they had to perform well, for instance in exams or speeches. The extra pressure to do well in a single-gender school, and to copy other girls who were not eating or who were binge-eating, seemed to have a strong influence on the development of an Eating Disorder (Shroff & Thompson, 2006).

4.3.7.4. Peers

Question six, seven, eleven and twelve were analysed for this section to gain some insight as to whether or not peers influenced the participants in their development of problematic eating. Previous research showed that Eating Disorders are seen primarily in girls, and it was found that groups of girls often like to imitate each others' behaviour (Paxton, Schutz, Wertheim & Muir, 1999; Neumark-Sztainer, Faulkner, Story, Perry, Hannan, & Mulert, 2002). When participants answered questions six, seven, eleven and twelve, twenty-one of them admitted that they were in a group of friends who all had a problem with their appearance and tried to lose weight. Three admitted that they even saw it as a competition – "who can lose the most weight in a short time." One participant said: "The other girls in my peer group tried to imitate me because I had managed to lose weight so quickly." Even though this participant suffered from Anorexia Nervosa and was quite below her normal weight, the other girls seemed to think that they had to imitate that behaviour of becoming so thin as well. They did not seem to see and understand the physical and emotional

symptoms that are attached to an Eating Disorder. The participant suffering from Anorexia Nervosa said: “I told them not to lose so much weight because I know how uncomfortable all the accompanying symptoms are, but some of my friends seemed to ignore me. Some even copied my behaviour to such an extent that they also suffer from Anorexia Nervosa now.

The participants mentioned that their peers also watched them eat, which caused the sufferers to withdraw from their friends (Dyer & Tiggerman, 1996). Thirteen members thought that their peers would not understand their behaviour, and often felt guilty about it. “I would love to have my close friendship back that I used to have. It is so hard now. I feel alone.” It was found that girls in a single-gender school had more pressure form their peers than girls in co-educational schools (Paxton et. all, 1999). One girl in a single-gender school said that they even found a picture of a woman with Anorexia Nervosa in a magazine, put her head on the picture and passed it around in the school with hurtful comments. “I am thinking of changing school. The girls are so nasty to me. Everyone knows I have Anorexia Nervosa. I feel no-one thinks I look good because I have Anorexia Nervosa.” She also mentioned that she would like to move to a co-educational school because she feels boys are not so critical of her looks.

The research found that thirty-four girls thought that their peers had a great influence on them developing an eating problem. To thirty-eight of the girls, it was important to belong to a group of girls that were part of the “in-clique” in school.

They thought that if they were thin they would be more accepted in that group of girls (Paxton et. all, 1999).

4.3.7.5. Self esteem

All of the participants stated that their self-esteem was very low. None of them were able to solve their problems directly, but rather used their unhealthy eating patterns to help them feel better. A research study by Gowers and Bryant-Waugh (2004) showed that a low self-esteem is the most common factor in females with Eating Disorders. The participants admitted that they would rather binge-eat or stop eating than solve a conflict. One participant said: “I do not have any other means of controlling my life besides dieting.” She seemed to feel out of control in all other aspects of her life, and felt that she could only control her food intake. Some participants mentioned that they started to diet because they were not happy with their appearance. They wanted to get attention and be admired. “I thought if I look good I will feel better and others will like me more.”

The vast majority (95%) of the participants expressed a longing to be understood, supported and loved. They felt they needed others, but also realized that they, at the same time, were distancing themselves from them. They thought if they were thin others would love and accept them more. One girl stated: “No-one likes me when I am fat. I am not worthy to be liked.” This dysfunctional behaviour and the consistent focus on external factors lowered their self-esteem even more, and caused further confusion and conflict (Shroff & Thompson, 2006). “I want to be close to others, meet new people and be happy. But I am so scared that they will

not like me and think I am too fat and ugly. I rather stay away from others." One participant said: "I used to like it to go out. Now I feel that others are critical of my Eating Disorder. They think I am ugly. It is safer to stay at home and not to go out in public."

Most of the participants felt "stuck" in their Disorder and could not find a way out. This behaviour was also researched by Markey and Markey (2005) where it was shown that females who have suffer from an Eating Disorder feel that it is similar to an addiction and that they cannot change or stop their behaviour.

Fifteen members of the Eating Disorder Support Group feared that they would ruin the family and be the cause of breaking it up. It was also stated that they felt that they had lost their friends and ability to enjoy their lives. One participant said: "No-one wants to be with me any more. They all turned away from me. I must be a bad person." A lot of guilt feelings were portrayed. On the one hand, they felt they could not halt their behaviour, but on the other they saw what they were putting their family and friends through. It was found that the participants had a clear insight into what the Eating Disorder was doing to them, both physically and psychologically. However, they often seemed to think that they could not overcome this behaviour. A study by Phillips and Piran (1992) revealed that females with Anorexia Nervosa felt more in control when they were not eating than when they tried to overcome their Eating Disorder. They knew that they had to get healthier in order to lead a normal life but often did not manage to affect this change without professional psychological or medical assistance. The

members of the Eating Disorder Support Group also felt they were not strong enough to change, which lowered their self-esteem even more. Comments such as: “I want to change. I want to get help. But I am so scared to get fat. I just do not have a strong mind. I am weak”, were commonplace. Another member said: “My self-esteem has gone right down. If I had to rate it from one to ten, I would only give it a three.” All the members of the Eating Disorder Support Group agreed that their low self-esteem was a significant common factor in developing an eating problem with eating.

Looking at the above discussion it could be concluded that specific factors play a role in the onset of Eating Disorders in participants in this study, with particular emphasis on media, family unit, school pressure, peers and self-esteem.

4.4. Conclusion

The quantitative results showed that there was a relationship between the incidence of eating problems and attendance at single-gender or at co-educational schools. It could be reported that learners in single-gender schools seemed to be at a higher risk for developing an eating problem. It was also shown that learners in the older age group (17-18 years) are more prone to having problems with eating than the two younger age groups. Finally, a significant relationship between specific questions in the questionnaire could be established. The analysis allowed the conclusion that self-esteem plays an important part in the development of an eating problem.

Analysis of the qualitative data showed that there were five other factors that influenced the onset of an eating problem. The factors were: the media, family unit, school pressure, peers and self-esteem. Those factors play an important role in the understanding of eating problems and the development of intervention programmes that could help to prevent problems with problematic eating behaviours and the onset of Eating Disorders. In the following chapter recommendations, limitations of the study and avenues for further research will be discussed.

After analysing question nine it was found that seventy-five percent of the participants said that they were watching TV shows with pre-dominantly beautiful and thin actors. They liked to watch shows like *America's Next Top Model* and *Desperate Housewives*. They also admitted to reading a lot of fashion and tabloid magazines, such as *People*, *Cosmopolitan* and *You*. The media support the idea that thin and beautiful people are more successful (Beers & Berkow, 2000).

Chapter 5

Recommendations, limitations and avenues for future research

5.1. Introduction

In Chapter Four the research results were analysed and interpreted. It was found that single-gender schools have more females who seem to have problems with eating than females in co-educational schools. This relationship was statistically significant. Furthermore, it was found that there were significant increases in the occurrence of Eating Disorders with age and that the eldest subjects (17 and 18 years) scored the highest agreeable answers in the questionnaire. It was also found that there were other factors that played a role in the development of an eating problem, such as the influence of the media, family unit, school pressure, peers and most importantly self-esteem.

Looking at all the factors mentioned in Chapter Four it would be helpful for the school counsellors, teachers and the parents to have a list of recommendations on how to prevent the development of eating problems and guidelines on how to help adolescents who have already developed a problem with eating. Early intervention is crucial to the prevention and recovery from an Eating Disorder. There is a relatively good prognosis for childhood and adolescent Eating Disorders if they are treated soon after onset (Lask & Bryant-Waugh, 1999).

5.2. Recommendations

The adolescents who are struggling with an eating problem are affected in different areas of their lives (Vincent & McCabbe, 2002). Use of an ecosystemic paradigm for investigating the environmental context in which adolescents are situated can be useful to teachers, school counsellors and parents because it can create empowerment and collaboration between the person is able to provide and the individual requiring intervention. Here it is important to consider factors other than the typical, individually focused, microsystemic interventions (Becvar & Becvar, 1993). Instead of treating the leaner' manifestations of psychological distress as root causes of eating problems, counsellors using an ecosystemic approach should seek to examine macrosystemic factors, which include the family, peers, media and school influences.

When looking at the findings of the study it becomes evident that all the schools, single-gender and co-educational school, should place emphasis on the importance of integrating healthy eating, education about Eating Disorders and enhancement of the self-esteem into their life-skills lessons (Lask & Bryant-Waugh, 1999). However, it seems that single-gender schools have to place more emphasis on the prevention of eating problems than co-educational schools. All the age groups in high schools should be addressed, bearing in mind that the research showed that the higher age group (17 and 18 years) is more likely to be affected with an eating problem. Special care should be taken to make an effort to educate this age group especially. It is very important to include the main

themes, (media, family unit, school pressure, peers and self-esteem) that could be indentified in the intervention programs.

Table 5.1- Research findings and recommendations

Research Finding	Recommendation
Female learners in single-gender schools are more affected by problematic eating behaviours.	Prevention programs should be developed and special care should be taken to implement them at all schools, with emphasis on single-gender schools.
Media influences on body image.	Experts could be utilised to explain the impact the media can have on adolescents. Discuss techniques used in advertising campaigns. Increase awareness, enhance a healthy body-image and self-esteem.
Family unit.	Involve parents, educate them on how to handle their children's eating problems and Eating Disorders, family counselling, teach better parenting styles and coping mechanisms.
School pressure.	Identify learners with problems, offer to provide counselling for them, empower

	them with better learning and coping-skills. Involve parents to help lessen the pressure of having to perform.
Influence of peers.	Help adolescents with a more autocratic and assertive communication style, conflict management skills and setting of boundaries. Explain how imitating disordered behaviour can be detrimental for good health.
Self-esteem.	Empower them with coping skills, help to create a better body-image and assist with problem solving skills. Teachers, parents and experts should work as a team.

The following recommendations show what the school and the family can do to educate, help to prevent and deal with eating problems. The above mentioned factors are interwoven in the recommendations:

5.2.1. Intervention within the school environment

School counsellors and teachers can play an important role in the prevention of the development of an Eating Disorder (Vincent & McCabbe, 2002). Generally,

school counsellors and teachers should be aware of students who change their eating behaviour and body shape. Teachers and school counsellors act as role models for learners and are therefore in a position to influence those learners who are at a high risk of developing an Eating Disorder. The main goals of school-based eating problem prevention programs are to develop critical thinking abilities (i.e., decoding media messages about the ideal body), challenge the media promoted thinness, develop a healthy body and self-image, increase self-confidence and autonomy with peers, improve communication skills, and learn how to effectively use the media for the promotion of healthy body image messages (Steiner-Adair,1994)

5.2.1.1. Teaching life skills, with more emphasis on health and coping skills

Life skills should include: learning why and how the media influences females to want to become abnormally thin, learning how to eat healthily; how to identify the symptoms of an Eating Disorder; addressing physical changes in the female adolescent's body and understanding that change is normal; informing learners that dieting can lead to the development of an Eating Disorder; teaching them how to cope better with stress and pressure from school, peers and family; giving input on conflict management; setting of boundaries; assertiveness, communication skills and enhancing their self-esteem (Lask & Bryant-Waugh, 1999).

5.2.1.2. Involve experts

Experts such as psychologists or nutritionists can provide talks to inform learners about: the dangers of Eating Disorders; how a healthy eating pattern can help learners to maintain a good body shape; the problems learners with Eating Disorders struggle with; identifying emotions and answering any questions the learners might have. It would also be beneficial to involve experts from the fashion and media field who can explain to the learners what the implications of eating problems are. The fashion field is changing, more and more models are not allowed to work if they have a BMI below 16 which is a conscientious effort to promote a healthier, more realistic body shape (Monro & Huon, 2005). The more knowledge the learners have about unhealthy eating behaviours, the more effectively they are empowered to deal with them.

Research by Vincent and McCabbe (2002), shows that girls can be influenced easily and are very sensitive about their body shape and their physical appearance. When talking about Eating Disorders and low self-esteem, it should be handled in a manner that is caring and empathetic (Vincent & McCabbe, 2002). A negative outcome of such interventions can lead to increased levels of anxiety and depression, negative self-talk, intensified effort to lose weight, and a hostile, instead of supportive, climate in a peer group. It is very important to educate learners about Eating Disorders, and research by Phelps, Sapia, Nathanson and Nelson (2000) suggests that doing so might reduce learners' worries and concerns about an Eating Disorder for themselves and their peers. Learners, especially girls, found information given in school about Eating

Disorders useful, meaningful and interesting. The girls thought it might help learners in general to gain a better understanding of the nature of an Eating Disorder and to support peers and friends (Phelps et al., 2000). Learners reacted more favourably to more interactive classroom discussions on the topic. Discussions seem to foster a better understanding and integration of information. Replacing the teacher with a professional team of experts was shown to be advantageous (Phelps et al., 2000).

5.2.1.3. Address the educator's responsibilities

It is the educator's responsibility to help learners as efficiently as possible. Educators need to know about the warning signs of Eating Disorders in order to identify and help learners who suffer from eating problems effectively. A guidance teacher or class teacher should always be available if a leaner is in need of help (Barlow & Durand, 2005) and it should be made clear that the learners can access such assistance at any time. The help should be freely available so that the female learners who feel pressurised at school or who cannot deal with problems they have at home or with peers, can seek advice whenever they need to. The educators should be open, non-judgemental and empathetic. It would be beneficial if educators are coached on how to assist learners with problems efficiently. A study by Shroff and Thompson (2006) showed that if educators are empathetic, open and non-judgemental learners feel comfortable talking to and confiding in them which in turn helps to overcome insecurities and enhances the learning of life skills such as building self-esteem. If a teacher notices that a learner suffers with an eating problem he should refer the learner to a

professional for facilitation. Steiner-Adair (1994) stated in his research that the school should have names and phone numbers of Eating Disorder specialists at their immediate disposal to ensure that the at-risk individual has access to appropriate help.

5.3. Re-evaluation of school policies concerning eating disorders

Schools could also consider amending or changing the school policy to include issues around the development of an eating problem by, for example, not allowing learners to diet before the age of sixteen. A school in Toronto, Canada, has implemented such a policy because they wanted to decrease the anxiety regarding the body shape of their learners. Learners at that school felt empowered to refuse a diet, even when pressurized, because they knew the school administration would support them (Piran, 1992). A policy not to diet before the body has developed might help female learners to escape from the disordered eating behaviour. The Department of Education could get involved by giving more input in how to handle the matter, how to get and spread more information, and how to implement policies that support health in high schools.

The school's policy should also be communicated to the parents with an explanation on the reasoning behind the policy. The study by Piran (1992) has shown that this could help to prevent female learners from imitating unhealthy eating behaviours and developing Eating Disorders.

5.4. Counselling

5.4.1. Individual counselling

It is important that counselling be made available for the adolescents should they need support. Learners who suffer with an Eating Disorder have to know that there is help when they feel they need it. They must perceive the support as readily available otherwise they will not make use of it. When support is perceived as not being readily available and of poor quality, the sufferer will withdraw even further, and negative feelings such as loneliness will manifest (Vincent & McCabbe, 2002). Counselling can be offered by the school counsellor, by counsellors at a church, or by a private counsellor or psychologist of their choice.

5.4.2. Group counselling

Group counselling can also be very effective when treating and preventing problems with eating and Eating Disorders. Such group counselling can be offered at schools. However, not all of the girls may want others to know that they have a problem with eating and it is therefore important to refer them to counselling facilities in hospitals, churches or other institutions (Steiner-Adair, 1994).

When counselling is conducted in groups the counsellor should be aware of certain aspects to make sure that the sessions are successful. The groups should be age-appropriate in order for learners with Eating Disorders to get the feeling that they are understood and part of a group of others who have the same

problem (Barlow & Durand, 2005). Eating Disorders are secretive in nature, and these adolescents normally hide their disordered behaviour from others. It would be of great benefit for them to see that there are others who are also struggling with a similar problem and that they are not alone in this battle. However, the Support Groups should not dwell on the different ways the adolescents lost weight or could lose weight as this might allocate them another tool for further weight loss (Thomson, 1992). In a study by Gowers and Bryant-Waugh (2004) it was found that girls should learn how to be healthy rather than to be slim. They should also focus on their actual problems and learn skills to change disordered behaviours.

5.5. Family involvement

It is important that the females who suffer with an eating problem get help at school and home and that unique skills, such as increasing their self-esteem and understanding their emotions, are applied using an ecosystemic approach that utilizes macrosystemic interventions. Teachers, parents and experts should work together in a team (Lask & Bryant-Waugh, 1999). According to Phelps et al. (2000) it has been proven helpful to increase the awareness of eating problems through the use of talks at schools, seminars, the radio or TV, and other media coverage to help prevent eating problems in adolescents. Many parents are not aware that their children are suffering from eating problems or an Eating Disorder. This was found especially in families where there was a high degree of perfectionism and enmeshment (Barlow & Durand, 2005). Parents have to be

made aware of the symptoms of Eating Disorders and the serious health implications.

Parents should also be more involved in their children's lives. They should know more about their children's feelings, thoughts, daily stressors, and the pressures they face from school and peers (Phelps et. all, 2000). Often children are left alone with their problems, and some tend to cope with them in the form of disordered eating. When parents find out about their child's Eating Disorder they seem to feel out of control, and sometimes overreact in stressful situations (Phillips & Piran, 1992).

Research by Lieberman (1995), for example, shows that parents who force-feed the child will achieve the opposite effect. It has been found that children who have an Eating Disorder and are force-fed will rebel and eat even less. Parents do not seem to understand that the child feels out of control. When forcing the child to behave in a certain way, they take away that bit of control over their food which seems to them to be the only control they have in their lives. This vicious cycle has to be interrupted in order to help adolescents with Eating Disorders (Lieberman, 1995).

The family should learn how to communicate correctly, and be aware of the impact that hurtful comments have on their children (Neumark-Sztainer, Faulkner, Story, Perry, Hannan & Mulert, 2002). Family members can either serve as a buffer or accentuate negative social factors. Often they are unaware

of the impact such negative comments can have on the development of an Eating Disorder, as revealed in this research study, where some participants started dieting after a family member had told them that they could never be thin. Studies show that when parents tease a child about her weight it can have more of an impact than if peers do so (Phillips & Piran, 1992). Parents and adults who work with children are role models who can cushion the blow of negative societal messages, about body-image, perfectionism and achievement as well as encourage and reinforce positive attitudes and behaviors (Watson & Wilson, 1998).

5.6. Family counselling

It would be ideal if the whole family attended counselling sessions in order to create an awareness of the symptoms of Eating Disorders and the dysfunctional behaviour patterns exhibited by people with eating problems and Eating Disorders, and to learn how to change these behaviour patterns for the positive. Systems therapy and cognitive behaviour therapy have proven to be successful therapeutic techniques for the family as well as for the individuals with eating problems and Eating Disorders (Gowers & Bryant-Waugh, 2004).

In therapy the counsellors should:

- Identify trigger points that initiated the development of an eating problem and Eating Disorder (Lask & Bryant-Waugh, 1999). This will allow female learners with an eating problem to better understand why they behave in a certain

way. Through becoming aware of their behaviour, they would be able to change it.

- Hand out materials, such as brochures, articles and handbooks. These materials should include practical examples of how to identify the early warning signs and symptoms of eating problems, how to behave with children who have an eating problem and/ or Eating Disorder, and how to understand them better. If parents understand the Disorder better, they can help their children more effectively (Steiner-Adair, 1994).

5.7. Limitations

This research study was conducted using a sample size of 200 learners from four high schools in Durban and 50 members of the Eating Disorder Support Group. Considering the number of participants, the research procedure and the findings, some limitations have been noted. In the following discussion the limitations are listed.

5.7.1. Age group

The participants in this study were between 13 and 18 years old, although during the study the researcher discovered that some girls had started developing an Eating Disorder even earlier in their lives. Those learners' experiences were not captured in this study. A larger age-group range in the selected sample may have provided more detail regarding the nature of Eating Disorders at various age levels (Beers & Berkow, 1999).

5.7.2. Number of participants

This research study used 250 female participants who all attended high schools in the Durban metropolitan area. However, for a more in-depth understanding of eating problems in KwaZulu-Natal more participants from different areas of the province could be asked to participate in another study. Such a study would allow for other variables to be considered: for example, the urban-rural dichotomy in the development of an eating problems (Smit, 1996).

5.7.3. Questionnaire

The open-ended questions in the questionnaire did not always yield clear insight into the factors which may have caused the development of an Eating Disorder in the subjects selected to participate in this study. Furthermore, the researcher found that some adolescents involved in the Support Group were initially reluctant to confide in others about their Eating Disorder. People with Eating Disorders often want to keep their disorder a secret and the members of the Support Group were often ashamed about their behaviour (Steiner-Adair, 1994). Some of the participants were unwilling to participate in the group discussions, even after travelling all the way from home to the hospital. Some of the participants attended only once, and did not have the desire to return. A higher level of participation could have resulted in more comprehensive qualitative findings (Foxcraft & Roodt, 2005).

5.8. Avenues for further studies

The findings of this research study show how important it is to have more information sessions about eating problems, especially in single-gender schools, in order to educate learners, teachers, counsellors and parents (Phelps et al.,2000). However, more studies should be conducted to gain a broader understanding of the development and actual numbers of eating problems in KwaZulu-Natal. New research studies could include the following:

5.8.1. Bigger sample size and a broader population group

This study used a relatively small sample size, and the data gathered cannot be generalized to the population at large (Anastasi & Urbina,1997). Further studies should be conducted using a larger sample size. A more representative sample would result in higher levels of reliability (Foxcraft & Roodt, 2005).

Furthermore, this study focused on learners from 13 to 18 years old. Research by Phelps et al. (2000) has shown that there is an occurrence of disordered eating behaviour in primary school girls (9-12 years), which could lead to the development of an Eating Disorder. Thus research with younger groups of the population could provide more insight into the total numbers of learners with eating problems.

5.8.2. Female and male participants

Research conducted by Jones (2004) shows that more and more boys suffer from eating problems as well. This research study focused only on female

adolescents. Further research could include male participants in order to see if the number of male adolescents with eating problems is also increasing in KwaZulu-Natal.

5.8.3. Rural versus urban participants

The participants in this research study were all from Durban. It would be beneficial to discover if the number of learners with eating problems differs in rural versus urban areas (Foxcraft & Roodt, 2005). Such research would enhance our understanding of the actual number of eating problems throughout KwaZulu-Natal.

5.8.4. Questionnaires and interviews

The researcher found that merely handing out questionnaires was not always sufficient to gain enough insight from the members of the eating Disorder Support Group (Anastasi & Urbina,1997). Although the questionnaire had a section with open-ended questions, the researcher found that more information could be gathered when interviewing the participants. The interviews would allow the participants an opportunity to explain their feelings and thoughts better. It would also give participants more insight into how they construe their world and the pressures and stresses they face. Future researchers should explore the option of using a directive interview approach when collecting data for a research study in this area of specialization, as it can yield more results (Smit, 1996).

5.8.5. Post-testing

The current study has found that there are more learners with eating problems in single-gender schools than those in co-educational schools. With this knowledge it would be helpful to create intervention programmes, including informative talks by experts and the teaching of social and life skills, especially at single-gender schools (Gowers & Bryant-Waugh, 2004). After the completion of the intervention programme a post-test could be conducted to find out if the intervention programme was helpful in decreasing the number of learners with eating problems (Foxcraft & Roodt, 2005). Research by Lask and Bryant-Waugh (1999) has shown that prevention programs can have a great impact to help limit the development of Eating Disorders. Prevention programs should be implemented by the Department of Education, especially in single-gender schools and with the learners in the age group of 17-18 years.

5.9. Conclusion

This study has highlighted some important information about factors that might result in the development of eating problems/Eating Disorders. The findings show that single-gender schools are at greater risk of having learners with eating problems than co-educational schools, in Durban, KwaZulu-Natal. Older females who fall in the age group of 17 and 18 years seemed to be more likely to be at risk of developing by eating problems and hence prevention programs should therefore take special care to include this age group. Learners should be educated about the impact that the media has on increasing the desire to be thin, how to be more assertive with peers, how to develop their self- esteem and how

parents can help females with their eating problems. Thus recommendations were offered in order to assist school counsellors, teachers, parents and adolescents to understand and deal with eating problems more effectively.

Even though the study has found that there seem to be more eating problems in single-gender than in co-educational schools in Durban, it was noted that further studies are recommended to gain a more comprehensive picture of eating problems in KwaZulu-Natal. The mentioned limitations and avenues for further research should be considered.

Finally this research study has helped to increase awareness and understanding of eating problems. The new findings yielded more information on how to help adolescents with eating problems, especially in single-gender schools.

The more knowledge we have about Eating Disorders, the better equipped we are to prevent and treat them (Gowers & Bryant-Waugh, 2004).

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Appendix A- Questionnaires

Dear Educator and Learners,

Questionnaire: **What is your relationship with your body and with food?**

I am currently engaged in a research project towards my Med Psych (Master's in Educational Psychology) at the University of Zululand under the guidance of Dr. Govender. The research is concerned with the relationship with the body and with food.

I have taken the liberty to hand out this questionnaire to your school as one of the selected respondents in order to acquire more information about the above mentioned topic.

Confidentiality:
All the information will be regarded as confidential, and no personal details of any respondent will be mentioned in the findings.

We deeply appreciate your co-operation.

Yours sincerely

Andrea Kellerman

5/8/2009

Date

What is your relationship with your body and with food?

Thank you for participating in this study!

All the information will be treated as strictly confidential as possible. Do not write your name on the questionnaire.

There are two sections in this questionnaire:

Section 1: Biographical information

Section 2: "What is your relationship with your body and with food" questionnaire.

Please do not omit a section or question.

Section 1:

Please tick the box that is relevant for you:

1.1. My age is:

13 years	
14 years	
15 years	
16 years	
17 years	
18 years	

1.2. I am in:

Grade 8	
Grade 9	
Grade 10	
Grade 11	
Grade 12	

1.3. I am in a :

Co-educational school	
Single gender school	

Section 2:

Please answer the following questionnaire as truthfully as possible. Read the statements and just tick **"Agree", "Disagree" or "Uncertain".**

	Agree	Disagree	Uncertain
1. I often feel fat, even though people keep telling me I'm thin.			
2. The first thing I think about when I wake up in the morning is food.			
3. I feel uneasy about food and eating.			
4. I keep my feelings about my weight to myself.			
5. No-one understands how I feel about my weight.			
6. I have dieted to an abnormally low weight because that makes me feel like I'm in control.			
7. I haven't had a menstrual period for at least the past three months.			
8. I often eat when I'm not hungry.			
9. My greatest fear is that I will gain weight and become fat.			

10. I can't go through a day without worrying about what I can or cannot eat.			
11. I have had an out-of-control eating binge at least twice a week during the past three months.			
12. I often eat until I'm too full.			
	Agree	Disagree	Uncertain
13. I often feel uncomfortable when eating so much.			
14. I have done one of the following after a binge: 14.a. made myself vomit			
14.b. used laxatives (medication for constipation)			
14.c. enemas (liquid insertion into rectum to empty out bowels)			
14.d. diuretics (medication for water retention)			
14.e. fasted (not out of religious reasons)			
14.f. exercised excessively.			
15. If I got on the scale tomorrow and found that I'd gained one kilogram, I'd be very upset.			
16. If I can't exercise to loose weight because of all the food I've eaten, I tend to panic.			
17. I push food around my plate so that it looks like I'm eating more than I really am.			
18. Food dominates my life.			
19. When I see myself in the mirror I dislike my body.			
20. I skip meals to control my weight.			
21. I feel worthless when I'm not thin.			
22. I don't deserve to eat.			

23. I feel guilty when I eat.			
24. I isolate myself from others because: 24. a. of the way I look or			
24.b. because food may be involved.			
25. I'm secretive about my eating habits.			

Thank you!!!!

Hospital

Eating Disorder Questionnaire

Welcome to the Eating Disorder Support Group

Can you please answer the following questions as truthfully as possible?

1. How do you like your school and teacher/s?

   _____

   _____

   _____

   _____

2. Do you like wearing your uniform?

_____

How is your relationship with your:

3. siblings:

   _____

4. mother:

_____

5. father:

_____

6. other members in the family:_____

7. With whom do you live (mother, father etc.)?
   _____

What is your:

8. Weight?_____

9. Height?_____

10. When did you start being concerned with your weight and appearance?

_____

_____

_____

11. Were you diagnosed with any other medical and/or mental disorder?

_____

_____

12. Why do you think, did you develop an eating disorder?

_____

_____

_____

_____

13. Please describe a typical day at home (routines etc.):

_____

_____

_____

_____

_____

_____

_____

_____

14. How is your relationship with your friends?

_____

_____

_____

15. Do you feel that you have friends that understand your problem or do you rather feel lonely?

16. What are your dreams for your future?

17. What is your biggest fear for the future and why?

18. Is there anything else that you would like to share that has not been covered in this questionnaire yet?

Thank you for completing the questionnaire.

Appendix C – Parents' consent form

Dear Parents,

Questionnaire: **What is your relationship with your body and with food?**

I am currently engaged in a research project towards my Med Psych (Master's in Educational Psychology) at the University of Zululand under the guidance of Dr. Govender. The research is concerned with the relationship with the body and with food.

I would like to hand out this questionnaire to your child as one of the selected respondents in order to acquire more information about the above mentioned topic.

Confidentiality:
All the information will be regarded as confidential, and no personal details of any respondent will be mentioned in the findings.

If you your child is allowed to participate in this research study, please sign this form and hand it back to me.

I agree that _____ (name of child) is allowed to participate in the above mentioned research study.

_____
Signature of legal guardian/parent

We deeply appreciate your co-operation.

Yours sincerely

_____
Andrea Kellerman

_____
Date

Appendix D- Quantitative findings

Section 1

1. Summary of overall response to questions by females in single-gender schools and co-educational schools

The numerical entries under “agree”, “neutral” and “disagree” headings represent the frequencies of occurrence with percentages shown in brackets. Each question had to be analysed with regard to the response.

Table 1.1 – Response to questions

Question	Agree	Neutral	Disagree
1 Feel fat	86 (43%)	41 (21%)	72 (36%)
2 Think of food when waking up	60 (30%)	39 (19.5%)	101 (50.5%)
3 Feel uneasy about food	79 (39.5%)	29 (14.5%)	90 (45%)
4 Keep feelings about weight to myself	112 (56%)	28 (14%)	60 (30%)
5 No-one understands my feelings about weight	117(58.5%)	18 (9%)	65 (32.5%)
6 Dieted to abnormal low weight	80 (40%)	24 (12%)	95 (48%)
7 Haven’t had menstrual period for past 3 months	88 (44%)	15 (8%)	95 (48%)
8 Eat when not hungry	103 (51.5%)	31 (15.5%)	66 (33%)
9 Fear gaining weight and becoming fat	136 (68%)	20 (10%)	44 (22%)
10 Worry about what can and cannot be eaten	95 (47.5%)	31 (15.5%)	74 (37%)
11 Had eating binge twice a week during past 3 months	96 (48%)	24 (12%)	80 (40%)
12 Eat until too full	112 (56%)	24 (12%)	64 (32%)
13 Feel uncomfortable when eating too much	130 (65%)	18 (9%)	52 (26%)
14a Made self vomit during binge	77 (39%)	12 (6%)	108 (55%)
14b Used laxatives during binge	51 (26%)	10 (5%)	136 (69%)
14c Enemas during binge	34 (17%)	12 (6%)	151 (77%)
14d Diuretics during binge	45 (23%)	14 (7%)	138 (70%)
14e Fasted during binge	76 (38%)	17 (9%)	106 (53%)
14f Exercised excessively during binge	94 (48%)	19 (10%)	84 (42%)
15 Upset at gaining one kilogram	117 (59%)	19 (9%)	63 (32%)
16 Cannot exercise – leads to panic	110 (55%)	13 (6.5%)	77 (38.5%)

17 Push food around plate	102 (51%)	15 (8%)	82 (41%)
18 Food dominates life	99 (50%)	27 (14%)	72 (36%)
19 Dislike own body in mirror	117 (58.5%)	25 (12.5%)	58 (29%)
20 Skip meals to control weight	116 (58%)	11 (6%)	72 (36%)
21 Feel worthless when not thin	101 (51%)	22 (11%)	76 (38%)
22 Don't deserve to eat	93 (47%)	14 (7%)	92 (46%)
23 Feel guilty when eating	96 (48.5%)	15 (7.6%)	87 (43.9%)
24a Isolate from others due to looks	100 (51%)	15 (8%)	82 (42%)
24b Isolate from others due to food involved	92 (47%)	12 (6%)	91 (47%)
25 Secretive about eating habits	118 (60%)	14 (7%)	66 (33%)

Table 1.2.a – Questions where the number of "disagree" responses are higher than the number of "agree" responses

Question	Ratio%[1]
14c	23
14d	33
14b	38
2	59
14a	71
14e	72
6	84
3	88
7	93

Table 1.2. b – Questions where the number of "agree" responses are higher than the number of "disagree" responses

Question	Ratio%
22	101
24b	101
23	110
14f	112
1	119
11	120
24a	122
17	124
10	128
21	133
18	138
16	143
8	156
20	161
12	175
25	179
5	180
15	186
4	187
19	202
13	250
9	309

Ratio% = $\frac{numberagree*100}{numberdisagree}$.

The results show:

1. The following 5 body image questions had the highest "agree" percentages: question 9 (Fear gaining weight and becoming fat), question 13 (Feel uncomfortable when eating too much), question 19 (Dislike own body in mirror), question 4 (Keep feelings about weight to myself) and question 15 (Upset at

gaining one kilogram). The results showed that the body image was very important for all the participants who agreed with the questions.

Table 1.3.a – Feel fat (q1)

		school		Total
		Co-educational	Single- gender	
q1	Disagree	42	30	72
	Uncertain	15	26	41
	Agree	42	44	86
Total		99	100	199

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.

Table 1.3.b – Think of food when waking up (q2)

		school		Total
		Co-educational	Single- gender	
q2	Disagree	60	41	101
	Uncertain	14	25	39
	Agree	26	34	60
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.c – Keep feelings about weight to myself (q4)

		school		Total
		Co-educational	Single- gender	
q4	Disagree	33	27	60
	Uncertain	6	22	28
	Agree	61	51	112
Total		100	100	200

1. A higher proportion of single-gender school females were uncertain.
2. Co-educational school females had more definite views on this issue i.e. slightly higher proportions of co-educational school females agreed or disagreed on this issue.

Table 1.3.d – Dieted to abnormal low weight (q6)

		school		Total
		Co-educational	Single- gender	
q6	Disagree	56	39	95
	Uncertain	16	8	24
	Agree	27	53	80
Total		99	100	199

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of co-educational school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3e – Haven't had menstrual period for past 3 months (q7)

		school		Total
		Co-educational	Single-gender	
q7	Disagree	62	33	95
	Uncertain	4	11	15
	Agree	32	56	88
Total		98	100	198

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.f – Eat when not hungry (q8)

		school		Total
		Co-educational	Single-gender	
q8	Disagree	40	26	66
	Uncertain	16	15	31
	Agree	44	59	103
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females
2. A higher proportion of single gender-school females agreed.

Table 1.3.g – Worry about what can and cannot be eaten (q10)

		school		Total
		Co-educational	Single- gender	
q10	Disagree	48	26	74
	Uncertain	11	20	31
	Agree	41	54	95
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single- gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.h – Had eating binge twice a week during past 3 months (q11)

		school		Total
		Co-educational	Single- gender	
q11	Disagree	54	26	80
	Uncertain	13	11	24
	Agree	33	63	96
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single gender school females agreed.

Table 1.3.i – Often eat until too full (q12)

		school		Total
		Co-educational	Single- gender	
q12	Disagree	41	23	64
	Uncertain	14	10	24
	Agree	45	67	112
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females agreed.

Table 1.3.j – Made self vomit during binge (q14a)

		school		Total
		Co-educational	Single- gender	
q14a	Disagree	65	43	108
	Uncertain	5	7	12
	Agree	29	48	77
Total		99	98	197

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single- gender school females agreed.

Table 1.3.k – Used laxatives during binge (q14b)

		school		Total
		Co-educational	Single- gender	
q14b	Disagree	80	56	136
	Uncertain	2	8	10
	Agree	16	35	51
Total		98	99	197

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single- gender school females were uncertain.
3. A higher proportion of single- gender school females agreed.

Table 1.3.l – Diuretics during binge (q14d)

		school		Total
		Co-educational	Single- gender	
q14d	Disagree	76	62	138
	Uncertain	3	11	14
	Agree	19	26	45
Total		98	99	197

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.m – Fasted during binge (q14e)

		school		Total
		Co-educational	Single- gender	
q14e	Disagree	59	47	106
	Uncertain	3	14	17
	Agree	38	38	76
Total		100	99	199

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.

Table 1.3.n – Upset at gaining one kilogram (q15)

		school		Total
		Co-educational	Single- gender	
q15	Disagree	38	25	63
	Uncertain	7	12	19
	Agree	54	63	117
Total		99	100	199

1. Co-educational school females disagree more than single gender school ones.
2. A higher proportion of single gender school females are uncertain.
3. A higher proportion of single gender school females agree.

Table 1.3.o – Cannot exercise – leads to panic (q16)

		school		Total
		Co-educational	Single- gender	
q16	Disagree	48	29	77
	Uncertain	7	6	13
	Agree	45	65	110
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females agreed.

Table 1.3.p – Push food around plate (q17)

		school		Total
		Co-educational	Single- gender	
q17	Disagree	55	27	82
	Uncertain	4	11	15
	Agree	40	62	102
Total		99	100	199

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.q – Food dominates life (q18)

		school		Total
		Co-educational	Single- gender	
Q18	Disagree	46	26	72
	Uncertain	15	12	27
	Agree	39	60	99
Total		100	98	198

1. Co-educational school females disagreed more than single-gender school females.

2. A higher proportion of single- gender school females agreed.

Table 1.3.r – Dislike own body in mirror (q19)

		school		Total
		Co-educational	Single- gender	
Q19	Disagree	35	23	58
	Uncertain	15	10	25
	Agree	50	67	117
Total		100	100	200

1. Co-educational school females disagreed more than single-gender school females.

2. A higher proportion of co-educational school females were uncertain.

3. A higher proportion of single-gender school females agreed.

Table 1.3.s – Skip meals to control weight (q20)

		school		Total
		Co-educational	Single- gender	
q20	Disagree	47	25	72
	Uncertain	1	10	11
	Agree	52	64	116
Total		100	99	199

1. Co-educational school females disagreed more than single-gender school females.

2. A higher proportion of single-gender school females were uncertain.

3. A higher proportion of single-gender school females agreed.

Table 1.3.t – Feel worthless when not thin (q21)

		school		Total
		Co-educational	Single- gender	
q21	Disagree	47	29	76
	Uncertain	8	14	22
	Agree	44	57	101
Total		99	100	199

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.u – Don't deserve to eat (q22)

		school		Total
		Co-educational	Single- gender	
q22	Disagree	61	31	92
	Uncertain	5	9	14
	Agree	33	60	93
Total		99	100	199

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females were uncertain.
3. A higher proportion of single-gender school females agreed.

Table 1.3.v – Feel guilty when eating (q23)

		school		Total
		Co-educational	Single- gender	
q23	Disagree	57	30	87
	Uncertain	7	8	15
	Agree	36	60	96
Total		100	98	198

1. Co-educational school females disagreed more than single-gender school females.

2. A higher proportion of single-gender school females agreed.

Table 1.3.w – Isolate from others due to looks (q24a)

		school		Total
		Co-educational	Single-gender	
q24a	Disagree	55	27	82
	Uncertain	8	7	15
	Agree	34	66	100
Total		97	100	197

1. Co-educational school females disagreed more than single-gender school females.

2. A higher proportion of single- gender school females agreed.

Table 1.3.x – Isolate from others due to food involved (q24b)

		school		Total
		Co-educational	Single- gender	
q24b	Disagree	58	33	91
	Uncertain	5	7	12
	Agree	32	60	92
Total		95	100	195

1. Co-educational school females disagreed more than single-gender school females.

2. A higher proportion of single-gender school females agreed.

Table 1.3.y – Secretive about eating habits (q25)

		school		Total
		Co-educational	Single- gender	
q25	Disagree	41	25	66
	Uncertain	6	8	14
	Agree	51	67	118
Total		98	100	198

1. Co-educational school females disagreed more than single-gender school females.
2. A higher proportion of single-gender school females agreed.

The above tables show that overall more females in co-educational schools than females in single gender schools disagree with the questions and seem to have fewer problems with eating.

Section 2

2. Age groups ratings and responses of females in single-gender and co-educational schools

Table 2.1. – Comparisons for questions

Question	**Chi-square**	**p-value**
1 Feel fat	0.532	0.466
2 Think of food when waking up	4.410	0.036**
3 Feel uneasy about food	0.844	0.358
4 Keep feelings about weight to myself	1.290	0.256
5 No-one understands my feelings about weight	0.838	0.360
6 Dieted to abnormal low weight	5.420	0.020**

7 Haven't had menstrual period for past 3 months	10.345	0.001***
8 Eat when not hungry	0.070	0.791
9 Fear gaining weight and becoming fat	1.123	0.289
10 Worry about what can and cannot be eaten	3.993	0.046**
11 Had eating binge twice a week during past 3 months	4.729	0.030**
12 Eat until too full	8.173	0.004***
13 Feel uncomfortable when eating too much	0.134	0.714
14a Made self vomit during binge	6.586	0.010***
14b Used laxatives during binge	4.264	0.039**
14c Enemas during binge	1.338	0.247
14d Diuretics during binge	0.033	0.855
14e Fasted during binge	2.281	0.131
14f Exercised excessively during binge	0.570	0.450
15 Upset at gaining one kilogram	1.683	0.194
16 Cannot exercise – leads to panic	3.118	0.077*
17 Push food around plate	6.817	0.009***
18 Food dominates life	3.772	0.052*
19 Dislike own body in mirror	6.548	0.01***
20 Skip meals to control weight	7.469	0.006***
21 Feel worthless when not thin	14.089	0.000***
22 Don't deserve to eat	5.769	0.016**
23 Feel guilty when eating	11.748	0.001***
24a Isolate from others due to looks	4.598	0.032**
24b Isolate from others due to food involved	8.092	0.004***
25 Secretive about eating habits	1.880	0.170

* Significant at the 0.10 (10%) level of significance.
** Significant at the 0.05 (5%) level of significance.
*** Significant at the 0.01 (1%) level of significance.

Each question was analysed according to the "agree", "uncertain" and "disagree" ratio below to establish if there was a significant relationship:

Table 2.1.a – Think of food when waking up (q2)

		Age			Total
		13-14	15-16	17-18	
q2	Disagree	46	33	21	100
	Uncertain	13	11	15	39
	Agree	22	15	23	60
Total		81	59	59	199

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.b – Dieted to abnormal low weight (q6)

		Age			Total
		13-14	15-16	17-18	
q6	Disagree	44	29	21	94
	Uncertain	10	6	8	24
	Agree	26	24	30	80
Total		80	59	59	198

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.c – Haven't had menstrual period for past 3 months (q7)

		Age			Total
		13-14	15-16	17-18	
q7	Disagree	46	31	17	94
	Uncertain	5	6	4	15
	Agree	30	20	38	88
Total		81	57	59	197

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.d – Worry about what can and cannot be eaten (q10)

		Age			Total
		13-14	15-16	17-18	
q10	Disagree	36	22	15	73
	Uncertain	9	12	10	31
	Agree	36	25	34	95
Total		81	59	59	199

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.e – Had eating binge twice a week during past 3 months (q11)

		Age			Total
		13-14	15-16	17-18	
q11	Disagree	38	24	17	79
	Uncertain	10	6	8	24
	Agree	33	29	34	96
Total		81	59	59	199

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.f – Often eat until too full (q12)

		Age			Total
		13-14	15-16	17-18	
q12	Disagree	36	17	10	63
	Uncertain	4	11	9	24
	Agree	41	31	40	112
Total		81	59	59	199

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.g – Made self vomit during binge (q14a)

		Age			Total
		13-14	15-16	17-18	
q14a	Disagree	50	35	22	107
	Uncertain	3	3	6	12
	Agree	27	19	31	77
Total		80	57	59	196

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.h – Used laxatives during binge (q14b)

		Age			Total
		13-14	15-16	17-18	
q14b	Disagree	62	38	35	135
	Uncertain	3	4	3	10
	Agree	16	15	20	51
Total		81	57	58	196

The proportions of respondents (all relatively small) that agreed with the statement increased with age.

Table 2.1.i – Cannot exercise – leads to panic (q16)

		Age			Total
		13-14	15-16	17-18	
q16	Disagree	37	22	17	76
	Uncertain	3	5	5	13
	Agree	41	32	37	110
Total		81	59	59	199

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.j – Push food around plate (q17)

		Age			Total
		13-14	15-16	17-18	
q17	Disagree	38	27	16	81
	Uncertain	7	6	2	15
	Agree	36	25	41	102
Total		81	58	59	198

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.k – Food dominates life (q18)

		Age			Total
		13-14	15-16	17-18	
q18	Disagree	33	24	14	71
	Uncertain	10	7	10	27
	Agree	36	28	35	99
Total		79	59	59	197

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.l – Dislike own body in mirror (q19)

		Age			Total
		13-14	15-16	17-18	
q19	Disagree	30	16	11	57
	Uncertain	11	7	7	25
	Agree	40	36	41	117
Total		81	59	59	199

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.m – Feel worthless when not thin (q20)

		Age			Total
		13-14	15-16	17-18	
q20	Disagree	36	21	14	71
	Uncertain	6	3	2	11
	Agree	39	35	42	116
Total		81	59	58	198

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.n – Feel worthless when not thin (q21)

		Age			Total
		13-14	15-16	17-18	
q21	Disagree	44	20	11	75
	Uncertain	4	9	9	22
	Agree	33	30	38	101
Total		81	59	58	198

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.o – Don't deserve to eat (q22)

		Age			Total
		13-14	15-16	17-18	
q22	Disagree	43	29	19	91
	Uncertain	6	3	5	14
	Agree	32	26	35	93
Total		81	58	59	198

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.p – Feel guilty when eating (q23)

		Age			Total
		13-14	15-16	17-18	
q23	Disagree	43	28	15	86
	Uncertain	6	4	5	15
	Agree	30	27	39	96
Total		79	59	59	197

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.q – Isolate from others due to looks (q24a)

		Age			Total
		13-14	15-16	17-18	
q24a	Disagree	39	23	19	81
	Uncertain	7	4	4	15
	Agree	34	30	36	100
Total		80	57	59	196

The proportions of respondents that agreed with the statement increased with age.

Table 2.1.r – Isolate from others due to food involved (q24b)

		Age			Total
		13-14	15-16	17-18	
q24b	Disagree	44	28	18	90
	Uncertain	4	4	4	12
	Agree	31	24	37	92
Total		79	56	59	194

The proportions of respondents that agreed with the statement increased with age.

Section 2.1.

2.1.1. Comparison of responses according to school type

Table 2.1.1.a – Comparisons for questions

Question	**Chi-square**	**p-value**
1 Feel fat	4.993	0.082*
2 Think of food when waking up	7.743	0.021**
3 Feel uneasy about food	0.375	0.829
4 Keep feelings about weight to myself	10.636	0.005***
5 No-one understands my feelings about weight	1.887	0.389
6 Dieted to abnormal low weight	14.154	0.001***
7 Haven't had menstrual period for past 3 months	18.646	0.000***
8 Eat when not hungry	5.186	0.075*
9 Fear gaining weight and becoming fat	4.543	0.103

10 Worry about what can and cannot be eaten	10.932	0.004***
11 Had eating binge twice a week during past 3 months	19.342	0.000***
12 Eat until too full	10.051	0.007***
13 Feel uncomfortable when eating too much	3.262	0.196
14a Made self vomit during binge	9.498	0.009***
14b Used laxatives during binge	14.909	0.001***
14c Enemas during binge	3.437	0.179
14d Diuretics during binge	7.076	0.029**
14e Fasted during binge	8.471	0.014**
14f Exercised excessively during binge	0.621	0.733
15 Upset at gaining one kilogram	4.696	0.096*
16 Cannot exercise – leads to panic	8.402	0.015**
17 Push food around plate	17.568	0.000***
18 Food dominates life	10.324	0.006***
19 Dislike own body in mirror	5.953	0.051*
20 Skip meals to control weight	15.323	0.000***
21 Feel worthless when not thin	7.568	0.023**
22 Don't deserve to eat	18.76	0.000***
23 Feel guilty when eating	14.427	0.001***
24a Isolate from others due to looks	19.827	0.000***
24b Isolate from others due to food involved	15.605	0.000***
25 Secretive about eating habits	6.314	0.043**

* Significant at the 0.10 (10%) level of significance.
** Significant at the 0.05 (5%) level of significance.
*** Significant at the 0.01 (1%) level of significance.

In virtually all of the questions where there was a significant difference between the responses from the females of the two types of school, the reason for this was that a far higher number of females from the co-educational schools disagreed with the issue in the question, on having a problem with eating.

The ratio:

$$\frac{\text{Number who disagree from co-educational schools}}{\text{Number who disagree from single gender schools}}$$

is shown in the table below.

Table 2.1.1.b. – Disagreement ratios for the different questions

Question	Ratio
q1	1.4
q2	1.46
q3	1.05
q4	1.22
q5	1.32
q6	1.44
q7	1.88
q8	1.54
q9	1.75
q10	1.85
q11	2.08
q12	1.78
q13	1.36
q14a	1.51
q14b	1.43
q14c	1.1
q14d	1.23
q14e	1.26
q14f	1.1
q15	1.52
q16	1.66
q17	2.04
q18	1.77
q19	1.52
q20	1.88
q21	1.62
q22	1.97
q23	1.9
q24a	2.04
q24b	1.76
q25	1.64

Table 2.1.1.c – Don't deserve to eat (q22) versus feel guilty when eating (q23) overall.

		q23			Total
		Disagree	Uncertain	Agree	
q22	Disagree	81	5	4	90
	Uncertain	1	5	8	14
	Agree	4	5	84	93
Total		86	15	96	197

Chi-square = 166.62 with a p-value of 0.000.

There was a strong positive association between the responses to questions 22 and 23. In the vast majority of cases, the respondents either agreed on both questions or disagreed on both questions.

Table 2.1.1.d – Conditional probabilities for co-educational school respondents: q22 and q23

Event	Probability
Agree q22 given agree q23	30/36 = 0.83
Disagree q22 given disagree q23	53/56 = 0.95
Agree q23 given agree q22	30/33 = 0.91
Disagree q23 given disagree q22	53/61 = 0.87

Table 2.1.1.e – Conditional probabilities for single gender school respondents: q22 and q23

Event	Probability
Agree q22 given agree q23	54/60 = 0.90
Disagree q22 given disagree q23	28/30 = 0.93
Agree q23 given agree q22	54/60 = 0.90
Disagree q23 given disagree q22	28/29 = 0.97

- **Questions 21 and 22**

Table 2.1.1.e – Feel worthless when not thin (q21) versus don't deserve to eat (q22) overall

		q22			Total
		Disagree	Uncertain	Agree	
q21	Disagree	69	2	4	75
	Uncertain	9	6	7	22
	Agree	14	6	81	101
Total		92	14	92	198

Chi-square = 124.717 with a p-value of 0.000.

There was a strong positive association between the responses to questions 21 and 22. In the vast majority of cases, the respondents either agreed on both questions or disagreed on both questions.

Table 2.1.1.f – Conditional probabilities for co-educational school respondents: q21 and q22

Event	Probability
Agree q21 given agree q22	30/32 = 0.94
Disagree q21 given disagree q22	44/61 = 0.72
Agree q22 given agree q21	30/44 = 0.68
Disagree q22 given disagree q21	44/46 = 0.96

Table 2.1.1.g – Conditional probabilities for single gender school respondents: q21 and q22

Event	Probability
Agree q21 given agree q22	51/60 = 0.85
Disagree q21 given disagree q22	25/31 = 0.81
Agree q22 given agree q21	51/57 = 0.89
Disagree q22 given disagree q21	25/29 = 0.86

- **Questions 21 and 23**

Table 2.1.1.h – Feel worthless when not thin (q21) versus feel guilty when eating (q23) overall

		q23			Total
		Disagree	Uncertain	Agree	
q21	Disagree	66	4	4	74
	Uncertain	8	4	10	22
	Agree	13	7	81	101
Total		87	15	95	197

Chi-square = 110.012 with a p-value of 0.000.

There was a strong positive association between the responses to questions 21 and 23. The vast majority of cases respondents either agreed on both questions or disagreed on both questions.

Table 2.1.1.i – Conditional probabilities for co-educational school respondents: q21 and q23

Event	Probability
Agree q21 given agree q23	33/35 = 0.94
Disagree q21 given disagree q23	43/57 = 0.75
Agree q23 given agree q21	33/44 = 0.75
Disagree q23 given disagree q21	43/47 = 0.91

Table 2.1.1.j – Conditional probabilities for single gender school respondents: q21 and q23

Event	Probability
Agree q21 given agree q23	48/60 = 0.80
Disagree q21 given disagree q23	23/30 = 0.77
Agree q23 given agree q21	48/57 = 0.84
Disagree q23 given disagree q21	23/27 = 0.85

- **Question 1 and questions 21, 22 and 23**

Table 2.1.1.k – Question 1 versus question 21 overall

		q21			Total
		Disagree	Uncertain	Agree	
q1	Disagree	46	4	22	72
	Uncertain	6	9	26	41
	Agree	23	9	53	85
Total		75	22	101	198

Chi-square = 36.978 with p-value = 0.000

Table 2.1.1.l – Question 1 versus question 22 overall

		q22			Total
		Disagree	Uncertain	Agree	
q1	Disagree	49	1	21	71
	Uncertain	13	5	23	41
	Agree	30	7	49	86
Total		92	13	93	198

Chi-square = 24.487 with p-value = 0.000

Table 2.1.1.m – Question 1 versus question 23 overall

		q23			Total
		Disagree	Uncertain	Agree	
q1	Disagree	51	1	18	70
	Uncertain	9	6	26	41
	Agree	27	7	52	86
Total		87	14	96	197

Chi-square = 39.233 with p-value = 0.000

Section 3

3. Responses to questions with a common theme

Table – 3.1.a Don't deserve to eat (q22) versus feel guilty when eating (q23) per school type

School			q23 Disagree	Uncertain	Agree	Total
Co-educational	q22	Disagree	53	4	4	61
		Uncertain	0	3	2	5
		Agree	3	0	30	33
	Total		56	7	36	99
Single gender	q22	Disagree	28	1	0	29
		Uncertain	1	2	6	9
		Agree	1	5	54	60
	Total		30	8	60	98

Co-educational schools Chi-square = 88.979 with a p-value of 0.000.

Single-gender schools Chi-square = 87.614 with a p-value of 0.005.

Table 3.1.b – Feel worthless when not thin (q21) versus don't deserve to eat (q22) per school type

school			q22 Disagree	Uncertain	Agree	Total
Co-educational	q21	Disagree	44	1	1	46
		Uncertain	6	1	1	8
		Agree	11	3	30	44
	Total		61	5	32	98
Single gender	q21	Disagree	25	1	3	29
		Uncertain	3	5	6	14
		Agree	3	3	51	57
	Total		31	9	60	100

Co-educational schools Chi-square = 51.239 with a p-value of 0.000.

Single-gender schools Chi-square = 74.939 with a p-value of 0.005.

Table 3.1.c – Feel worthless when not thin (q21) versus feel guilty when eating (q23) per school type

school			q23			Total
			Disagree	Uncertain	Agree	
Co-educational	q21	Disagree	43	3	1	47
		Uncertain	5	2	1	8
		Agree	9	2	33	44
	Total		57	7	35	99
Single-gender	q21	Disagree	23	1	3	27
		Uncertain	3	2	9	14
		Agree	4	5	48	57
	Total		30	8	60	98

Co-educational schools Chi -square = 59.439 with a p-value of 0.000.

Single-gender schools Chi-square = 54.361 with a p-value of 0.005.

Table 3.1.d – Question 1 versus question 22 per school type

school			q21			Total
			Disagree	Uncertain	Agree	
Co-educational	q1	Disagree	30	1	11	42
		Uncertain	4	4	7	15
		Agree	12	3	26	41
	Total		46	8	44	98
Single-gender	q1	Disagree	16	3	11	30
		Uncertain	2	5	19	26
		Agree	11	6	27	44
	Total		29	14	57	100

Co-educational: Chi-square = 23.87 with p-value = 0.000.

Single-gender: Chi-square = 14.796 with p-value = 0.005.

Table 3.1.e – Question 1 versus question 22 per school type

school			q22			Total
			Disagree	Uncertain	Agree	
Co-educational	q1	Disagree	31	0	10	41
		Uncertain	10	1	4	15
		Agree	20	3	19	42
	Total		61	4	33	98
Single gender	q1	Disagree	18	1	11	30
		Uncertain	3	4	19	26
		Agree	10	4	30	44
	Total		31	9	60	100

Co-educational: Chi-square = 8.486 with p-value = 0.000.

Single-gender: Chi-square = 18.489 with p-value = 0.005.

Table 3.1.f – Question 1 versus question 23 per school type

school			q23			Total
			Disagree	Uncertain	Agree	
Co-educational	q1	Disagree	34	0	8	42
		Uncertain	6	4	5	15
		Agree	17	2	23	43
	Total		57	6	36	99
Single-gender	q1	Disagree	17	1	10	28
		Uncertain	3	2	21	26
		Agree	10	5	29	45
	Total		30	8	60	100

Co-educational: Chi-square = 27.506 with p-value = 0.000.

Single-gender: Chi-square = 18.310 with p-value = 0.005.

The response to question 1 was positively associated with responses to questions 21, 22 and 23 i.e. answers of (disagree, disagree) and (agree, agree) tended to go together, but the associations were weaker than those observed among the responses to questions 21, 22 and 23. This can be seen from the lower frequencies in the (disagree, disagree) and (agree, agree) cells in each

table and the higher frequencies in the (agree, disagree) and (disagree, agree) cells.

However, all the questions have a strong enough significance to show that the underlying theme “self-esteem/body-image” is an indicator for the development of eating problems.

Appendix B- Letters of consent