

**ABNORMAL EATING ATTITUDES AND WEIGHT LOSS  
BEHAVIOURS OF GIRLS ATTENDING A “TRADITIONAL”  
JEWISH HIGH SCHOOL IN JOHANNESBURG:  
AN EXAMINATION OF TEACHERS’ AWARENESS**

by  
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degree of Master of Nutrition at the University of Stellenbosch*



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## ABSTRACT

**Background:** Eating disorders are an important cause of morbidity and mortality in adolescent and young adult women. There is some evidence that Eating disorders may be more common in Jewish females than in their non-Jewish counterparts. Individuals with abnormal attitudes as defined by the Eating Attitudes Test (26-Item version) (EAT-26) are at increased risk of developing an eating disorder. School teachers are required to take an active role in the currently favoured ecological approach to the prevention of eating disorders.

**Objectives:** The current study sought to determine the prevalence of abnormal eating attitudes and weight loss behaviours in a Jewish female adolescent sample and to investigate school teachers' awareness of these factors and their attitudes towards a school programme to address these.

**Methods:** A cross-sectional study of girls in grades 8 to 11 and teachers of both genders was undertaken at a "traditional" Jewish high school in Johannesburg, South Africa. A questionnaire consisting of the EAT-26 and a modified section of the United States Youth Risk Behaviour Survey (YRBS) was completed by pupils. A questionnaire developed by the researcher for the study was completed by teachers.

**Results:** Two hundred and twenty pupils (response rate 84.3%) and 38 teachers (52.1%) participated. Twenty percent of pupils (n=43) had EAT-26 scores greater than or equal to 20 and 30.2% were found to require clinical evaluation for a potential eating disorder. Thirty two point seven percent (n=72) of girls considered themselves to be overweight. Sixty four percent (n=139) were trying to lose weight at the time of the study and 19.1% (n=42) had engaged in one or more extreme methods of weight loss (fasting, purging or non-prescribed medication) in the past 12 months. Most teachers (81.6%, n=29) underestimated the proportion of girls requiring clinical evaluation and 71.1% (n=27) underestimated the extent of current weight loss attempts. Almost all (97.3%, n=37) the teachers recognised the need to address disordered eating attitudes and patterns in the school but only 34.2% (n=13) viewed the school as the appropriate place, would be prepared to participate and would give up class time.

**Conclusions:** This is the first study to document the presence of abnormal eating attitudes among Jewish adolescent females in South Africa. The prevalence fell within the upper end of the range of rates reported in studies of adolescent girls in South Africa and abroad. Dieting and attempts at weight loss are common in this population and are also in keeping with the findings from international studies. This is the first study to measure teachers' awareness of the eating attitudes and weight loss behaviours of girls attending the school at which they teach. The teachers participating in this study were not fully aware of the extent to which eating-related issues affect female pupils. Over and above this, there appears to be a resistance to facilitating and participating in a school programme addressing these issues. A qualitative exploration of this could yield valuable insights.

## OPSOMMING

**Agtergrond:** Eetstoornisse is 'n belangrike oorsaak van morbiditeit en mortaliteit in adolessente en jong volwasse vroue. Daar is bewyse dat Eetstoornisse meer algemeen mag voorkom in Joodse vroue vergeleke met hul nie-Joodse eweknieë. Individue met 'n abnormale houding soos gedefinieer deur die Eet-Houding-Toets (“Eating Attitudes Test”) (26-punt weergawe) (EAT-26) het 'n verhoogde risiko om 'n eetstoornis te ontwikkel. Daar word van onderwysers verwag om 'n aktiewe rol te speel in die ekologiese benadering om eetstoornisse te voorkom, wat tans voorkeur geniet.

**Doelstellings:** Die huidige studie het gepoog om die voorkoms van abnormale houding en gedrag ten opsigte van eet en gewigsverlies in 'n steekproef van Joodse vroulike adolessente te bepaal, asook om ondersoek in te stel of onderwysers bewus is van hierdie faktore en hul houding teenoor 'n skoolprogram wat dit aanspreek.

**Metodes:** 'n Dwarssnit studie van meisies in graad 8 tot 11 en onderwysers van beide geslagte was uitgevoer by 'n "tradisionele" Joodse hoërskool in Johannesburg, Suid-Afrika. 'n Vraelys bestaande uit die EAT-26 en 'n aangepaste afdeling van die “United States Youth Risk Behaviour Survey (YRBS)” is voltooi deur studente. Onderwysers het 'n vraelys voltooi wat vir die studie ontwikkel is deur die navorser.

**Resultate:** Tweehonderd-en-twintig leerlinge (responskoers 84.3%) en 38 onderwysers (52.1%) het deelgeneem. Twintig persent van leerlinge (n=43) het EAT-26 tellings groter as of gelyk aan 20 gehad en daar was bevind dat 30.2% kliniese evaluering vir 'n potensiële eetstoornis benodig. Twee-en-dertig punt sewe persent (n=72) van meisies het hulself as oorgewig beskou. Vier-en-sestig persent (n=139) het probeer om gewig te verloor ten tye van die studie en 19.1% (n=42) het betrokke geraak by een of meer ekstreme metodes van gewigsverlies (vas, purgasie of nie-voorskrif medikasie) in die afgelope 12 maande. Meeste onderwysers (81.6%, n=29) onderskat die proporsie van meisies wat kliniese evaluasie benodig en 71.1% (n=27) onderskat die omvang van huidige gewigsverlies-pogings. Byna alle (97.3%, n=37) onderwysers het die behoefte erken dat versteurde houdings en eetpatrone aangespreek moet word, maar slegs 34,2% (n=13) beskou die skool as die geskikte plek daarvoor en sal bereid wees om deel te neem en klastyd af te staan.

**Gevolgtrekkings:** Die teenwoordigheid van abnormale houding teenoor eet onder Joodse vroulike adolessente in Suid-Afrika word vir die eerste keer in hierdie studie gedokumenteer. Die prevalensie val binne die boonste deel van die reikwydte van koerse wat gerapporteer is in studies oor adolessente meisies in Suid-Afrika en die buiteland. Die eet en pogings tot gewigsverlies is algemeen in hierdie populasie en stem ook ooreen met die bevindinge van internasionale studies. Dit is die eerste studie wat onderwysers se bewustheid meet ten opsigte van die eethoudings en gewigsverlies-gedrag van meisies wat skool bywoon waar hul onderrig gee. Die onderwysers wat deelgeneem het aan hierdie studie was nie ten volle bewus van die mate waartoe eet-gerelateerde kwessies vroulike leerlinge affekteer nie. Boonop blyk daar weerstand te wees teenoor die fasilitering van, en deelname aan 'n skoolprogram wat hierdie kwessies aanspreek. Verdere kwalitatiewe ondersoeke hiervan kan moontlik waardevolle insig bied.

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## LIST OF ABBREVIATIONS

<b>AN</b>	Anorexia Nervosa
<b>B</b>	Black
<b>BMI</b>	Body Mass Index
<b>BN</b>	Bulimia Nervosa
<b>CDC</b>	Centre for Disease Control and Prevention
<b>DSM IV</b>	Diagnostic and Statistical Manual 4 <sup>th</sup> edition
<b>EAT-26</b>	Eating Attitudes Test 26-item version
<b>ED</b>	Eating Disorder
<b>EDNOS</b>	Eating Disorder not otherwise Specified
<b>EDI</b>	Eating Disorders Inventory
<b>ICD-10</b>	International Classification of Disease- 10 <sup>th</sup> revision
<b>J</b>	Jewish
<b>M</b>	Mixed race
<b>NJ</b>	Non-Jewish
<b>T</b>	Total
<b>USYRBS</b>	United States Youth Risk Behaviour Survey
<b>W</b>	White
<b>WHO</b>	World Health Organisation



**CHAPTER 1**  
**LITERATURE REVIEW AND MOTIVATION FOR THE STUDY**

## 1.1. INTRODUCTION

Eating disorders (ED) have been characterised as being “of great interest to the public, of perplexity to researchers and a challenge to clinicians”.<sup>1</sup> ED are believed to have increased in prevalence in recent decades.<sup>1</sup> This may relate to the increasing socio-cultural pressure to be thin.<sup>2</sup> Adolescent and young adult females are most at risk.<sup>3</sup> In this group eating disturbances are the third most common cause of illness in the United States and in other Western countries.<sup>4</sup>

The existence of eating disorders and abnormal eating attitudes in South Africa is well established in adolescents of culturally and ethnically diverse backgrounds.<sup>5-9</sup> International studies have found disturbances of this nature to be more prevalent in Jewish adolescent girls and women than in their non-Jewish counterparts.<sup>10-12</sup> No published studies of this subject have been conducted in the South African Jewish community.

A major risk factor in the development of eating disorders is dieting which is extremely common among adolescent girls.<sup>13</sup> There has been considerable interest in the prevention of eating disorders in recent times. Current research supports an ecological approach which includes pupils, parents and teachers in school-based programmes.<sup>14-16</sup>

## 1.2. EATING DISORDERS

### 1.2.1. Classification and Diagnostic Criteria

The American Psychiatric Association Diagnostic and Statistical Manual (IV) (DSMIV)<sup>17</sup> classifies eating disorders (ED) as: Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Eating Disorder Not Otherwise Specified (EDNOS).<sup>17</sup>

The DSM (IV) diagnostic criteria for AN are as follows: <sup>17</sup>

- Refusal to maintain body weight at or above a minimally normal weight for age and height
- Intense fear of gaining weight or of becoming fat even though underweight
- Disturbance in the way in which one’s body weight is experienced
- In post-menarcheal females, amenorrhea

AN is sub-classified as binge-eating/ purging type when the person has regularly engaged in binge eating or purging behaviour and restricting type when the person has not.<sup>17</sup>

The DSM (IV) diagnostic criteria for BN are:<sup>17</sup>

- Recurrent episodes of binge eating
- Recurrent inappropriate compensatory behaviour to prevent weight gain
- The above two criteria are at least twice a week for at least 3 months
- Self-evaluation is unduly influenced by body shape and weight
- The disturbance does not occur exclusively during episodes of Anorexia Nervosa

BN is sub-classified as purging type in which the person has regularly engaged in self-induced vomiting or misuse of laxatives, diuretics or enemas and the non-purging type in which the person's compensatory behaviours do not include these.<sup>17</sup>

The eating disorder not otherwise specified category is for disorders of eating that do not meet the criteria for any specific eating disorder. This includes a relatively new category– binge eating disorder.<sup>17</sup>

### 1.2.2. Epidemiology

The international incidence of eating disorders is believed to have increased over recent decades. However, changes in help-seeking and better detection than was the case in the past make statistics difficult to interpret.<sup>1</sup> Ninety percent of cases of AN and most cases of BN occur in females.<sup>1</sup> AN is most common in adolescent girls (0.7% prevalence)<sup>1</sup> but up to 5% of cases have onset in their early twenties.<sup>3</sup> Although AN was traditionally described as occurring mainly among the upper social classes, recent epidemiological studies do not reflect this.<sup>3</sup> BN is more common than AN<sup>3</sup> and is most common in young adults (1-2% prevalence in 16-35 year-old females) although it does also occur in adolescents.<sup>1</sup>

### 1.2.3. Aetiology and Risk Factors

No direct causal relationships have been found to explain the development of EDs. The data available support the notion that there is interplay between environmental and genetic factors.

Evidence of a genetic contribution comes mainly from twin and family studies.<sup>18</sup> The main clinical risk factors for AN and BN are classified by Fairburn et al.<sup>1</sup> as follows:

- General factors: female, adolescence or early adulthood, living in a Western society
- Family history: eating disorders, depression, substance abuse or obesity
- Premorbid experiences: adverse parenting, sexual abuse, family dieting, critical comments about eating, shape or weight, occupational and recreational pressure to be slim
- Premorbid characteristics: low self-esteem, perfectionism, anxiety, obesity, early menarche

Neurobiological studies have implicated the serotonergic system in the pathogenesis of EDs.<sup>19,20</sup> The most influential psychological models have been cognitive behavioural in nature.

#### 1.2.4. Health Consequences of Eating Disorders

Eating disorders may affect almost every organ system. The health consequences of EDs are enumerated in a review of the subject by Fairburn and Harrison.<sup>1</sup> Complications such as dehydration, electrolyte disturbances and cardiac conduction defects may be life-threatening. Osteopaenia and osteoporosis are associated with an increased fracture risk and may not be fully reversed with restoration of sound nutrition and body weight.<sup>1</sup>

#### 1.2.5. Management of Eating Disorders

Many patients with AN require inpatient management although some cases can be dealt with on an outpatient basis.<sup>3</sup> The management consists of treating medical complications, nutritional rehabilitation, a strictly monitored behavioural programme, individual, group and family psychotherapy and, in a minority of cases, psychotropic medication.<sup>3</sup> In general, cases of BN can be managed on an outpatient basis. When symptoms are severe, have not responded to outpatient treatment or include additional severe psychiatric symptoms, inpatient treatment may be required. Psychotherapy forms the mainstay of therapy for BN. In some cases antidepressants especially selective serotonin reuptake inhibitors are a useful adjunct.<sup>3</sup>

### 1.2.6. Prognosis of Eating Disorders

The course and prognosis of AN varies greatly.<sup>3</sup> Studies show a range of mortality rates from 5 to 18%.<sup>3</sup> The prognosis for BN is better and depends largely on the severity of symptoms.<sup>3</sup>

## 1.3. EATING DISORDERS, EATING ATTITUDES AND DIETING IN ADOLESCENCE

### 1.3.1. Introduction

Adolescent eating patterns, including dieting and eating disorders are described by the World Health Organisation (WHO) as major threats to adolescents' nutritional status.<sup>4</sup> Eating disorders and disturbances have become the third leading chronic illness among adolescent females in the United States and other high-income countries.<sup>4</sup>

### 1.3.2. Partial Eating Disorders

Apart from the extremes of AN or BN, disordered eating attitudes and patterns are common in otherwise normal adolescent females.<sup>4</sup> A growing number of subjects, particularly adolescents, are showing inappropriate eating behaviour without completely satisfying the full DSM-IV diagnostic criteria for a specific eating disorder.<sup>21</sup> Such disturbances have been termed Eating Disorders NOS by the DSM-IV,<sup>17</sup> atypical ED by the International Classification of Diseases-10<sup>th</sup> Revision (ICD-10) and partial ED by some researchers.<sup>21</sup> A large proportion of adolescent girls referred to ED clinics are classified as having partial syndromes.<sup>22,23</sup> However, literature regarding these is scarce with much of the research focusing on the traditional syndromes.<sup>21</sup>

### 1.3.3. The Continuum Hypothesis and Dieting in Adolescence

It has been debated whether eating attitudes fall along a continuum, with normal eating at one end and frank ED at the other, or whether eating disorders represent discrete entities which are qualitatively different from milder syndromes.<sup>21</sup> According to the continuum theory, weight concerns and dieting, common in adolescent girls, represent part of the eating disorder spectrum, differing from full-blown eating disorders only by degree. Empirical studies provide support for this hypothesis.<sup>24</sup> In a longitudinal study of school girls in London, dieters were found to be eight times more likely than non-dieters to develop full or partial eating disorders after 12 months follow up.<sup>25</sup> After 3-years those who had severely dieted at baseline were 18 times more likely

and those who had moderately dieted at baseline were 5 times more likely to develop an ED (full or partial).<sup>26</sup> Dieting or factors closely associated therewith may account for most eating disorders in young women.<sup>27</sup> The prevalence of eating disorders occurs in direct proportion to the prevalence of dieting behaviour in a given community.<sup>28</sup> Dieting has been found to affect the serotonergic system of women but not men.<sup>29</sup> This has been suggested as a mediating factor between dieting and the development of eating disorders.<sup>30</sup>

The implication of the above findings is that although dieting and weight concerns in adolescents are usually self-limiting, they should not always be regarded as benign.<sup>27</sup> It appears that, in the presence of risk factors, a diet could develop into a full eating disorder.<sup>28</sup> An awareness of this by health planners is illustrated by the inclusion of dieting behaviour in the United States Youth Risk Behaviour Survey (USYRBS).<sup>31</sup> This perspective has practical implications for screening, early detection and prevention of ED in vulnerable individuals.<sup>32</sup>

The above discussion refers to the general adolescent population. In contrast to these findings, studies of professionally administered weight-loss programs for overweight children and adolescents have generally not been found to increase symptoms of eating disorders. Rather, they have been associated with improvements in psychosocial status.<sup>33</sup>

## 1.4. ETHNO-CULTURAL INFLUENCES ON EATING ATTITUDES AND DISORDERS

### 1.4.1. Cultural Body Weight and Shape Preferences

The value attached to thinness varies considerably between cultures.<sup>34</sup> In the West, thinness has come to symbolise numerous desirable characteristics including beauty, femininity, self-discipline and a higher socio-economic class.<sup>34</sup> In contrast, many non-western cultures view thinness in a negative light and associate fatness with, for example, prosperity, fertility, femininity and longevity.<sup>34</sup> This attitude has been described in traditional Black South African women who associate being overweight with dignity, respect, health, wealth, strength and matrimonial harmony.<sup>35</sup>

### 1.4.2. Role of Socio-cultural factors in the Development of Eating Disorders

Western idealisation of thinness is implicated in the pathogenesis of eating disorders.<sup>36</sup> It is hypothesised that self-comparisons to the Western “thin ideal”, which is well below the average weight of Western women, results in body dissatisfaction, low self-esteem and dieting. In vulnerable individuals, this process may lead to eating disorders.

The following observations lend support to this model:<sup>36</sup>

- Eating disorders predominantly affect women in the Western world where thinness is idealised.<sup>37</sup>
- In recent years, as the standard of beauty presented by the media has become increasingly thin,<sup>37</sup> the incidence of eating disorders has increased.<sup>38</sup>
- Eating disorders often emerge around the time of adolescence when there is a physiological increase in female body fat.<sup>36</sup>

#### 1.4.3. The Effect of Media Exposure on Eating Attitudes and Behaviours

Many theorists believe that the media may play a role in the development of eating disorders.<sup>39</sup> The media is viewed as important in driving body dissatisfaction and pursuit of thinness among females, resulting in dieting and unhealthy weight-control behaviours.<sup>40</sup> In a landmark study, Becker et al.<sup>41</sup> documented the eating attitudes of Fijian adolescent girls from a relatively media-naive region shortly after and then three years following the introduction of television to Fiji in 1993. The study demonstrated a significant increase in dieting (from 0% to 69%) from 1995 to 1998. Qualitative data from this study provide insight into the effect of exposure to thin-ideal images on the body image and eating attitudes of adolescents.<sup>41</sup>

Media exposure to messages about weight loss was associated with obesity, binge-eating and extreme weight control behaviours in a cross sectional study of adolescents.<sup>42</sup> Short-term experimental studies have demonstrated that media exposure to thin-ideal images decreases self-esteem,<sup>39</sup> increases body dissatisfaction<sup>43</sup> and influences eating behaviours in females.<sup>44</sup> Television<sup>43,45</sup> and magazines<sup>39,41</sup> have been shown to affect body image and eating attitudes. More recently, “Pro-Anorexia” websites have become a focus of concern.<sup>46-50</sup> Short-term experimental exposure of undergraduate female students to such websites produced a negative

effect on mood, self-esteem and self-efficacy and increased preoccupation with weight and body image comparisons.<sup>48</sup>

#### 1.4.4. Culture-bound versus Culture-reactive Syndrome

Initially, the belief that eating disorders were largely confined to young White females in Western societies led to the description of the disorders as “culture bound”.<sup>51</sup> The later rise in the incidence of EDs observed in non-Western populations undergoing socio-cultural and economic transitions led to the emergence of the “culture reactive” hypothesis which implicates “culture change” as a major risk factor for the development of eating disorders.<sup>52,53</sup>

### 1.4. EATING DISORDERS AND ATTITUDES IN SOUTH AFRICA

The prevalence of eating disorders in South Africa is unknown.<sup>32</sup> One early study found that approximately 3% of high-school girls were 20% underweight and incorrectly assumed this to be the prevalence of AN.<sup>54</sup>

South Africa’s politically-catalysed socio-cultural and economic transition is a background upon which the effects of ethnicity and culture on eating attitudes have been studied. Eating disorders in white South Africans were described over 30 years ago.<sup>5</sup> In contrast, the first recorded cases of eating disorders in Black South Africans were published in the mid-1990s as a series of three case reports.<sup>7</sup> Since then, several studies<sup>6,8,9</sup> have demonstrated that black adolescent girls exposed to the same cultural milieu as their White counterparts exhibit similar levels of eating-related pathology as measured by the Eating Attitudes Test 26-item version (EAT-26). The most recent of these studies<sup>8</sup> was conducted in three racially diverse girls-only schools in Johannesburg. No significant difference was found for the average total EAT-26 scores of black (12.5) and white (12.3) girls. In addition the percentage of black (18.6%) and white (18.7%) girls with EAT-26 scores at or above 20 were almost identical. A corollary to these findings is the report of a significantly lower incidence of abnormal eating attitudes in rural, Zulu-speaking adolescents.<sup>8</sup> Taken together; the above-mentioned studies suggest that ethnicity per se is not protective against the development of eating disorders in black adolescents. This effect exists only in the context of preserved cultural norms and values such as occurs in a rural setting. When



exposed to Western culture, these girls appear to be at the same risk of abnormal eating attitudes and eating disorders as white adolescent girls.

## 1.6. RELIGION AND EATING DISORDERS

Religion is often positively related to mental health.<sup>55</sup> The interaction between religion and eating disorders appears to be complex. Belonging to an insulated Orthodox group, such as the Amish may be protective against the development of eating disorders.<sup>56</sup> On the other hand, women who are involved in religion for social acceptance have been found to have more symptoms of eating disorders and to be more susceptible to BN.<sup>57</sup>

Anorexic patients who report that religion is important to them have been found to have lower lifetime Body Mass Indices (BMIs) than those who do not regard religion as important.<sup>58</sup> In contrast, increasing severity of bulimic symptoms has been associated with a weakening of religious beliefs.<sup>59</sup> Some authors regard religion as an important consideration in the assessment and management of patients with eating disorders.<sup>60,61</sup>

## 1.7. EATING ATTITUDES AND DISORDERS IN THE JEWISH POPULATION

### 1.7.1. Prevalence

There is evidence to suggest that Jewish females may be at increased risk of developing eating disorders as compared to their non-Jewish counterparts.<sup>10-12</sup> Within patient populations in the United States, Jewish females with eating disorders are overrepresented.<sup>10</sup> Jewish females were found to make up 7.2% of the US population of female ED patients while the proportion in the general population is only 4.5%.<sup>10</sup> However, the study could not exclude the possibility that this may represent a greater tendency to health-seeking behaviour in the Jewish population. In nonclinical populations, US Jewish women have been found to have greater odds of overestimating their body weight than non-Jewish women.<sup>11</sup> A recent Canadian study<sup>12</sup> of male and female school-goers reported a significantly higher mean BMI in Jewish (21.4) as opposed to non-Jewish females (20.6) ( $p=0.001$ ). Significantly more Jewish (55%) than non-Jewish (45%) females were trying to lose weight ( $p=0.001$ ). Jewish females had significantly higher scores on the EAT (mean=13.5) than non-Jewish females (11.9) even after controlling for BMI

( $p=0.01$ ). Twenty-five per cent of Jewish students had total EAT-26 scores of  $\geq 20$  as opposed to 18% of their non-Jewish counterparts.

### 1.7.2 Comparative Studies within the Jewish Population

There have been several comparative studies within the Jewish population examining the influence of religious practice on eating attitudes:

An American study<sup>62</sup> selected female Jewish students from several universities and colleges in the Northeast United States. Respondents were classified as “Orthodox” or “Secular” (non-religious) according to self-classification and self-reported religious practice. Secular American Jewish females scored significantly higher on the Body Shape Questionnaire<sup>63</sup> and the Eating Disorder Examination Questionnaire version<sup>64</sup> than Orthodox women despite having similar BMIs.<sup>62</sup> The secular women also had more symptoms of eating disorders, more abuse of laxatives and diuretics and more self-induced vomiting. They were twice as likely to have a fear of becoming fat.<sup>62</sup> The authors suggest that these differences may be mediated by greater cultural pressure to be thin and more shame about appearance.

The religious classification used in the above study does not distinguish between two groups which differ markedly in terms of their exposure to modern secular culture. The Modern Orthodox group is observant of religious practices but is accepting of interaction with the secular world including exposure to the media. In contrast, individuals belonging to the “Strictly Orthodox” (“Chareidi”) group tend to live in segregated neighbourhoods. Their children attend private Jewish schools and the sexes are kept separate during the schooling process. Free selection of inter-gender relationships is discouraged and dating is overseen by a “Shadchan” (match maker). Women wear modest “tznius” clothing which covers most of their bodies. The mass media, especially television are shunned. The afore-mentioned study implies that the Strictly Orthodox group has been included in the sample. However, the selection of students from colleges and universities virtually excludes any such participants. This is because higher secular education, particularly in a co-educational environment is not the norm in this group. Thus the group termed “Orthodox” should actually be considered to be Modern Orthodox.

Interestingly, no studies have been undertaken in the Strictly Orthodox group. In fact, the researcher initially set out to do a comparative study between “Traditional” and “Strictly Orthodox” Jews in Johannesburg. The study was abandoned as principals of Strictly Orthodox Jewish schools were unwilling for the girls to participate. This is congruent with the belief held by Strictly Orthodox individuals and leaders that exposure to secular material may be spiritually harmful.

A study conducted with adolescent girls in Israel used the Eating Disorders Inventory (EDI-2)<sup>66</sup> to compare girls in different residential setting: religious boarding school, secular boarding school, kibbutz, communal village and urban area.<sup>65</sup> The secular boarding school subgroup had the highest scores, while the kibbutz sub-group had the lowest scores for total eating pathology as well as for most sub-scales of the EDI-2. The authors comment that the high ratings in the secular boarding school sub-group may relate to the fact that these students tend to come from a lower socioeconomic class, dysfunctional families, less educated parents and new immigrant families. The difference between religious and secular boarding schools was explained in terms of differences in socioeconomic background and level of religious beliefs.

The same authors conducted a similar study using the EAT-26 in the same subgroups.<sup>67</sup> A representative sample was drawn. An EAT-26 score of  $\geq 20$  was found in 19.5% of students. This study confirmed the findings of the previous one.

The same authors<sup>68</sup> found in a different study that among Modern Orthodox girls, the more religious the student, the less the risk of eating-related psychopathology.<sup>68</sup> The authors hypothesise that this may be related to the lower emphasis placed on women’s physical attractiveness and success outside of the home in more religious circles.<sup>68</sup>

To the author’s knowledge, there are no published studies regarding eating attitudes and/or eating disorders in the South African Jewish community.

## 1.8. THE SOUTH AFRICAN JEWISH COMMUNITY

### 1.8.1. Demographics

The most recent figures for the number of Jewish inhabitants in South Africa from the 2001 national census data<sup>69</sup> are documented in table 1.1.

**Table 1.1. Demographic data for South African Jewish community according to 2001 census data<sup>69</sup>**

	South Africa	Gauteng
<b>Total population</b>	61670	40778
<b>10-14 year age group</b>	3465	2424
<b>15-19 year age group</b>	3968	2780

As is evidenced by the above figures, 66.1% of the South African Jewish population reside in Gauteng. Of these, the majority reside in large urban centres, with 81% of the Gauteng population living in either Johannesburg (24569) or Sandton (8456).

### 1.8.2. Socioeconomic Status

Over 85% of individuals above 20 have achieved at least a matric (grade 12) level of education and almost half have some higher education.<sup>69</sup> Over 70% of Jewish individuals above 20 are employed in the higher-earning employment categories: legislators and managers, professionals, technicians and associate professionals.<sup>69</sup>

### 1.8.3. Religious Subgroups

There are varying degrees of religiosity amongst South African Jews, with the largest sector (66%) classifying themselves as Traditional Jews.<sup>70</sup> The remainder classify themselves as Orthodox (14%), Reform/Progressive (7%) and Secular (12%).<sup>70</sup> A major distinguishing feature between Traditional and Orthodox Jews is observance of the Sabbath in the latter but not the former group.<sup>70</sup> There are, however, numerous other religious practices which are observed in the Orthodox group which go beyond the scope of this discussion.

## 1.9. PREVENTION OF EATING DISORDERS

Eating disorder prevention is a young field that has made significant progress in the past two decades.<sup>71</sup> Prevention programmes are considered to be of two main types: targeted prevention and universal prevention.<sup>17</sup> Targeted prevention focuses on individuals who are at high risk because they have clear precursors of eating disorders such as a negative body image. While such interventions may produce positive results, they have been criticised for not preventing the very earliest symptoms and forms of eating disorders.<sup>71</sup> Universal programmes are designed for very large groups at risk because of gender or age but not yet displaying any symptoms or precursors of eating disorders. Such programmes have largely taken the form of school- or community-based interventions.<sup>71</sup> The school environment represents a suitable place for the implementation of health promotion programs because adolescent students are accessible and motivated to be involved in educational activities.<sup>72</sup>

Initial attempts at such programmes were largely didactic in nature.<sup>73</sup> They included the provision of information about the symptoms, complications and prognosis of eating disorders.<sup>73</sup> These were found to be ineffective in altering attitudes and behaviours.<sup>73</sup> Moreover, some researchers<sup>74,75</sup> consider this approach to be potentially harmful through providing students with new information about unhealthy and potentially dangerous methods of weight control and through inadvertently normalising disordered eating behaviour.

These findings supported a shift towards a health promotion paradigm in the prevention of eating disorders that focuses on increased general personal empowerment and self-esteem.<sup>73</sup> O' Dea and Abraham<sup>76</sup> conducted the first controlled study to demonstrate that an interactive, school-based self-esteem education programme for male and female adolescents could improve body image and eating attitudes. Other programmes<sup>77</sup> have focussed on media literacy to empower students to adopt a critical approach to media content in order to identify, analyze and challenge the thin-ideal presented in the mass media.<sup>77</sup> Such programmes have been shown to reduce internalization of the thin-ideal<sup>17</sup> and weight concern<sup>77</sup> in adolescents.

An important limitation in the universal approach is the frequent failure to maintain positive outcomes following participation.<sup>71</sup> This has been attributed to the important role played by

environmental influences which may undermine the effect of the programme.<sup>71</sup> This has led to increased interest in an ecological approach which is already well established in the field of drug prevention programmes.<sup>71</sup> Such an approach takes into account that there are numerous potential environmental influences on an adolescents' behaviour.<sup>15</sup> Proponents of this approach advocate that the entire school community needs to be involved to increase the success of the intervention.<sup>17</sup>

The ecological approach in particular, but all school-based approaches to some extent, depends on the cooperation of teachers. However, little is known about their willingness to engage in such programmes. In one study<sup>78</sup> teachers' lack of engagement in the study was thought to have diminished the true effectiveness of the intervention. Moreover, the suitability of teachers as role-players in preventative programmes has been questioned. One study of trainee Home economics and Physical Education Teachers<sup>72</sup> found that despite having significant training in nutrition education, these future educators reported significant eating and body image concerns.<sup>72</sup> The finding that fourteen percent of females self-reported an eating disorder but only 6% had received treatment is concerning. Some females had used dangerous methods of weight loss such as laxative abuse (19%) and vomiting (10%). The authors express concern that such young women may openly or inadvertently transfer their inappropriate beliefs and attitudes onto their students and may act as inappropriate role models promoting the slim female ideal.<sup>72</sup>

#### 1.10. MOTIVATION FOR THE CURRENT STUDY

The emergence of data suggesting that Jewish girls and women may be at an increased risk of developing eating disorders<sup>10-12</sup> is of concern to the global Jewish community. The prevalence of abnormal eating attitudes in Johannesburg Jewish high school girls is currently unknown. Determining this prevalence could have important implications for the implementation of preventative strategies. Drawing attention to the existence of disturbed eating patterns could promote earlier identification and referral for treatment of clinical or subclinical eating disturbances by parents and teachers. Prior research suggests that eating attitudes in Jewish adolescents may vary between pupils with different levels of religious observance.<sup>62,67,68</sup> This study will focus on the non-observant/"traditional" sector of the population. This sector makes

up the largest part of the community. Based on previous research it may well have higher levels of disordered eating than the orthodox groups.<sup>62,67,68</sup>

The specific study population chosen will also serve as a setting for investigating teachers' awareness of eating attitudes and behaviours among pupils. This is relevant to the potential for teachers to be involved in the early identification and referral of pupils with eating disorders and in school-based preventative programmes. One previous study<sup>79</sup> examined teachers' ability to identify individuals with existing eating disorders following specific training. Despite various training methods, they were less effective at identifying cases of ED than the Eating Disorders Examination Questionnaire.<sup>64</sup> Our study differs in that it will not be limited to the detection of actual cases. Rather it will include an assessment of teachers' awareness of the extent of abnormal eating attitudes and weight loss behaviours (including dieting) which may place pupils at increased risk of developing eating disorders. To the author's knowledge, this will be the first study to compare teachers' predictions of these variables with prevalence rates measured by student self-report. It is also the first study to document teachers' willingness to participate in preventative programmes. Similar studies in other population groups will be necessary to determine the generalisability of these findings.

### 1.11. CONCLUSION

Given the high prevalence of the disorders,<sup>4</sup> the important impact on the morbidity and mortality of young women<sup>4</sup> and the difficulties in their management,<sup>1</sup> the author regards the widespread institution of programmes regarding abnormal eating attitudes and behaviours in South African schools as matter of great importance. Such programmes need to be culturally sensitive and relevant. The traditional Jewish school investigated in this study will provide a milieu for exploring two areas which are relevant to the consideration of a preventative programme: the extent of the problem in the school and the teachers' awareness of the problem and willingness to address this. Such an investigation would be relevant to any school considering implementing programmes aimed at the prevention of eating disturbances and disorders.

**CHAPTER 2**  
**METHODOLOGY**



## 2.1. AIMS AND OBJECTIVES

The aim of the study was to determine the prevalence of abnormal eating attitudes and weight loss behaviours of girls attending a “Traditional” Jewish high school in Johannesburg and to compare this to teachers’ perceptions of these variables and willingness to address them.

### 2.1.1. Primary Objectives

#### 2.1.1.1. Objectives of student evaluation

The objectives in the arm of the study dealing with pupils were to determine the following:

- The distribution of scores on EAT-26<sup>80,81</sup> including the prevalence of abnormal eating attitudes (defined as EAT-26 above 20).
- The prevalence of perceived overweight.
- The prevalence of current attempts at the following: gaining weight, losing weight, maintaining weight.
- The prevalence of the following weight loss behaviours in the previous year: exercise, dietary restriction and extreme weight loss behaviours: fasting, laxative abuse, self-induced vomiting or non-prescription diet pills.
- The prevalence of girls who have been previously diagnosed with an eating disorder.
- The proportion of girls with abnormal eating attitudes (according to EAT-26 scores) or extreme weight loss behaviours (fasting, vomiting, laxative, diuretic or diet pill abuse) who have not been previously diagnosed with an eating disorder.
- The variables which best predict total EAT-26 score and EAT-score of greater or equal to 20.

#### 2.1.1.2. Objectives of teachers’ evaluation

The objectives of the teachers’ arm of the study were to determine the percentage of girls in the school teachers believe:

- require referral to a health care professional for evaluation for a potential eating disorder.
- consider themselves to be overweight.
- are currently trying to lose weight.
- have dieted or exercised to lose weight in the past year.

- have fasted, vomited, abused laxatives, diuretics or diet pills in order to lose weight in the past year.
- have been previously diagnosed with an eating disorder.

To determine the proportion of teachers who:

- believe that girls' eating attitudes and weight loss practices are a problem in the school.
- believe that the problem should be addressed in the school setting.
- would be willing to participate in a programme aimed at addressing/ preventing this.
- would be willing to give up class time for such a programme.

### 2.1.2. Secondary Objectives

Secondary objectives were to:

- Compare teachers predictions (as percentages) (4.1.2) with percentages calculated from students self-report (4.1.1.) and to determine the accuracy of these estimates.
- Determine which variables best predict the size and the accuracy of the teachers' predictions of the variables described above and of their attitudes as defined in 2.1.1.2.

## 2.2. STUDY DESIGN

A cross-sectional study was undertaken.

## 2.3. STUDY POPULATION

The study population consisted of 2 distinct sectors: female pupils and teachers of both genders at a "Traditional" Jewish high school in Johannesburg. The school is a privately-run co-educational school and is the largest Jewish school in South Africa. It provides grades 8 through to 12. The researcher initially set out to include all girls in the school. However, changes in the matric examination timetable resulted in the school being unwilling for this grade to participate. Since the population still available for the study was considered to be adequate, the study was completed despite this deviation from the original protocol. The total number of girls available for the study was 261 girls in grades 8, 9, 10 and 11 which represented 77.2% of all the girls in the school.

## 2.4. SAMPLING

All eligible girls were included in the study and as such no sampling was undertaken for the following reasons:

- The overall number of possible subjects was relatively small.
- No previous research had been undertaken in this setting and the response rate was thus unpredictable. A low response rate may have led to difficulties in statistical analysis.
- The danger of inducing feelings of prejudice in either the group selected or the group not selected to participate was thought to be high in the school setting.
- From a logistic point of view, it was easier to involve all pupils.

Nevertheless, from a statistical point of view, the current pupils and teachers at the school were considered to be a sample of all pupils and teachers who have been or will be at the school.

## 2.5. INCLUSION AND EXCLUSION CRITERIA

Pupils were included in the study if each of the following criteria were met:

- Identify self as belonging to the Jewish faith
- Female
- Currently in grade 8 – grade 11 inclusive
- Return signed consent form from at least one parent or legal guardian
- Give own written permission to participate in the study
- Present at school at the time the survey is administered
- Sufficiently fluent in the English language to comprehend the questionnaire

Pupils were excluded from the study In the presence of one or more of the following:

- Male gender
- Consent from parents not obtained
- Pupils who do not consent to participate
- Absent at the time of the survey
- Does not regard self as being Jewish

All teachers (male and female) currently teaching girls in grades 8-12 at the school on a full- or part-time basis were eligible to participate.

## 2.6. METHODS OF DATA COLLECTION

Two written, self-administered questionnaires were used, one for pupils and one for teachers.

### 2.6.1. Questionnaire for Pupils (Addendum 5.1)

The questionnaire consisted of 3 sections:

- Demographic data: age and grade
- The Eating Attitudes Test (26-item version) (EAT-26)<sup>80</sup>
- Selected questions from the United States Youth Risk Behaviour Survey (YRBS)<sup>82</sup> with minor adaptations by the researcher to suit the study and study population.

Since the teaching medium at the school is English, the questionnaire was administered in this language only.

#### 2.6.1.1. Demographic data

Subjects were asked to indicate their age and grade.

#### 2.6.1.2 The Eating Attitudes Test-26-item version (EAT -26)<sup>80</sup>

The EAT-26 is available for public use free of charge.

##### 2.6.1.2.1. *Structure, contents and scoring*

The EAT-26 is a 26-item self-report questionnaire with 3 subscales: bulimia, dietary restraint and oral control/food preoccupation. A score of 0 to 3 is given for each item and a total score is determined by adding each individual score. Although the test is not intended to be diagnostic of an eating disorder,<sup>80</sup> a score of 20 or above is suggestive of a possible eating disorder requiring further investigation.<sup>80</sup>

##### 2.6.1.2.2. *Development and validation*

The EAT was originally developed by Garner and Garfinkel<sup>81</sup> as a 40-item measure (EAT-40) which was constructed from a survey of the clinical literature of reported “anorexic” behaviours and attitudes. A validity coefficient of 0.87 ( $p < 0.001$ ) demonstrated the test to be a good predictor of group identity (AN or female control). The instrument was later abbreviated to a 26-item scale (EAT-26)<sup>80,81</sup> which was found to correlate highly with the original scale ( $r=0.98$ ) and demonstrated acceptable criterion validity and high internal consistency ( $\alpha=0.9$  for the AN group). A cut-off score of 20 on the EAT-26 classified a similar proportion of subjects correctly as the score of 30 previously used for EAT-40.

#### 2.6.1.2.3. *Use in non-clinical populations*

The instrument has subsequently been used to identify individuals with disturbed eating patterns and attitudes in non-clinical samples including high school students from numerous countries and cultures.<sup>84-95</sup> Of particular relevance to this study, the EAT-26 has been successfully used in studies involving Jewish high school girls living in Israel<sup>67,68</sup> and Canada<sup>12</sup> and South African high school girls of varying ethnicities.<sup>6,8,53,96</sup>

#### 2.6.1.2.4. *Limitations*

As with all other self-report questionnaires, the accuracy of the EAT-26 is dependent on respondent honesty. This was noted by the developers of the scale to be of particular concern in patients with AN since denial surrounding the disorder is common.<sup>80</sup> It may also be an important consideration in non-clinical populations.

#### 2.6.1.3. *Weight-related Behaviour and Attitudes*

Questions dealing with weight loss behaviours were extracted from the section of the most recent United States Youth Risk Behaviour Survey (US YRBS)<sup>82</sup> dealing with unhealthy dietary behaviours. The YRBS was designed by the Centre for Disease Control and Prevention (CDC) to monitor behaviours that contribute markedly to the leading causes of death, disability and social problems among youth in the United States.<sup>83</sup> It is intended as a self-report questionnaire for US high school students. It is available for public use without permission and free of charge.<sup>82</sup>

#### 2.6.1.3.1 *Development of the YRBS*<sup>83</sup>

Numerous experts were involved in the development of the initial questionnaire to promote content and consensual validity. The behaviours to be assessed were determined by reviewing the leading causes of morbidity and mortality among youth and adults in US. Unhealthy eating practices are included as a risk category. Questions were developed for each risk behaviour category. The questionnaire underwent field testing with US high school students.

#### 2.6.1.3.2 *Reliability of the YRBS*<sup>83</sup>

The YRBS underwent two test-retest reliability studies. In the first study of the 1991 version, 75% of items were rated as having a substantial or higher reliability (kappa=61-100%) and no statistically significant differences were observed between the prevalence estimates for the first and second administrations. The 1999 version was re-tested and ten items with both kappa values of <61% and significantly different test-retest prevalence estimates were deleted.

#### 2.6.1.3.3 *Minor adaptations to the YRBS for the purposes of this study*

- The question related to fasting in order to lose weight included a clarifying statement: “do **not** include fasts of a religious nature e.g. Yom Kippur, Tisha B’Av”.
- The example given as a meal replacement supplement (“Slim fast”) was replaced with a local equivalent.
- The time frame for questions about weight loss behaviours of 30 days was extended to 12 months to increase the sensitivity of this question. This is appropriate since the number of participants in the current study is far fewer than in the YRBS. A short time frame in a smaller group could result in a small number of positive responses which may be difficult to interpret.
- One question was added asking whether the subject has been previously diagnosed with an eating disorder.

#### 2.6.2. Questionnaire for Teachers (Addendum 5.2)

The teachers' questionnaire was developed by the researcher to suit the aims of the study. Questions were designed in parallel with the pupils' questionnaire. Teachers were asked to predict the percentage of girls in the schools who:

- should be referred to a health care professional for evaluation for a potential eating disorder.
- consider themselves to be overweight.
- are currently trying to lose weight.
- have in the last year attempted to lose weight through: dieting, exercising and extreme weight loss behaviours: fasting, vomiting, laxative, diuretic or diet pill abuse.
- have previously been diagnosed with an eating disorder.

Teachers were asked to provide actual percentages as opposed to ranges to facilitate statistical analysis of the data. Teachers were also asked to indicate their gender, age, religion (whether Jewish or not), grades taught, duration of teaching experience, duration of experience teaching at the specific school and subject/s taught. Subjects were categorised as: Language, Science, Humanities, Commerce/ Technology and Other.

#### 2.6.7. Pilot Study

A small pilot study was conducted to ensure face validity and to determine the amount of time necessary to complete the questionnaires. Four girls, one from each grade, and two teachers, one male and one female, participated. These subjects were excluded from the final study. The researcher distributed and supervised completion of the questionnaires and then asked subjects for feedback. Questionnaires were collected and examined for errors in completion. Two changes were made to the teachers' questionnaire as a result of the findings of the pilot study:

The question "What percentage of girls has eating attitudes/behaviours which are a cause for concern?" was deleted as teachers found this to be ambiguous. The question "What percentage of girls have been previously been diagnosed with an eating disorder" was clarified by adding "such as Anorexia or Bulimia Nervosa" as subjects were unsure of what the term eating disorders referred to. It was not necessary to make changes to the questionnaire for pupils.

## 2.6.8. Questionnaire Administration

### 2.6.8.1. Questionnaire for pupils

The questionnaire was completed by pupils during the Life Orientation class. The researcher supervised the majority of classes. The remainder were distributed and supervised by the facilitating teacher. This was necessary where classes co-incided. The facilitating teacher was instructed regarding the procedure to be followed verbally and in writing (Addendum 5.3). She then observed the researcher distributing and supervising the questionnaire to 3 classes. Following this, the researcher observed the teacher's administration to two classes and judged her performance to be satisfactory. The researcher was telephonically available to attend to queries as they arose.

Girls were reassured of the anonymity and confidential nature of the questionnaire and were reminded that participation was voluntary. They were instructed on the correct completion of the questionnaire and were not allowed to consult with fellow students. Written instructions appeared on the questionnaire. Questions regarding the correct completion of the questionnaire were answered by either the teacher or the researcher. Girls who did not give consent and boys were kept occupied with an alternative assignment.

Following completion and collection of the questionnaires, the researcher or teacher addressed the girls. Girls who had concerns about the topics covered in the questionnaire were advised to seek help via a school counsellor, teacher, general practitioner or any other health professional.

### 2.6.8.2. Questionnaire for teachers

The researcher attended the weekly staff meeting which is compulsory for all teachers. The teachers were addressed by the researcher and questionnaires were distributed for their voluntary completion. The researcher gave verbal instructions and written instructions appeared on the questionnaire. Teachers completed the questionnaires and they were then collected by the researcher. The same procedure was followed at a second meeting at a different time of day and different day of the week, two weeks later.



## 2.7. ETHICS CONSIDERATIONS

### 2.7.1. Ethics Review Committee

The study was approved by the Health Research Ethics Committee Faculty of Health Sciences, University of Stellenbosch (ethics approval number: N09/05/154) (Addendum 5.4).

### 2.7.2. Confidentiality

Subject identification information was omitted from all study-related material. Thus anonymity was ensured. The school has not been referred to by name.

### 2.7.3. Voluntary Participation

Participation was on a voluntary basis. Pupils were reassured verbally and in writing that there would be no repercussion to non-participation.

### 2.7.4. Informed Consent

#### 2.7.4.1. Consent from school Principal

Written consent from the school principal was obtained prior to commencement of the study (Addendum 5.5)

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#### 2.7.4.2. Consent from parents and pupils

Each pupil was handed a consent form for minors (Addendum 5.6.) to be signed by both themselves and at least one parent or guardian. This was accompanied by a brief covering letter to parents (Addendum 5.7). The consent forms were distributed and collected by the facilitating teacher a week before the proposed time of the questionnaire. To increase the response rate the consent forms were redistributed. Thereafter, all parents of girls who had not returned signed forms were contacted for telephonic consent. Parents who agreed telephonically were asked to confirm this by completing the consent form in writing preferably or electronically where this was preferred. In order to ensure that the collection of consent forms was complete, the researcher arranged for intercom announcements and contacted parents again if the form had not been returned.

#### 2.7.4.3 Consent from teachers

Teachers were not asked to provide written consent. They were informed verbally and in writing that completion of the questionnaire implied consent to participate in the study.

### 2.8. DATA ANALYSIS

Data was analysed using STATISTICA (data analysis software system) version 9.0 and SAS version 9.1. Questionnaires which were incompletely or incorrectly filled out were excluded only from analyses relating to the particular question concerned. The total score for the EAT-26 was not calculated for participants who had omitted or filled out one or more items incorrectly. Binary terms were created on the basis of the recommended cut-off of an EAT-26 score of at or above 20 as an indication of a possible eating disorder requiring evaluation, for each of the items relating to weight loss behaviours in the past year and for each of the questions related to teacher's attitudes. T-tests were used to compare means. Best subsets regression was used to determine the best possible predictors of total EAT-26 score, EAT-26 score  $\geq 20$ , the size and accuracy of teacher's predictions. Methods of best subsets regression include Adjusted R-square, Mallows cp and forward stepwise regression. For the best predictors identified in the regression analysis, odds ratios were calculated. All analyses were examined for significance at the 5% level.

# **CHAPTER 3**

## **RESULTS**

### 3.1. PUPILS' QUESTIONNAIRE

#### 3.1.1. Participant Characteristics

The total population of female pupils from grades 8 to 11 was 261. The four pupils who participated in the pilot study were excluded from the final study. Consent was obtained from two hundred and twenty five pupils. Four of these were absent on the day of the study and one was excluded as she was not sufficiently fluent in the English language to comprehend the questionnaire. Two hundred and twenty girls participated in the study. The participation rate was 84,3%. Twenty five point five percent (n=56) of participants were in grade 8, 24.5% (n=54) were in grade 9, 23.2% (n=51) were in grade 10 and 26.8% (n=59) were in grade 11. There was no significant difference between the response rates between the different grades ( $p=0.67$ ). The participants' ages ranged between 13.58 and 18.25 years with a mean of 15.68 (SD=1.17).

#### 3.1.2. EAT-26 Scores

EAT-26 scores were calculated for 215 of the 220 participants (97.7%). The scores for 5 participants were excluded from the analysis because they had incomplete or incorrectly completed one or more questions for this section.

##### 3.1.2.1. Internal consistency of the EAT-26

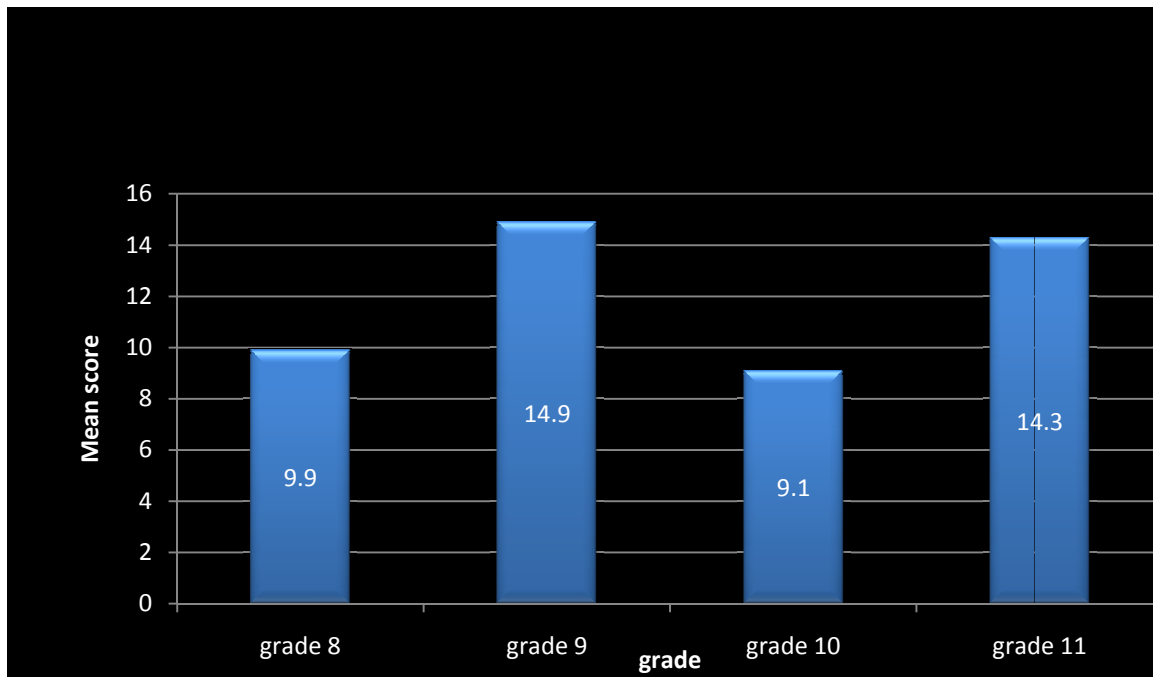
The Cronbach alphas for the actual liekert scale and for the coded scores were 0.91 and 0.88 respectively indicating that total EAT-26 score may well be a reliable model to use in this population.

##### 3.1.2.2. Total EAT scores

The EAT-26 scores for all participants ranged between 0 and 51 with a mean of 12.1 (SD=11.11). The highest score possible is 78 There was no correlation found between total EAT-26 score and age ( $p=0.35$ ). Total EAT-26 score was significantly associated with grade ( $p=0.04$ ). Grades 8 and 10 had lower average scores than grades 9 and 11 (Table 3.1 and Figure 3.1). However, when grade was entered into a regression with other variables, it was not found to predict total score (section 3.1.2.5).

**Table 3.1. Distribution of EAT-26 scores for each of grades 8 to 11**

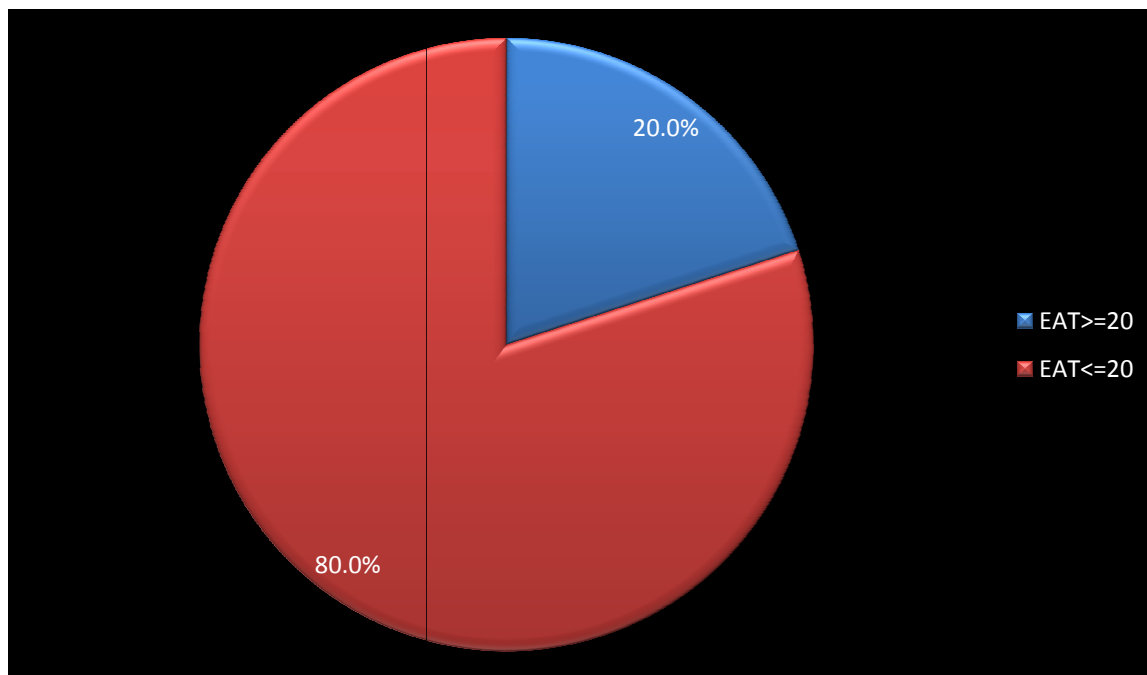
<b>Grade</b>	<b>Minimum score</b>	<b>Maximum score</b>	<b>Mean score</b>	<b>Standard deviation</b>
<b>8</b>	0	37	9.9	9.15
<b>9</b>	0	51	14.9	13.03
<b>10</b>	1	42	9.1	7.96
<b>11</b>	0	47	14.3	12.30



**Figure 3.1. Mean EAT-26 score for each grade**

### 3.1.2.3. EAT-26 scores equal to or above 20 ( $\geq 20$ )

Twenty percent (20.0%) percent of participants ( $n=43$ ) scored equal to or above 20 on the EAT-26 (Figure 3.2). For this group, the maximum score was 51 with a mean of 30.8 ( $SD=8.12$ ). The association between grade and having a score  $\geq 20$  was significant ( $p=0.03$ ). However, when grade was entered into a regression with other variables, it was not found to be a significant predictor of EAT-26 score  $\geq 20$  (see Section 3.1.2.5). Age was not found to be significantly associated with having an EAT-26 score  $\geq 20$  ( $p=0.39$ ).



**Figure 3.2.** Categorisation of subjects by EAT-26 score

### 3.1.2.4. Scores for individual items on the EAT-26

The item which most frequently received a score of above zero was item-12 (“think about burning up calories when I exercise”) followed by item-26 (“enjoy trying new rich foods”) and then by item 1 (“am terrified about being overweight”). Only 5.0% ( $n=11$ ) of girls in the entire group responded “never” to item 1 (“am terrified of being overweight”). The item with the

lowest percentage of pupils (0.9%, n=2) scoring above zero was item 9 (“vomit after I have eaten”).

The item with the highest mean score was item-12 (“think about burning up calories when I exercise”) (mean score 1.37, SD=1.24) followed by item-1 (“am terrified about being overweight”) (mean score 1.31, SD=1.28). The five items with the highest average scores are marked with an asterisk (\*) in Table 3.2. Mean scores and standard deviations for these data are quoted to 2 decimal places to allow comparisons to be made between means in a narrow range. The item with the lowest mean score was item 9 (“vomit after I have eaten”) (mean score 0.02, SD=0.19).

#### 3.1.2.5. Predictors of total EAT-26 scores

The following variables were entered as dependant variables to determine the best predictors of total score on EAT-26 and the best predictors of total score equal to or above 20:

- Currently trying to lose weight
- Regarding self as either slightly or very overweight
- Having dieted in the past year
- Having exercised in the past year
- Having used extreme methods for weight loss in the past year (purging, fasting or diet pill abuse)
- Age
- grade

Both Mallows CP and Forward Stepwise Regression select the same set of variables as the most efficient predictors of total score. These are as follows:

- Currently trying to lose weight. (p=0.04)
- Regarding self as overweight. (either slightly or very overweight) (p=0.0001)
- Having dieted in the past year. (p=0.001)
- Having used extreme methods for weight loss in the past year (fasting, purging, laxatives, diuretics or non-prescribed diet pill use). (p=0.00001)

All of the above predictors are significant at a 5% level. The p values noted above are derived from Mallows Cp. This model explains 30.8% of the variance.

**Table 3.2. Mean score for each item on the EAT-26**

<b>Item</b>	<b>Statement</b>	<b>Valid N</b>	<b>Mean</b>	<b>Std Dev</b>
1 *	<i>Am terrified about being overweight</i>	220	1.31	1.28
2	<i>Avoid eating when I am hungry</i>	220	0.05	0.26
3	<i>Find myself preoccupied with food.</i>	219	0.32	0.72
4	<i>Have gone on eating binges where I feel I may not be able to stop eating.</i>	220	0.20	0.59
5	<i>Cut my food into small pieces.</i>	220	0.24	0.65
6	<i>Aware of the calorie content of foods I eat.</i>	220	0.55	0.97
7	<i>Particularly avoid food with high carbohydrate content (bread, rice, potatoes, etc.).</i>	220	0.36	0.78
8	<i>Feel that others would prefer if I ate more.</i>	220	0.15	0.56
9	<i>Vomit after I have eaten.</i>	220	0.18	0.19
10	<i>Feel extremely guilty after eating.</i>	219	0.24	0.66
11 *	<i>Am preoccupied with a desire to be thinner</i>	220	0.93	1.21
12 *	<i>Think about burning up calories when I exercise</i>	220	1.37	1.24
13	<i>Other people think I am too thin.</i>	220	0.18	0.60
14 *	<i>Am preoccupied with the thought of having fat on my body.</i>	220	0.78	1.11
15	<i>Take longer than others to eat my meals.</i>	220	0.38	0.84
16	<i>Avoid foods with sugar in them.</i>	220	0.17	0.58
17	<i>Eat diet foods.</i>	219	0.59	0.97
18	<i>Feel that food controls my life.</i>	219	0.36	0.88
19 *	<i>Display self-control around food.</i>	220	0.81	1.07
20	<i>Feel that others pressure me to eat.</i>	220	0.08	0.40
21	<i>Give too much time and thought to food.</i>	220	0.43	0.90
22	<i>Feel uncomfortable after eating sweets.</i>	220	0.50	0.93
23	<i>Engage in dieting behaviour</i>	220	0.66	1.03
24	<i>Like my stomach to be empty</i>	220	0.27	0.76
25	<i>Have the impulse to vomit after meals.</i>	220	0.13	0.52
26 *	<i>Enjoy trying rich new foods.</i>	219	1.08	1.05



Logistic regression with a stepwise selection procedure selected the following to be the best possible predictors of a total EAT-26 score of equal to or above 20:

- Regarding self as overweight (either slightly or very overweight). (p=0.001)
- Having dieted in the past year. (p=0.03)
- Whether extreme methods for weight loss have been used.(p=0.0008)

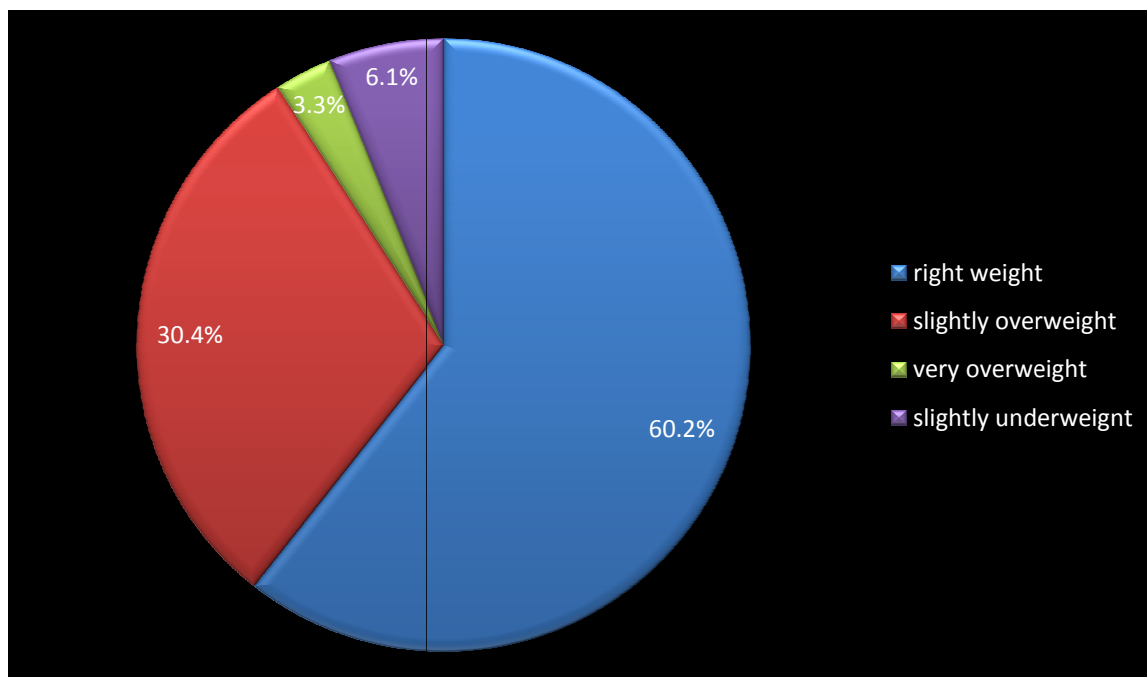
All of the above predictors are significant at the 5% level. Surprisingly, currently trying to lose weight was not selected, possibly because the finding is so common in the study population. The odds ratio estimates and relative risks are indicated in Table 3.3. Girls who view themselves as being overweight, are 3.47 times as likely to have an EAT-26 score equal to or greater to 20. Girls who have dieted or used extreme methods of weight loss are 3.21 and 3.91 respectively more likely to have EAT-26 scores equal to or above 20.

**Table 3.3. Odds Ratio Estimates and Relative Risk for EAT-26  $\geq$ 20**

Effect	Point Estimate	95% Wald Confidence Limits	Relative Risk
Either “very overweight” or “slightly overweight”	0.288	0.136 - 0.612	3.47
Dieted in past year	0.312	0.111- 0.880	3.21
Extreme weight loss behaviours	0.256	0.115- 0.566	3.91

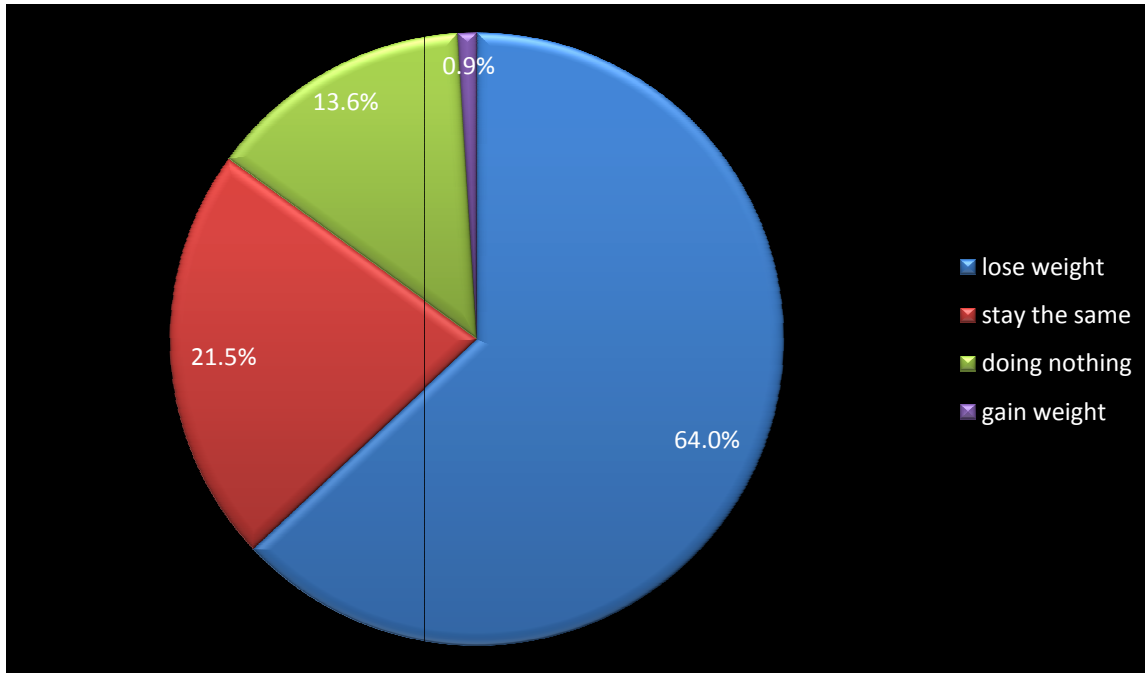
### 3.1.3. Weight Management Goals and Self-Perceived Weight

Two hundred and fourteen participants correctly completed the questions on weight management goals and self-perceived weight. Sixty point two percent (n=129) viewed themselves as being the right weight. Thirty point four percent (n=65) considered themselves to be slightly overweight, 3.3% (n=7) very overweight and 6.1% (n=13) slightly underweight. No subjects regarded themselves as being very underweight. These results are illustrated in figure 3.3. There were no significant differences between grades (p=0.24).



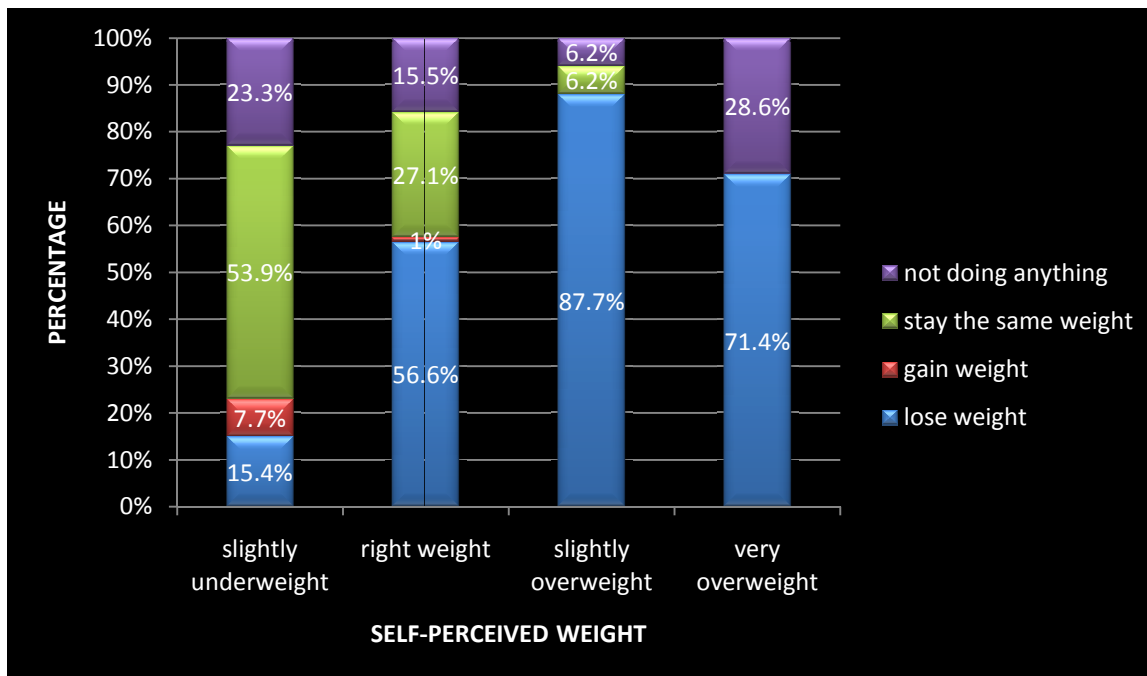
**Figure 3.3. Categorisation of Sample by Self-Perceived Weight**

Sixty four (64.0%,n=137) of participants were trying to lose weight at the time of the study, 21.5% (n=46) were trying to stay the same weight, 13.6% (n=29) were not trying to do anything about their weight and 0.9% (n=2) were trying to gain weight (figure 3.4). There was no significant difference between grades ( $p=0.38$ ).



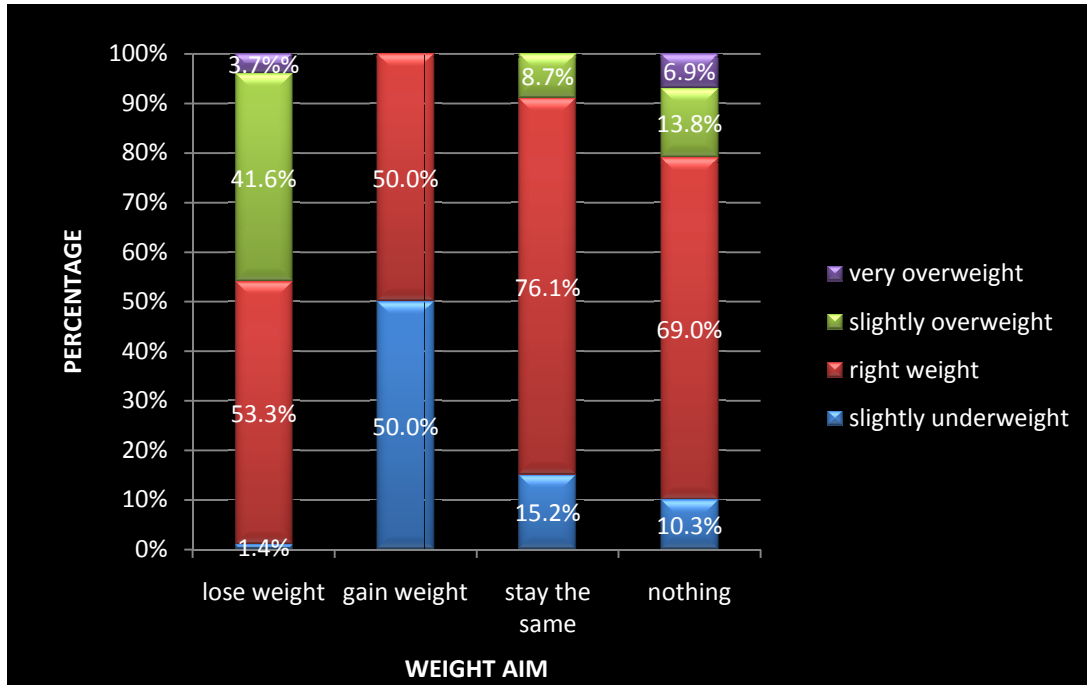
**Figure 3.4. Categorisation of Sample by Current Weight Management Goals**

The classification of subjects by self-perceived weight and current weight management goals are illustrated in figures 3.5 and 3.6. There are several observations which are of particular interest. The majority (56.6%, n=73) of girls who viewed themselves as being the right weight were currently trying to lose weight. Of the 13 girls who regarded themselves as being underweight, only one (7.7%) was trying to gain weight. The majority of girls in this category were either attempting to stay the same weight (53.9%; n=7) or were doing nothing about their weight (23.3%; n=3). Fifteen point four percent (n=2) were actually trying to lose weight. The proportion of girls currently trying to lose weight was highest in the group who regarded themselves as being slightly overweight (87.7%; n=57) and was higher in this group than in the group regarding themselves as being very overweight (71.4%; n=5). The girls who viewed themselves as being very overweight were 4.83 times more likely to be doing nothing about their weight than the girls who viewed themselves as being slightly overweight.



**Figure 3.5. Current weight management aims in subjects with varying self-perceptions of body weight**

Of the girls currently trying to lose weight, the majority (53.3%; n=73) viewed themselves as being the right weight. Only 3.7% (n=5) regarded themselves as being very overweight (figure 3.6).



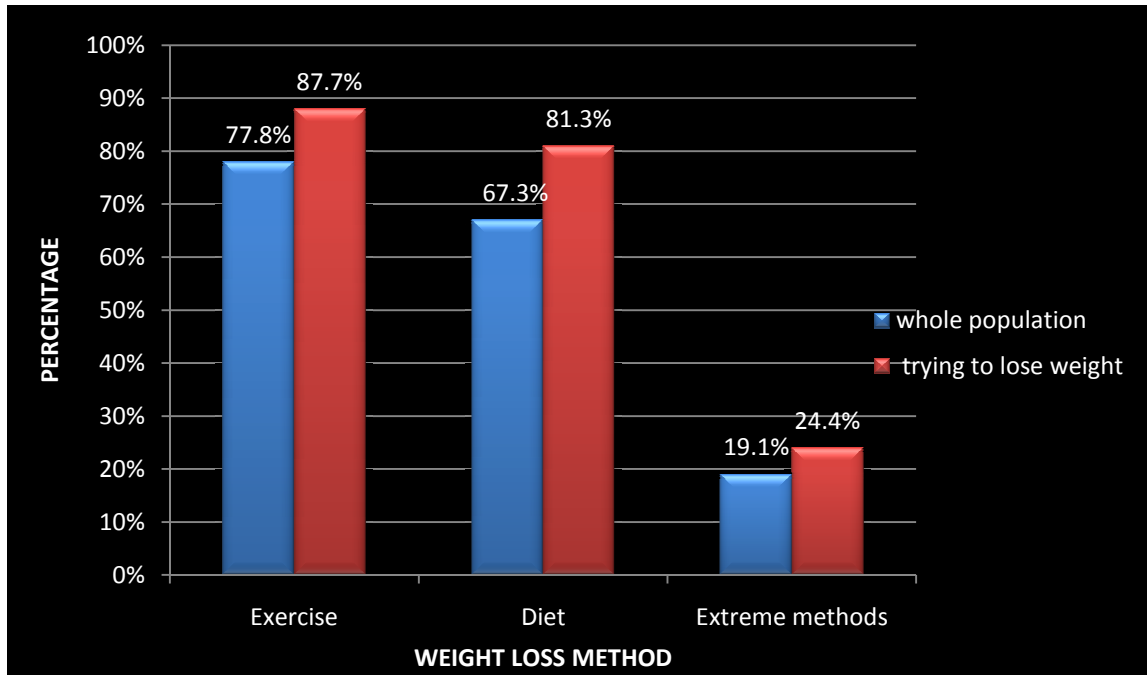
**Figure 3.6. Self-perception of body weight in subjects with varying current weight management goals.**

#### 3.1.4. Weight Management Strategies within the 12 months preceding the Study

The most commonly used weight management strategy was exercise (77.8%; n=171) followed by diet (67.3%; n=148), fasting (10.0%; n=22), purging (8.6%; n=19) and non-prescribed medication (6.8%; n=15). Nineteen point one percent of subjects (n=42) used one of the extreme methods of weight loss (fasting, purging or non-prescribed medication) (Figure 3.7). There were no significant differences between grades in terms of methods of weight loss used. P values derived when comparisons were made between grades were 0.27, 0.47 and 0.29 for exercise, diet, and extreme methods of weight loss respectively.

Of the group currently trying to lose weight, 87.7% (n=122) have exercised, 81.3% (n=113) have dieted and 24.4% (n=34) have used extreme methods of weight loss (one or more of fasting,

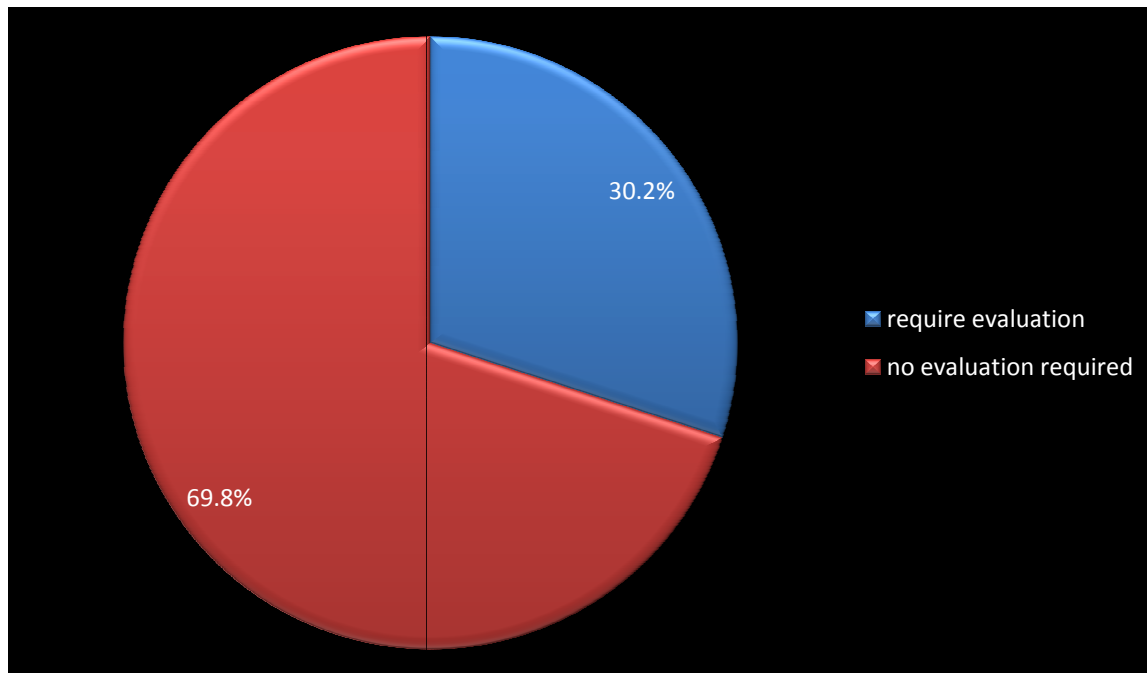
purging or weight-loss drugs) (Figure 3.7). Twenty seven point 3 percent (n=38) of girls in this group have EAT-26 scores of equal to or above 20.



**Figure 3.7. Weight management strategies in the past 12 months for the whole population and for the subgroup currently trying to lose weight (Extreme methods=fasting, purging or non-prescribed medication)**

### 3.1.5. Require Evaluation by Health Care Professional

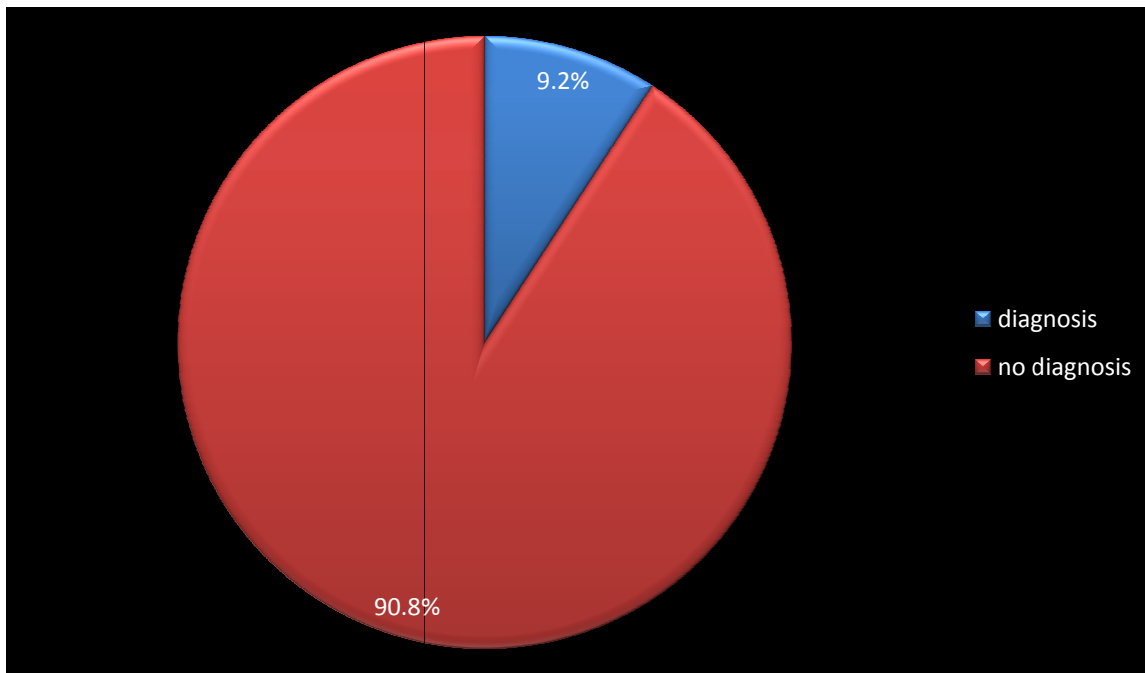
Girls who require evaluation by a health care professional for a potential eating disorder were defined as either having an EAT-26 score  $\geq 20$  or having engaged in one or more of the extreme methods of weight loss (fasting, purging or drugs) in the past year. Thirty point two percent of girls in the school (n=65 out of the 215 girls for whom questionnaires were complete for the relevant sections) were found to require evaluation for a potential eating disorder (Figure 3.8). Grades did not vary significantly with respect to this variable (p=0.80).



**Figure 3.8.** Percentage of girls who require evaluation for a potential eating disorder

### 3.1.6. Eating Disorder Diagnosis

Four point one percent (n=9) of the sample reported having previously being diagnosed as having an eating disorder. The difference between grades was not significant (p=0.051). Of the girls requiring evaluation by a health care professional as defined above, only 9.2% (n=6) reported having previously being diagnosed as having an eating disorder (Figure 3.9).



**Figure 3.9. Percentage of pupils requiring evaluation with previous diagnosis of eating disorder**

## 3.2. TEACHERS' QUESTIONNAIRE

### 3.2.1. Participant Characteristics

Thirty-eight teachers participated in the study out of a total of 73 in the school. The participation rate was 52.1%. Two social workers completed the teacher's questionnaire and were excluded because they were involved only in counselling and not in teaching. The majority (71.1%, n=27) were women and 63.2% (n=24) identified themselves as belonging to the Jewish faith. Forty-seven point four percent (n=18) taught grade 8, 57.9% (n=22) grade 9, 76.3% (n=29) grade 10, 63.2% (n=24) grade 11 and 60.5% (n=23) grade 12. Thirty-four point two percent (n=13) of



participants taught a language, 21.1% (n=8) a science subject, 21.1% (n=8) humanities, 13.2% (n=5) finance or technology and 21.1% (n=8) taught subjects other than those that appear in this classification. The ages of participants ranged between 24 and 76 years with a mean age of 44.6 (SD=14.23). The minimum total time participants had worked as a teacher was less than 1 year and the maximum 45 years. The mean time teaching was 18.0 years (SD=13.57). The maximum amount of time spent teaching at this specific school was 32 years and the mean was 9.7 years (SD=9.66). More than half (55.3%, n=21) of the participants had taught in the school for five years or less.

### 3.2.2. Teachers' Estimates

#### 3.2.2.1. Comparison between teachers' estimates and pupils' values (Table 3.5)

The mean teachers' estimates were significantly higher than the percentage calculated from student's self-report questionnaires for the percentage of girls who:

- Had been previously diagnosed as having an eating disorder (over-estimated by 76.3% n=29, of teachers) (p=0.0002)
- Believe that they are overweight (over-estimated by 63.2%, n=24 of teachers) (p=0.001)

The mean teachers' estimate was significantly lower than the percentage calculated from the students' questionnaire of girls who:

- Had dieted in the past year to lose weight or to keep from gaining weight (underestimated by 73.7%, n=28 of teachers) (p=0.0002)
- Had exercised in the past year to lose weight or to keep from gaining weight (underestimated by 84.2%, n=32 of teachers) (p=0.000008)
- Were currently trying to lose weight (underestimated by 71.1%, n=27 of teachers) (p=0.005)
- Require evaluation by a health care professional for a potential eating disorder (underestimated by 81.6% n=31 of teachers) (p=0.000000)

**Table 3.4. Comparison between teachers' estimates and results calculated from pupils' questionnaire.**

	Pupil report	Teachers Estimates			P values	
	Pupil's questionnaire results (%)	N (valid)	Mean (%)	SD		Range
Diagnosed with eating disorder	4.1%	35	11.5%	12.53	2-50	0.0002
Have used extreme methods over the past year	19.1%	34	25.9%	19.55	2-70	0.05
Believe that they are overweight	33.7%	36	49.2%	27.52	5-90	0.001
Are currently trying to lose weight	64.0%	37	52.3%	22.24	10-90	0.005
Have dieted in the past year to lose weight or to keep from gaining weight	67.3%	37	49.7%	25.09	8-100	0.0002
Have exercised in the past year to lose weight or to keep from gaining weight	77.8%	36	46.7%	23.30	5-80	0.000008
Should be evaluated by a health care professional for a potential eating disorder	30.25%	36	16.1%	13.72	1-50	0.000000

### 3.2.2.2. Predictors of accuracy of estimates

The difference between teachers' estimates and results from pupils' questionnaires was used as an indication of the accuracy of teachers' predictions. The predictive value of the following variables was determined using adjusted R-square, Mallows cp and Forward Stepwise Regression:

- Gender
- Religion
- Age

- Total teaching time
- Teaching time at the school

Only total teaching time yielded significant results. A longer teaching time predicted a greater accuracy in predicting the following:

- Percentage of pupils who regard themselves as being overweight ( $p=0.002$ )
- Percentage of pupils who are currently trying to lose weight ( $p=0.003$ )
- Percentage of pupils who have dieted in the past year ( $p=0.001$ )
- Percentage of pupils who have exercised in the past year ( $p=0.002$ )
- Percentage of pupils who have used extreme methods in the past year ( $p=0.02$ )

### 3.2.2.3. Prediction of size of teachers' estimates

The predictive value of the same variables using the same statistical methods as above was evaluated for the size of teacher's estimates. Females gave higher estimates for the following:

- Percentage of girls who believe that they are overweight ( $p=0.046$ )
- Percentage of girls who had exercised in the past year to lose weight or to keep from gaining weight ( $p=0.04$ )
- Percentage of girls who had used extreme measures in the past year ( $p=0.049$ )

The  $p$  values indicate borderline significance which should be interpreted with caution.

Teachers with less total teaching time gave higher estimates for the following:

- Percentage of girls who considered themselves to be overweight ( $p=0.04$ )
- Percentage of girls currently trying to lose weight ( $p=0.009$ )
- Percentage of girls who had dieted in the past year to lose weight or to keep from gaining weight ( $p=0.001$ )

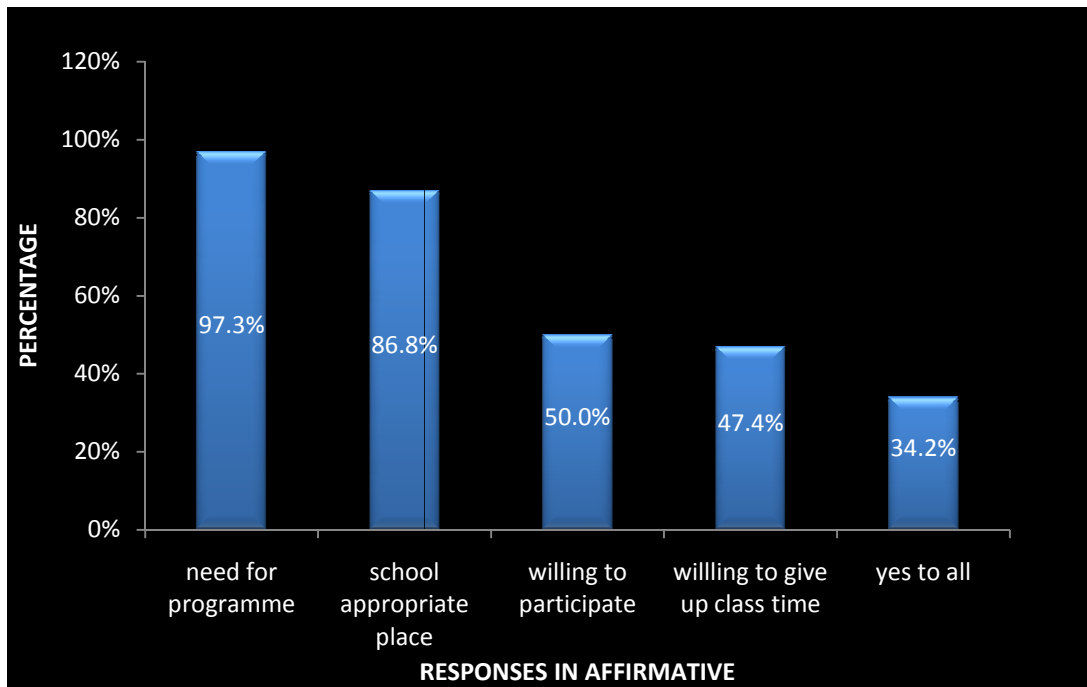
Younger teachers gave higher estimates for the percentage of girls who had exercised to lose weight or to keep from gaining weight in the past year ( $p=0.01$ ). Jewish teachers gave higher estimates for the percentage of pupils who had dieted in the past year to lose weight or to keep

from gaining weight ( $p=0.048$ ). This finding is of borderline significance and should be interpreted with caution. No other findings reached statistical significant levels.

### 3.2.3. Teachers' Attitudes to Preventative Programmes (Figure 3.10)

Almost all teachers (97.3%,  $n=37$ ) recognised the need to prevent or address eating attitudes of girls attending the school in grades 8 to 11. Most teachers (86.8%,  $n=33$ ) also considered the school to be an appropriate place for this. However, only half (50.0%,  $n=19$ ) indicated that they would be willing to participate in such programmes and even fewer (47.4%,  $n=18$ ) were willing to give up class times to facilitate a programme. Only 34.2% ( $n=13$ ) of teachers answered yes to all four questions for this section of the questionnaire.

There were no statistically significant differences between male and female teachers regarding the above variables. This may be attributable to the small sample size.



**Figure 3.10. Teachers' attitudes towards school programme**

Neither gender, age, total years teaching nor the years spent teaching at the school were found to significantly predict the answers to questions relating to attitudes. Again, this may relate to the small sample size and the wide confidence intervals.

#### 3.2.4. Relationship between Teachers' Attitudes and Estimates

No significant relationship was found between the size of neither teachers' estimates nor their accuracy and their answers to questions about the need for a preventative programme, the perception of the school as an appropriate place, willingness to participate and willingness to give up class time. It is possible that this may relate to the small sample size and the large confidence intervals observed.

**CHAPTER 4**  
**DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

#### 4.1. INTRODUCTION

This is the first published study to document the presence of abnormal eating attitudes in South African Jewish adolescent girls. This group is of interest as international studies suggest that Jewish girls and women may be at increased risk of developing eating disorders.<sup>10-12</sup> The school selected provides a setting for exploring school teachers' awareness of disordered eating attitudes and behaviour and their attitudes towards implementing programmes in the school to address these. There is a paucity of literature available on this subject.

#### 4.2. COMPARISON TO PRIOR STUDIES

The mean EAT-26 score of subjects in our sample was 12.1 and 20.0% of subjects scored at or above the threshold of 20. These results fall within the upper range of the spectrum of results of studies previously conducted locally and internationally. Comparisons with previously conducted studies need to bear in mind that our study did not include the grade 12 class.

##### 4.2.1. International Studies

The mean EAT-26 score and the percentage of girls scoring  $\geq 20$  in this study are higher than the rates reported by The National Eating Disorders Screening Program (mean 9.5, prevalence 14.7% for white adolescent girls) which coordinated the first-ever nationwide eating disorders screening initiative for high schools in the United States.<sup>97</sup> Twenty five percent of girls in the American study and the same percentage of white girls in the sample reported having symptoms of disordered eating as opposed to thirty percent of girls in the current study. However, in the American study, the definitions for disordered eating behaviours differed from those used in this study such that a direct comparison may not be valid. Early studies quoted lower prevalence figures in the United Kingdom e.g. 6.9%.<sup>99</sup> However, a later study produced results which are similar to those from North American studies (18.6%). The prevalence of abnormal eating attitudes have been documented in non-Western countries such as Japan (6.5% of adolescent girls)<sup>95</sup> and the Phillipines (15.0% of adolescent females).<sup>90</sup>

##### 4.2.2. South African Studies

Table 4.1 compares the setting and results of the current study to four South African studies previously conducted using the EAT-26. Methodological issues make direct comparison of EAT-26 scores difficult. The study by Le Grange et al.<sup>53</sup> differed from the other studies in that the sample included both males and females. Since girls are more commonly affected by eating disorders,<sup>1</sup> it is not surprising that the proportion of subjects in this group scoring at or above the cut-off of 20 on the EAT-26 was the lowest recorded (14%). The prevalence is not quoted separately for males and females. The mean EAT-26 score for the whole sample is not reported. However, the mean EAT-26 score for the white adolescent subset of the sample (13.8) is higher than that of white adolescents in the other studies. This is difficult to interpret. It may relate to the method of obtaining consent in this study. It appears that parents were required to respond only if they declined participation i.e. those who did not respond were considered to have consented.

In the study by Szabo and Hollands,<sup>6</sup> mean EAT-26 score increased with increasing grade. In our study, mean EAT-26 score was associated with grade (but not with age). However, the linear relationship observed in the aforementioned study was not evident. It is difficult to explain the finding that grades 9 and 11 had higher mean EAT-26 scores than grades 8 and 10. In view of the fact that the association between grade and mean EAT-26 score was of borderline significance and that grade was not found to predict EAT-26 score when entered into a regression, a cautious approach to interpretation of these findings is warranted and conclusions regarding this finding will not be drawn.



**Table 4.1. Comparison between the current study and four studies previously conducted in South Africa**

Author and date	Current study 2010	Szabo & Hollands 1997 <sup>6</sup>	Cadaras et al 2000 <sup>9</sup>	Szabo and Allwood 2004 <sup>8</sup>	Le Grange et al 2006 <sup>53</sup>
<b>Setting</b>	Co-educational Jewish high school in Johannesburg	Racially diverse private school Johannesburg	Five state-owned secondary schools in greater Cape Town area	3 multiracial, girls-only schools in Johannesburg	Male and female students at 4 South African high schools and undergraduate social science students in Cape Town)
<b>Response rates</b>	85%	76%	88%	86%	Almost 100%
<b>Sample size</b>	220	213	228	1353	895
<b>Gender</b>	F	F	F	F	M & F
<b>Grades</b>	8-11	8-12	10-12	*	*
<b>Mean age</b>	15.68 (SD=1.2)	14.7 (SD=1.4)	*	*	17.2 (1.7) For adolescent subset 16.3 (SD=0.7)
<b>Mean EAT-26 score</b>	T:12.1 (SD=11.2)	T:11.7(SD=11.4) W:11.5(SD=11.6) B:16.2(SD=10.5)	T:12.2(SD=12.6) W:12.5(SD=11.6) B:11.7(SD=10.8) Mixed race: 11.5 (SD=11.2)	T: * W:12.3(SD=10.2) B:12.5(SD=9.0)	T: * W adolescent: 13.8 (SD=10.8) B adolescent 12.3 (SD=7.7) M adolescent: 9.0 (SD=7.9)
<b>% with EAT&gt;=20</b>	20.0%	T: 21.6% W:20.7% B:37.5%	T:18.8% W: 21.2% B: 17.9% M:17.1%	T: * W:18.6% B:18.7%	T: 14% W: * B: *
<b>Bulimia subscale mean</b>	2.4 (2.8)	*	*	W: 1.3(2.6) B:1.6(2.4)	*
<b>Dieting subscale mean</b>	7.9(8.5)	*	*	W:8.5(7.9) B: 7.7(6.8)	*
<b>Oral control subscale mean</b>	1.9(2.2)	*	*	W:3.8(5.8) B:3.2(3.0)	*

\* = not quoted; B= Black; W= White; M= mixed race; T= total  
M=male; F=female      =white adolescents

#### 4.2.3. Comparison with other Studies of Jewish Adolescents

Two recent studies conducted in Jewish adolescent samples have used the EAT-26.<sup>12,67</sup> The results of these studies are compared to the current study in table 4.2. The Jewish girls in the Canadian study<sup>12</sup> scored significantly higher on the EAT-26 (mean 13.5, SD=8.8) than their non-Jewish counterparts (mean 11.9, SD=8.3). Twenty five percent of Jewish females scored at or above the cut-off of 20 as opposed to 18% of non-Jewish females. When our results are compared to those of white adolescent females in the South African studies cited above, this effect is not noted. It is important to bear in mind, however, that our study did not include a non-Jewish comparison group. Direct comparisons between this study and the other South African studies may not yield accurate results due to subtle differences in the execution of the studies. The results of our study are similar to those of an Israeli study<sup>67</sup> in which a prevalence of 19.5% of EAT-26 scores at or above threshold is reported.

**Table 4.2. Comparison between the current study and two others which have used the EAT-26 in Jewish adolescents.**

	Current Study	Latzer et al <sup>67</sup>	Pinhas et al <sup>12</sup>
<b>Year</b>	2010	2005	2008
<b>Country</b>	South Africa	Israel	Canada
<b>Setting</b>	Traditional School in urban area	Five different middle and high schools in five different residential areas	Toronto high school students
<b>Gender</b>	F	F	M & F
<b>Response rate</b>	84%	*	82%
<b>Participant numbers</b>	220	1270	T: 1868 M: 1145 F: 1130
<b>Written consent from parents</b>	Yes	*	*
<b>Grades</b>	8-11	*	*
<b>Age range</b>	13-19 Mean 15.68	12-18	13-20
<b>Mean EAT-26 score</b>	12.3(11.2)	For different groups ranged from 10.2(7.8)-15.9(10.2)	JF: 13.5 (8.8) NJF:11.9(8.3) JM: 8.9(8.7) NJM: 9.1(8.4)
<b>% with EAT-26&gt;=20</b>	20.0%	19.5%	J F: 25% NJ F:18%JM:*NJM:*
<b>Bulimia subscale mean</b>	2.4 (2.8)	1.0(1.0)-3.4(3.1)	JF: 2.1 (2.6) NJF: 1.6 (2.5) JM: 1.8 (0.1) NJM:1.7 (0.1)
<b>Dieting subscale mean</b>	7.9(8.5)	For different groups ranged from 6.3(6.3) – 8.2(6.0)	JF:8.5(6.1) NJF:6.6(5.1) JM:4.4(5.2) NJM:4.1(5.0)
<b>Oral control subscale mean</b>	1.9(2.2)	3.0(2.7)-4.1(3.1)	JF:3.5(3.4) NJF:3.9(3.2) JM:3.1(0.2) NJM:3.5(0.2)

T= Total      F= Female      M=male      J=Jewish      NJ=non-Jewish

\* = not reported      JF = Jewish females

There are no published studies of eating attitudes in the Ultra-Orthodox group in South Africa, Israel or in any other country. The author originally set out to compare eating attitudes in girls

belonging to the different Jewish religious subgroups. This was of interest to the author as there are several key differences in lifestyle and to exposure to the media and secular culture between the groups which are relevant to eating attitudes. The original study was abandoned as principals of the Ultra-Orthodox schools were unwilling to participate in the study in a form which was acceptable from a methodological point of view. School authorities were concerned that exposing girls to the questionnaire could have negative consequences. This is in keeping with the philosophy of this group which views exposure to certain aspects of secular culture as potentially spiritually harmful. There does, however, appear to be recognition by members of this group that Ultra-Orthodox girls are not immune to developing eating disorders. This is illustrated by the following quote from a recent edition of a magazine for Ultra-Orthodox readers: “To our collective horror, more than a few of our precious young women fell prey to this obsession (with thinness)... the disease (AN) has spread into our culture.”<sup>11</sup> The same edition contains an advertisement for the “Relief” organisation, a service providing support for Orthodox individuals suffering from mental illness including eating disorder, boldly displaying the slogan “Eating disorders are not a game”.<sup>11</sup> It appears that although there is an awareness of the disorder in this community and facilities for its treatment are available, there appears to be resistance to participating in research. This may be an obstacle to understanding and thus addressing eating disorders in this group.

#### 4.3. INDIVIDUAL ITEMS ON THE EAT-26

Examination of scores for individual items of the EAT-26 revealed high rates of eating- and weight- related concerns even if subjects did not reach the cut-off score of 20. Almost two thirds of subjects reported, “often”, “usually” or “always” thinking about burning up calories when exercising. This indicates that exercising in this group is more often than not done with at least some focus on its potential to promote weight loss. An awareness of this may help parents and teachers detect early and concealed weight loss attempts in normal weight adolescents.

#### 4.4. PREDICTORS OF TOTAL EAT-26 SCORES

It is to be expected that subjects with behavioural manifestations of disordered eating are identified by the EAT-26 as having potential eating disorders. It is thus not surprising that having

engaged in an extreme weight loss behaviour in the past year was found to be a significant predictor of total EAT-26 score and of an EAT-26 score  $\geq 20$ . The finding that regarding self as overweight predicted total score and score  $\geq 20$  is in keeping with previous reports that the perception of being overweight- rather than actually being overweight- correlates with eating problems in adolescence.<sup>101</sup> Girls who had dieted in the preceding year were more than 3 times more likely to score above the cut-off. This is in keeping with longitudinal studies implicating dieting in the development of eating disorders.<sup>28</sup> It also provides support for the suggestion that dieting in adolescence should be regarded as a risk-taking behaviour.<sup>32</sup> The wording in our questionnaire (taken from the US YRBS) also included girls who had used diet to keep from gaining rather than to actually lose weight. Girls who had dieted in order to actively lose weight may be even more likely to have scores  $\geq 20$ . Girls who believed that they were overweight and had dieted in the past year were more than four times more likely to have EAT-26 scores  $\geq 20$  than those with one or both negative. There were no subjects who neither believed that they were overweight nor had dieted in the past year that scored  $\geq 20$ . This means that the finding of either statement being positive is a highly sensitive- but not very specific- indicator of the need for referral for evaluation. Larger studies in other settings would be necessary to determine whether these findings are generalisable.

The above findings are relevant to the early detection of girls at risk of developing eating disorders. Parents and teachers should be made aware that girls engaging in extreme methods of weight control require attention and that those who express a concern that they are overweight or who have used diet as a method to control their weight in the past year should also be carefully observed for the development of more severe symptoms.

#### 4.5. SELF-PERCEPTION OF WEIGHT AND CURRENT AIMS OF WEIGHT MANAGEMENT

Dieting in adolescence is common.<sup>13,102,103</sup> In the current study, almost two thirds (64.0%) of girls reported trying to lose weight at the time of the study and more than two thirds (67.3%) had used diet as a means of weight control in the year preceding the study. These results are in keeping with prior reports that 33-66% of teenage girls are on diet at any point in time.<sup>13,103</sup> A

further 21.5% of subjects were trying to maintain their weight. Only 13.6% were not actively involved in trying to control their weight.

Prior reports that most adolescent dieters are of normal weight<sup>104</sup> are borne out by the finding in this study that most (53.3%) of girls currently trying to lose weight regarded themselves as being the right weight. Because BMI was not measured in this study, it is not possible to comment on whether the pupils' self-categorisations of weight were accurate. In the context of a Western culture which promotes the "thin ideal", it is conceivable that some pupils who regarded themselves as being overweight were actually within the normal range of weight for age and height. Given this, it is possible that an even greater percentage of girls of an objectively measured normal weight were attempting weight loss than was estimated by the study. This is concerning given that dieters of normal body weight have been found to be eight times more common to develop an eating disorder than their non-dieting counterparts.<sup>102</sup>

It has been noted that women who have developed cognitive schemas that associate being underweight with positive attributes report higher eating disorder symptoms.<sup>105</sup> In this study population, being underweight rather than being the right weight, appears to be viewed by many subjects as being desirable. This is suggested by the following findings: The majority (56.6%) of girls who viewed themselves as being the right weight were currently trying to lose weight. Only a small proportion (7.7%) of girls who regarded themselves as being underweight was trying to gain weight. Most (82.0%) were satisfied to remain at this weight by either doing nothing about their weight or by actively trying to maintain it. Fifteen point four percent of girls who viewed themselves as underweight were actively trying to lose weight. This suggests that the societal and media ideals promoting "ultra-thinness" as a desirable trait may have been internalised by many girls in this high school. This echoes the observation of a school effect<sup>9</sup> for eating attitudes and body shape concerns. The aforementioned authors hypothesise that the existence of a school culture may create an environment in which peer influences potentiate or protect against the development of eating disorder pathology.<sup>9</sup>

In light of the above it appears that that simply making high school girls aware that their weight is normal or below that expected for age and height is not likely to be sufficient to reduce inappropriate weight control behaviours. A shift in body shape preference may be required. The enormous societal pressure to be thin, often conveyed by media images of underweight models makes this a most challenging task.

As may be expected, the percentage of girls trying to lose weight was higher in the group who considered themselves to be slightly overweight (87.7%) than in the group who regarded themselves as being the right weight (56.6%). It was surprising, however, that a smaller proportion (71.4%) of girls in the group who viewed themselves as being very overweight were trying to lose weight than in the group regarding themselves as being slightly overweight. It is conceivable that some girls who consider themselves to be very overweight may despair of achieving the “thin ideal” espoused by the culture prevalent in their environment and may thus not even attempt weight reduction. These findings are of relevance to the current obesity epidemic locally and internationally.

#### 4.6. PREVALENCE OF GIRLS REQUIRING CLINICAL EVALUATION FOR A POTENTIAL EATING DISORDER

Almost one in three girls in the school (30.2%) in this study was found to require evaluation for a potential eating disorder based on the EAT-26 and the presence of extreme weight loss behaviours. Of these only 9.2% reported having ever being diagnosed with an eating disorder. These results are similar to those of the US National Eating disorders screening programme which found that 83%-86% of girls with symptoms of abnormal eating had not received treatment.<sup>97</sup> These findings are noteworthy since it has been shown that a shorter period between symptom onset and start of treatment may improve prognosis for recovery from AN<sup>106</sup> and BN<sup>107</sup>. Detection and early referral for treatment of individuals at risk should thus be a priority. The denial and secrecy which often accompany eating disorders are obstacles.

#### 4.7. COMPARISON BETWEEN TEACHERS' ESTIMATES AND PREVALENCE CALCULATED FROM PUPILS' QUESTIONNAIRES.

Comparisons between mean teachers' estimates and the rates calculated from the pupils' questionnaire should bear in mind that the latter may well underestimate true prevalence rates. Two effects may be responsible for this. The first is response bias. Pupils who have difficulties related to eating and/or body weight may have found the subject matter of the study threatening and may thus have been reluctant to participate. The second is underreporting which has been acknowledged by the developers of the EAT to be a limitation of this instrument.<sup>81</sup> Where teachers' estimates exceed the calculated results for pupils, it is possible that this effect would be reduced or even reversed if the effects described above could be eliminated. In contrast, where teachers' estimates are below the calculated prevalence rates, this would actually be more marked if the effects of underreporting and participation bias could be eliminated. This is likely to represent a true underestimation of the situation by teachers. Teachers were found to underestimate the percentage of pupils who were currently trying to lose weight, had exercised or dieted in the past year to control weight and required evaluation by a health care professional for a potential eating disorder. This indicates that teachers are not fully aware of the extent to which pupils at the school engage in weight loss behaviours. They are also not fully aware of how wide spread disordered eating attitudes and behaviours are at the school and of the need for referrals to health care professionals. Educating teachers around these issues may be of value.

#### 4.8. PREDICTORS OF TEACHERS' ESTIMATES

The difference between teachers' mean estimates and the results of pupils' questionnaire cannot be regarded as a direct indicator of teachers' accuracy. This is because results of the pupils' questionnaires are likely to represent an underestimation of true prevalence rates (see 4.7). Although having a longer teaching time predicted a smaller difference between teachers' response and the results of the pupils' questionnaire for certain variables, this result should be interpreted with caution.

Being female, Jewish, younger and having had a shorter duration of total teaching time predicted higher estimates for some of the variables studied. If one considers that the pupil's arm of the study may under-represent the true prevalence for the reasons previously discussed, these teachers' estimates may in fact be closer to the reality of the situation than that of other teachers.



This is plausible as the teachers defined by the above characteristics represent a group who are likely to be affected by eating-related issues themselves. They are also most similar to the pupils in terms of their age, gender and religion and may thus have more insight into the issues facing pupils. However, such interpretations should be regarded as tentative at best for the reasons cited above.

#### 4.9. TEACHERS' ATTITUDES

As discussed in Chapter 1, an ecological approach to the prevention of eating disorders has been proposed as a means of producing longer-lasting results.<sup>16</sup> This approach involves the entire school community. In order for such an approach to be effective, teachers must be agreeable to participate in a programme and may need to give up class time. There is a paucity of research investigating teachers' attitudes towards and willingness to participate in such programmes.

In the current study almost all teachers were aware of the need to address and/or prevent abnormal eating attitudes and/or behaviours in girls attending the school. The school was also regarded by the vast majority of teachers as the appropriate place for this. In contrast, only half of teachers would be willing to participate in a programme if they were taught the necessary skills and even fewer to give up class time. Almost two thirds of teachers answered "no" to at least one statement relating to the aforementioned factors. These findings echo the observation made by Mc Vey et al.<sup>78</sup> that teachers' engagement in their study was not optimal. The size of teachers' estimates did not predict their willingness to participate or to give up class times. These findings suggest that although awareness of the problem and of its need to be addressed is necessary, it does not appear to be sufficient to obtain teachers' cooperation. There appear to be other barriers. One possible explanation for the reluctance to give up class time could be that teachers are under pressure to complete the syllabus in the allocated time. A qualitative investigation of this subject using focus groups and individual interviews could yield valuable information. This should explore underlying issues and promote the generation of potential solutions. Practical steps such as the restructuring of timetables may be useful to reduce the infringement of a preventative programme on class time.

#### 4.10. LIMITATIONS

The following possible limitations are acknowledged for the current study:

##### 4.10.1. Lack of Generalisability

The study was conducted at the largest traditional Jewish High School in South Africa. Although it is likely to be the case, it cannot be assumed that the findings are generalisable to other South African traditional Jewish schools. Moreover, the findings are not generalisable to other sectors of the Jewish community i.e. the “Chareidi” (Ultra-Orthodox), “Mizrachi” (Modern Orthodox) or “Chabad” (Lubavitch) groups. No boys were included in the study and thus no comment can be made on this group.

##### 4.10.2. Selection Bias

The initial protocol included all grades in the high school (i.e. grades 8 to 12). However, changes in the grade 12 exam timetable resulted in the school being unwilling for this grade to participate. The final study thus excluded girls in this grade. Szabo and Hollands<sup>6</sup> noted that the prevalence of abnormal eating attitudes increased with increasing grade. Although this was not the case in our study, it is possible that the overall prevalence rates may have been affected by exclusion of this group. The exclusion may also affect the validity of comparisons made between this study and studies that included all grades.

##### 4.10.3. Possible Underestimation of True Prevalence Rates

The prevalence rates calculated from the pupils’ questionnaire may be lower than the actual prevalence rates in the study population because of response bias and underreporting. Anonymous questionnaires and assurances of confidentiality were used in order to minimise underreporting.

##### 4.10.4. Prevalence of Eating disorders not Calculated

Because questionnaires were anonymous, no follow up interviews could be undertaken of pupils with EAT-26 scores suggestive of an eating disorder. Thus the prevalence rates for eating disturbances meeting criteria for the diagnosis of an eating disorder could not be determined.

#### 4.10.5. No Measurements of Weight and Height

Logistic and other considerations precluded measurement of height and weight. The school was not willing to allow the researcher to spend more than 10 – 15 minutes in total in each class. This time was sufficient only to perform the questionnaire in its current form. It was not possible to take anthropometrical measurements or to include dietary methodology.

Even had there been a way to overcome this, there were other compelling reasons not to take anthropometric measurements. Weighing pupils in a group setting – even if facilities for privacy were made available- may have resulted in comparisons being made by pupils with their peers. The emotional consequences of this may have resulted in negativity towards the research among pupils, parents and school staff. This may have resulted in rejection of the current and potential future research or interventions.

The above should be viewed in light of the fact that the researcher herself belongs to the Johannesburg Jewish community. She thus has insight into the emotional and social milieu thereof and is in a good position to assess the probable response to the study. In addition, in-depth discussions with staff members confirmed the researcher's assessment. This is a highly sensitive population where parents often demonstrate extreme concern for their children's wellbeing which in the researcher's general experience is in excess of that found in the general population. Extrapolation from the expected response of the general population cannot be made to this population. The researcher believes that the taking of these measurements would have resulted in a strongly negative response from both parents and pupils. There is a strong possibility that the study would have had to be abandoned midway because of objections by staff members and the school principal to the upset caused in the school community. This is supported by the fact that even in the form in which the study was conducted there were complaints from parents that the study should not be conducted at all ( not merely that their child should not participate), that it would "put ideas into the girls minds".

The alternative of using self-reported weight and height was considered but rejected as the validity of these measurements in this group is unknown and thus any conclusions drawn would

be at best tentative. As a consequence, BMI was not calculated. No comment could thus be made on the accuracy of pupils' assessment of their own body weight or of the appropriateness of attempts at weight loss. Comparisons between other studies in terms of BMI could not be made.

#### 4.10.6. No attempt made to identify exercise used as a compensatory behaviour

Exercise is recognised by DSM IV<sup>17</sup> as type of compensatory behaviour used in BN( non-purging type). The information elicited from the questionnaire was not sufficiently detailed in terms of the quality and quantity of the exercise or of its relationship to bingeing episodes to determine whether it represented a compensatory behaviour or not.

#### 4.10.7. Cross-sectional Study

Because of the cross sectional nature of the study, no inferences about the direction of associations could be made. This study cannot determine, for example whether attempts at weight loss in the past year and believing self to be overweight actually predispose to the development of abnormal eating attitudes or are simply symptoms of such attitudes.

#### 4.10.8. Limitations relevant to teachers' questionnaire

Since the study was conducted at only one school and the response rate was only, the sample size was small. The low response rate may be attributable to one or more of the following factors:

- Poor attendance at the staff meeting. The number of teachers attending the meeting should have been noted by the researcher but was not.
- a lack of interest of teachers in the subject matter.
- a lack of knowledge of the subject matter.
- a reluctance to address this sensitive topic.
- general reluctance of teachers to participate to participate in any non-compulsory activity

This affected the power of statistical analysis and actual relationships between variables may not have been detected. Respondent bias may be a factor as it is conceivable that teachers who participated were more aware of and concerned about the topic of the study than those who did not. For reasons previously discussed (section 4.7) the difference between teachers' estimates and values calculated from the pupils' questionnaire may be misleading if used as a direct

measure of accuracy of teachers' estimates. This has been taken into account in the interpretation of the results.

The study brings certain issues regarding teachers' attitudes to light. However, the quantitative approach is not appropriate for obtaining an in-depth insight into the meaning of these. Further qualitative investigations are necessary if the underlying reasons for and processes underlying teachers' attitudes are to be understood. This study does not investigate attitudes of parents and pupils to preventative programme. Both would be relevant in the consideration of a preventative programme.

#### 4.11. CONCLUSION AND RECOMMENDATIONS

This study documents the presence of abnormal eating attitudes and weight loss behaviours in South African Jewish female adolescents. The prevalence of abnormal eating attitudes as measured by the EAT-26 falls within the upper range of similar studies conducted locally and internationally. The study adds to the pool of data indicating that abnormal eating attitudes and dieting are widespread in adolescent girls in Western countries. Almost one in three girls in this school has eating-related symptoms severe enough to warrant clinical evaluation. Given this finding, addressing those factors which are believed to impact on eating attitudes and the risk of developing eating disorders would indeed be a worthwhile project to undertake at this school.

Our findings suggest that there may be a culture in the school which values the "ultra-thin" ideal. Further exploration of this, both qualitatively and quantitatively is needed to confirm this suggestion. Internalisation of the "thin ideal" has been implicated, amongst others, in the pathogenesis of eating disorders.<sup>36</sup> Attempting to modify the acceptance of this by the school culture is indeed a challenging goal. Its success is dependent on the active support and participation of pupils, parents and teachers. This study focussed on the awareness of teachers and on their attitudes to participating in school programmes addressing disordered eating attitudes and behaviours. It appears that many teachers are unwilling to participate in or to give up class time for such programmes. The reason for this is unclear but does not appear to be merely a lack of awareness of the problem or of an appreciation of its need to be addressed.

Other unknown factors must surely be at play. Qualitative evaluation of this may yield useful information. Additional research is necessary to investigate attitudes of parents and pupils to school programmes. Such research could yield information which could facilitate greater cooperation from all role players in the school community.

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## **ADDENDA**



**ADDENDUM 5. 1. QUESTIONNAIRE FOR PUPILS**

**Questionnaire for high school girls**

*Please answer the following questions. Read the instructions for each section carefully.*

*Please do NOT write your name anywhere on the question paper. You will remain anonymous and no one will have any way of knowing how you answered the questions.*

*Please answer ALL the questions.*

*There are no “wrong” answers. We are interested in what YOU think, feel and do.*

*The questionnaire will take ± 10 minutes to complete.*

*This questionnaire consists of five pages.*

**SECTION A**

**Please fill in the blanks:**

1. How old are you? \_\_\_\_\_ years and \_\_\_\_\_ months

**Please place a tick ( ✓ ) in the appropriate block:**

2. In which grade are you currently?

Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
---------	---------	----------	----------	----------

## SECTION B

Please choose one response by marking a tick (✓) in the column which **best** applies to you. Please do not leave out any questions. Please leave the last column (XXXXX) blank

	always	usually	often	Some-times	rarely	never	XXX XX
1. I am terrified about being overweight.							
2. I avoid eating when I am hungry.							
3. I find myself preoccupied with food.							
4. I have gone on eating binges where I feel that I may not be able to stop.							
5. I cut my food into small pieces.							
6. I am aware of the calorie content of foods that I eat.							
7. I particularly avoid food with a high carbohydrate content ( i.e. bread, rice, potatoes, etc.)							
8. I feel that others would prefer if I ate more.							
9. I vomit after I have eaten.							
10. I feel extremely guilty after eating.							

	<b>always</b>	<b>usually</b>	<b>often</b>	<b>Some- times</b>	<b>rarely</b>	<b>never</b>	XXX XX
11. I am preoccupied with a desire to be thinner							
12. I think about burning up calories when I exercise.							
13. Other people think that I am too thin.							
14. I am preoccupied with the thought of having fat on my body.							
15. I take longer than others to eat my meals.							
16. I avoid foods with sugar in them.							
17. I eat diet foods.							
18. I feel that food controls my life.							
19. I display self-control around food.							
20. I feel that others pressure me to eat.							
21. I give too much time and thought to food.							
22. I feel uncomfortable after eating sweets							
23. I engage in dieting behaviour							

	<b>always</b>	<b>usually</b>	<b>often</b>	<b>Some- times</b>	<b>rarely</b>	<b>never</b>	XXX XX
24. I like my stomach to be empty							
25. I have the impulse to vomit after meals.							
26. I enjoy trying new rich foods.							

## SECTION C

The following questions ask about body weight. Please circle the letter which **best** applies to you. Please choose one letter only.

1. How do you describe your weight?

- A. Very underweight
- B. Slightly underweight
- C. About the right weight
- D. Slightly overweight
- E. Very overweight

2. Which of the following are you currently trying to do about your weight?

- A. Lose weight
- B. Gain weight
- C. Stay the same weight
- D. I am not trying to do anything about my weight

**Please answer the following questions placing in a tick (✓) in the appropriate box**

3. During the **past year**, did you exercise to lose weight or to keep from gaining weight?

YES	NO
-----	----

4. During the **past year**, did you eat less food, fewer calories, or choose foods low in fat to lose weight or to keep from gaining weight?

YES	NO
-----	----

5. During the **past year**, did you go without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight? (This does not include religious fasts e.g. Yom Kippur, Tisha B'Av etc)

YES	NO
-----	----

6. During the **past year**, did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight? (This does not include meal replacement products / milkshakes e.g. "Shape")

YES	NO
-----	----

7. During the **past year**, did you vomit, take laxatives or diuretics to lose weight or to keep from gaining weight?

YES	NO
-----	----

8. Have you ever been diagnosed by a doctor, psychologist, psychiatrist or other professional as having an eating disorder?

YES	NO
-----	----

**THANK YOU FOR COMPLETING THE QUESTIONNAIRE!**

**PLEASE MAKE SURE THAT YOU HAVE ANSWERED ALL QUESTIONS BEFORE RETURNING YOUR ANSWER SHEET**

## ADDENDUM 5.2. QUESTIONNAIRE FOR TEACHERS

### Questionnaire for Teachers

- *The aim of this questionnaire is to find out what your perceptions are about the eating attitudes and behaviours of girls attending the school at which you teach.*
- *It should take you **5-10 minutes** to complete*
- *Please answer all questions and do not consult with anyone about your answers.*
- *Please do not write your name anywhere on the questionnaire- you will remain **anonymous**.*
- *Your completion of the questionnaire implies consent to participate in the study which relates to this questionnaire.*

*For all questions please place a **TICK** (✓) in the appropriate block or fill in the space where indicated:*

1. Gender: 

MALE	FEMALE
------	--------

2. Religion: 

JEWISH	OTHER (specify)
--------	-----------------

3. Grades taught : 

8	9	10	11	12
---	---	----	----	----

4. Subjects taught: 

Language	Science	Humanities	Other (specify)
----------	---------	------------	-----------------

5. Age: \_\_\_\_\_years

6. Number of completed years teaching at this school: \_\_\_\_\_years

7. Total number of completed years teaching (at any school) \_\_\_\_\_years

**Please state the percentage of girls in the school as a whole to whom you think the following statements apply:**

8. Have previously been diagnosed as having an eating disorder (such as Anorexia or Bulimia Nervosa) \_\_\_\_\_%

9. Should be ( if they have not already been ) evaluated by a health care professional for a potential eating disorder \_\_\_\_\_%

10. Believe that they are overweight \_\_\_\_\_%

11. Are currently trying to lose weight \_\_\_\_\_%

12. Have dieted or exercised in the past year to lose weight or prevent weight gain \_\_\_\_\_%

13. Have used any of the following methods in the past year to lose weight or to prevent weight gain: fasting, vomiting, laxative abuse, diuretic abuse or diet pill abuse \_\_\_\_\_%

**Please tick the relevant box YES or NO**

14. Do you think there is a need to address/ prevent problematic eating attitudes/behaviours among girls attending your school? 

YES	NO
-----	----

15. Do you think the school is an appropriate place for this? 

YES	NO
-----	----

16. Would you be willing to participate in such a programme? 

YES	NO
-----	----

17. Would you be willing to give up class time for such a programme? 

YES	NO
-----	----

**THANK YOU FOR YOUR PARTICIPATION! PLEASE DEPOSIT THIS QUESTIONNAIRE IN THE BOX PROVIDED**



## ADDENDUM 5.3. INSTRUCTIONS TO TEACHERS

*Dr Talia Notelovitz*

*MBBCh (cum laude) (Wits)*

Practice No. MP0473278

Tel/Fax: 011 640 3392

Cell: 083 279 7240

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14/09/09

Dear Teacher

Thank you for your assistance in my research. I hope that the results of the study will be of value to you. Bellow follows a brief protocol for administration of the questionnaire to make sure that it is standardised between classes.

1. Before you begin, ask whether anyone else has a completed consent form to submit. Please mark these on the class list with a tick. I have indicated those who have already handed in forms with a tick. Only hand out the research questionnaire to girls who have brought back signed consent forms. All other girls and boys will fill in the nutrition knowledge questionnaire.
2. Read the instructions at the top of the questionnaire out aloud to the participating girls.
3. Go through each section making sure that the girls understand how to correctly fill in the questionnaire. It is very important that they do not leave out any questions. If they are not sure how to answer a given question, they should provide an answer they feel best applies
4. Instruct the girls to put up their hand if they have a question on the completion of the questionnaire. If you are able to answer the question yourself please do so. If not you may contact me on 0832797240 and I will be glad to assist.
5. The girls should not discuss the questions with fellow students while they are completing the questionnaire.
6. When all girls have completed the questionnaires ask them to check that they have not left anything out.
7. Collect the questionnaires and return them to Mrs ..... together with the class list.
8. I suggest that the following feedback is given to the girls:  
The questionnaire they have filled out is often used in schools.

It is not used to diagnose eating disorders.

It indicates how concerned someone is about body weight, dieting and eating.

Many adolescent girls have such concerns but are not bothered much by them.

If anyone is bothered by concerns of this type or if the completion of the form has lead them to feel concerned they should discuss this with a teacher, counsellor or health professional with whom they feel comfortable.

Other topics you may want to discuss are: Self esteem and body image, the role of the media i.e. how media images put pressure on women to look a certain way.

10. I have attached some information on the EAT-26 which forms part of the questionnaire for your own interest. It is not meant to be handed out to the pupils.

Many thanks

Dr Talia Notelovitz

## **ADDENDUM 5.4. ETHICS APPROVAL**

28 May 2009 **MAILED**

Dr T Notelovitz  
Dep of Human Nutrition  
3rd flr,clinical bld  
Stellenbosch University  
Tygerberg Campus  
7505

Dear Dr Notelovitz

**"Abnormal eating attitudes and weight loss behaviours of girls attending a  
"Traditional" Jewish high School in Johannesburg: how aware are teachers?"**

**ETHICS REFERENCE NO: N09/05/154**

**RE: PROVISIONAL APPROVAL**

It is my pleasure to inform you that the abovementioned project has been provisionally approved on 27 May 2009 for a period of one year from this date. You may start with the project, but this approval will however be submitted at the next meeting of the Health Research Ethics Committee for ratification, after which we will contact you again.

Notwithstanding this approval, the Committee can request that work on this project be halted temporarily in anticipation of more information that they might deem necessary to make their final decision.

Please quote the abovementioned project number in all future correspondence.

Please note that a progress report (obtainable on the website of our Division) should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly and subjected to an external audit.

Please note that in line with the recent changes to research ethics guidelines, including the Declaration of Helsinki, the CHR requires that all researchers specifically request and motivate for a "waiver of informed consent" for retrospective clinical audits.

Federal Wide Assurance Number: 00001372  
Institutional Review Board (IRB) Number: IRB0005239

The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African

Medical Research Council

Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004

Yours faithfully

**DR MALCOLM DE ROUBAIX**

**RESEARCH DEVELOPMENT AND SUPPORT**

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28 May 2009 09:24

**ADDENDUM 5.5 CONSENT FORM FOR SCHOOL PRINCIPAL**

**INFORMATION LEAFLET AND CONSENT FORM FOR  
SCHOOL PRINCIPALS**

**TITLE OF THE RESEARCH PROJECT:** Abnormal eating attitudes and weight loss behaviours of girls attending a “Traditional” Jewish high school in Johannesburg: How aware are teachers?

**REFERENCE NUMBER:** N09/05/154

**PRINCIPAL INVESTIGATOR:** Dr Talia Notelovitz

**ADDRESS:** 20 Livingstone Street, Fairmount, Johannesburg, 2192

**CONTACT NUMBER:** 011 6403392

The female pupils and teachers of both genders of your high school are invited to take part in a research project. This study has been approved by the Committee for Human Research at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

**What is this research study all about?**

The aim of this project is to find out what girls attending your high school in grades 8-12 think and feel about eating, body weight and dieting and what methods they use to attempt weight loss. A second aim is to assess how aware teachers in the school are of these factors. Participation will be on an entirely voluntary basis. Pupils who wish to participate will be required to give written permission and to obtain written permission from their parents to take part..All girls in the school ( 338) will be eligible to participate Participating pupils will be asked to complete an **anonymous** written questionnaire at school, during class time and return it to the class teacher for submission to the researcher. The questionnaire should take approximately 30 minutes to complete. Participating teachers will also be asked to complete an anonymous questionnaire. This questionnaire should take approximately 10 minutes to complete. All teachers who are employed at the school ( 75) will be eligible to participate. All participants are free to withdraw from the study at any point without explanation and there will be no negative consequences of this.

**What are the benefits of the research?**

The research will give an indication of the extent to which difficulties related to body weight, dieting and eating affect girls at the school. This will allow the school to address such issues in a

constructive way. It will also provide information regarding teacher's awareness of these issues. This will indicate whether an intervention is necessary to improve this.

**Who will have access to the information obtained?**

Pupils and teachers will not write their names on the questionnaire and will thus remain entirely anonymous. The results of the study will be written in a thesis and in a medical or nutrition journal. The school will not be mentioned by name. The information gathered will be made available to you and you will be free to share this with parents, teachers or pupils as you see fit. Study monitors and auditors and members of the research ethics committee may need to review the research records.

**Will you or your school be paid to take part in this study and are there any costs involved?**

Neither the school nor participating individuals will not be paid to take part in the study and there will be no costs involved for the school or for participants.

**Is there anything else that you should know or do?**

You can contact Dr T. Notelovitz on 011-6403392 or on 0832797240 if you have any further queries or encounter any problems. You can contact the Committee for Human Research at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed. You will receive a copy of this information and consent form for your own records.

**Declaration by school principal / authority**

By signing below, I..... ( *full name of*

*principal/ headmaster*).in my position as ..... ( position held in

school) of .....( name of school) give my permission to the researcher to invite pupils at the school , to take part in a research study entitled: Abnormal eating attitudes and weight loss behaviours of girls attending a “ Traditional” Jewish high school in Johannesburg: How aware are teachers?

I declare that:

I have read this information and consent form and that it is written in a language with which I am fluent and comfortable.

- I have read both questionnaires to be used in the study.
- All pupils must individually agree to take part in the study and their assent must be recorded on the relevant form
- At least one parent/ guardian of pupils who wish to participate must give written permission on the relevant consent form.
- I have had a chance to ask questions and all my questions have been adequately answered.

- I understand that the school's taking part in this study is **voluntary** and I have not been pressurised to let pupils at my school take part. Participation is also voluntary on the part of each pupil and each teacher.

Signed at (*place*) ..... on (*date*) ..... 2009.

.....  
**Signature of principal/ headmaster**

.....  
**Signature of witness**

## ADDENDUM 5.6. CONSENT FORM FOR MINORS

# PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM FOR USE BY PARENTS/LEGAL GUARDIANS

**TITLE OF THE RESEARCH PROJECT:** Abnormal eating attitudes and weight loss behaviours of girls attending a “Traditional” Jewish high school in Johannesburg: How aware are teachers?

**REFERENCE NUMBER:** N09/05/154

**PRINCIPAL INVESTIGATOR:** Dr Talia Notelovitz

**ADDRESS:** 20 Livingstone Street, Fairmount, Johannesburg, 2192

**CONTACT NUMBER:** 011 6403392

Your daughter is being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask your child’s teacher or Dr T. Notelovitz any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how your child will be involved. Also, your child’s participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you or your child negatively in any way whatsoever. You are also free to withdraw her from the study at any point without explanation, even if you do initially agree to let her take part. There will be no negative consequences of such a withdrawal.

This study has been approved by the **Committee for Human Research at Stellenbosch University** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

### **What is this research study all about?**

The aim of this project is to find out what girls attending your daughter’s school think and feel about eating, body weight and dieting and what methods they use to attempt weight loss. Participants will be asked to complete an **anonymous** written questionnaire during class time at school and return it to the class teacher for submission to the researcher. The questionnaire should take approximately 30 minutes to complete.

### **Why has your child been invited to participate?**

All girls currently attending your daughter’s high school in grades 8 to 12 are eligible to participate. The total number is 338



**What will your responsibilities be?**

Your daughter’s teacher will arrange for her to complete the questionnaire, you will not need to do anything besides filling in this form.

**What are the benefits of the research?**

The research as a whole will give an indication of the extent to which difficulties surrounding weight, dieting and eating affect girls in the school. This will allow the school to address such issues in a constructive way.

**Who will have access to your child’s questionnaire?**

Your child will not write her name on the questionnaire. She will thus remain entirely anonymous. The results of the study will be written in a thesis and in a medical or nutrition journal. The names of the school and participants will not appear anywhere in the publications. The information gathered will be made available to the principal of your child’s school who will be free to share this with parents or teachers as he sees fit. Study monitors and auditors and members of the research ethics committee may review the research records.

**Will you or your child be paid to take part in this study and are there any costs involved?**

You or your child will not be paid to take part in the study and there will be no costs involved for you if your child does take part.

**Is there anything else that you should know or do?**

You can contact Dr T. Notelovitz on 011 6403392 Mondays to Thursday between 19h30 and 21h00 if you have any further queries or encounter any problems. You can contact the Committee for Human Research at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed. You will receive a copy of this information and consent form for your own records.

**Assent of minor**

I (*Name of Child/Minor*)..... have been invited to take part in the above research project.

- I have read the letter addressed to pupils about the study and understand it.
- I also know that I am free to withdraw from the study at any time if I am unhappy.
- By writing my name below, I voluntary agree to take part in this research project. I confirm that I have not been forced either by my parents, teachers or the researcher to take part.

.....  
**Name of child**  
(To be written by the child )

.....  
**Independent witness**

Grade.....

Class.....

**Declaration by parent/legal guardian**

By signing below, I (*name of parent/legal guardian*) .....

agree to allow my child (name of child) ..... who is ..... years old, to take part in a research study entitled: Abnormal eating attitudes and weight loss behaviours of girls attending a “Traditional” Jewish high school in Johannesburg: How aware are teachers?

**I declare that:**

- I have read or had read to me this information and consent form and that it is written in a language with which I am fluent and comfortable.  
My child must agree to take part in the study herself and her assent must be recorded on this form.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to let my child take part.
- I may choose to withdraw my child from the study at any time and my child will not be penalised or prejudiced in any way.

Signed at (*place*) ..... on (*date*) ..... 2009.

.....  
**Signature of parent/legal guardian**

.....  
**Signature of witness**

**ADDENDUM 5.7. COVERING LETTER FOR PARENTS**

*Dr Talia Notelovitz*

*MBBCh (cum laude) (Wits)*

Practice No. MP0473278

Tel/Fax: 011 640 3392

Cell: 083 279 7240

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Dear Parent

I am conducting a survey of girls attending .....High School regarding their attitudes to eating, dieting and body weight. This involves completing a five minute questionnaire during the life orientation period. The questionnaire is completely anonymous. If you agree to your daughter's participation, please read the attached information sheet and then sign and return the consent form. Your daughter should also sign the form if she agrees to participate. If you do not want your daughter to participate, please fill in your daughter's name and class and write: "Do not consent" on the back of the form and sign this. It is very important that all forms are returned whether or not you give consent. If you have any queries you may contact me at 0116403392 Monday to Thursday between 19h30 and 21h30.

Sincerely



Dr Talia Notelovitz