



L-Università ta' Malta
Faculty for Social Wellbeing



kenn għal
saħħtek

Eating Disorders Amongst Young Persons in Malta

A NATIONALLY REPRESENTATIVE STUDY OF THE
PREVALENCE AND EFFECT OF EATING DISORDERS
AMONG YOUNG PERSONS IN MALTA

Commissioned by Fondazzjoni Kenn għal Saħħtek

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The prevalence of eating disorders in Malta

The aims of the Foundation 'Kenn Ghal Sahhtek' are prevention and treatment of Eating Disorders and Obesity in the Maltese Population. Thus, it provides treatment programmes (residential and non-residential) for Eating Disorders and Morbid Obesity and also conducts prevention and educational programmes against these conditions. From the inception of the Foundation under the patronage of the President Dr George Abela, the ethos of the foundation was that its decisions are evidence based. In fact, prior to the opening of the Treatment Centre in 2014, a national study was conducted to assess in a scientific way the needs of the Maltese population, so that the decisions regarding the treatment centre were based on scientific evidence.

Since its opening, 'Kenn Ghal Sahhtek' has been focusing its services mostly on adults. The trends in European countries were showing that during the last years the age of the onset of Eating Disorders has been decreasing, with onset occurring also in younger persons. This has prompted 'Kenn Ghal Sahhtek' to evaluate if it needs to address changes in its treatment provided and prevention and educational programmes to address a new emerging situation better. The best way to address this was by conducting a national study on eating disorders in Maltese youngsters. To reach this aim the the Foundation 'Kenn Ghal Sahhtek' and The Faculty of Social Wellbeing teamed up to conduct a study to examine the prevalence of eating disorders in Malta in young persons between the ages of 10 years and 16 years.

This collaboration has proved to be very beneficial for the Foundation 'Kenn Ghal Sahhtek', and it augurs well for the possibility of future similar collaborations.

Dr Anton Grech

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The situation is indeed serious!

This project, *Eating Disorders Amongst Young Persons in Malta - A nationally representative study of the prevalence and effects of eating disorders among young persons in Malta* was commissioned by *Fondazzjoni Kenn għal Saħħtek*. This was a much-needed study to help us understand the complexities emerging around this phenomenon of 'eating disorders' that has impacted so strongly our communities. The way this situation impinges on the lives of the people affected and the significant others around them is immense. This study has confirmed that this national problem is seeping down to the youngest members of our communities and creating a social scar that needs to be addressed on many fronts.

I am indeed proud that our *Faculty* in collaboration with *Fondazzjoni Kenn Għal Saħħtek* is presenting this scientific data gathered through a sample of 400 children with a representative stratified random sample of 10 to 16-year olds. This is the first study of its sort in Malta and has presented us with some very enlightening albeit challenging data. It is now up to us to take this information to the next step and try to influence policy changes that can immediately address this grim situation.

As a *Faculty* focused on Social Wellbeing we remain committed to democratise knowledge. Collecting data is imperative but taking it back into the community is imperious. We look forward to seeing the much-needed changes so that we can really see this situation mitigated.

Prof. Andrew Azzopardi

Dean

Faculty for Social Wellbeing



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Executive Summary

BACKGROUND

At any point in time several million people across the globe are affected by eating disorders. Eating disorders such as Anorexia Nervosa, Bulimia Nervosa and Binge Eating Disorder affect women more than men, with young female adolescents being the most at-risk group. However, there is growing awareness that this is not solely a young women's issue, as men and older women are increasingly being diagnosed with eating disorders. These disorders devastate lives and have a high mortality rate. Their sociological and public health impacts make them major public health concerns. The duration and course of an eating disorder can be anywhere from a few years to around 15 years, with the detrimental effects on a sufferers' life resulting in very real costs to person in terms of education, employment productivity and future security.

The American Psychological Association (APA) defines eating disorders (EDs) as abnormal eating habits that can threaten health or even life. Eating disorders cause disruptions to normal perceptions and attitudes to food whereby, depending on the disorder, the sufferer exerts intense control, typical with anorexia nervosa, or loses control over their food intake, such as with binge eating disorder or bulimia. The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders, (DSM-5, 2013), lists six main specific eating disorders and two other categories - OSFED (other specified feeding and eating disorders) and UFED (unspecified feeding and eating disorders), which are also clinical diagnoses. The most commonly recognised and prevalent of these disorders are Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Binge Eating Disorder (BED). Another eating disorder, that is becoming increasingly prevalent and disturbing, in that it affects even the very young, is Avoidant/Restrictive Food Intake Disorder (ARFID) - previously referred to as Selective Eating Disorder (SED).

Anorexia Nervosa (AN), or simply, Anorexia, is characterised by an extreme fear of gaining weight, an abnormally low body weight and a distorted perception of weight. Persons suffering from anorexia have a strong wish to control their weight and shape and use extreme efforts, including starvation, to achieve this objective. The pursuit of the anorexic ideal has a significant effect on the life of sufferers, yet leaves them dissatisfied. No matter how much weight is lost, sufferers remain fearful of weight gain and experience a constant desire to lose more weight. This is because anorexia is not about weight or food. It is a dangerous and unhealthy psychological way to exert control over emotional or psychological problems. Anorexia, Despite being the rarest of the eating disorders, anorexia is perhaps the most renowned and has the highest mortality risk of all the Eds, and the lowest recovery outcomes.

Bulimia Nervosa (BN), or Bulimia as it is usually referred to, is characterised by frequent and uncontrollable episodes of overeating or binges, habitually consisting of the consumption of thousands of calories in a single sitting, accompanied by extreme efforts to avoid gaining weight. These behaviours set up a vicious cycle that wreaks havoc on body and mind, and tend to be accompanied by extreme secrecy and feelings of shame.

Binge Eating Disorder (BED), is compulsive eating without purging behaviours. It is characterized by recurring episodes of excessive food consumption over a short period of time, often to the point of discomfort. As a result, sufferers are highly likely to be overweight or obese. This loss of control over food intake is accompanied by feelings of shame and guilt.

Typically binge eaters are dissatisfied with their body shape, but this is not accompanied by body image distortion as with AN or BN.

Avoidant/Restrictive Food Intake Disorder (ARFID), is a type of extreme picky eating or food phobia that is characterised by a restriction or avoidance of certain foods that sufferers find themselves unable to eat - to the extent that sufferers cannot meet their nutritional needs through food intake alone. Often whole food groups will be excluded, such as meat or green vegetables, which, besides causing clinical nutritional deficiencies to persons suffering from this condition, also interferes significantly with the sufferers' life.

Eating disorders arise for complex reasons and usually centre around a desire to control food intake, whereby, what starts as an attempt to lose weight or eat healthily, can spiral out of control. There is not usually one, single, cause for an eating disorder, and much less expert agreement as to what causes EDs. Rather there may be various causes at the root of a disorder. Aside from attempts to diet, family dynamics and genetic factors are shown to have significant influence on the predisposition to eating disorders. A family history of eating or mental health disorders, as well as exceedingly high family expectations, particularly in the case of female sufferers, are indicated as possible causes. Psychological and emotional factors such as anxiety, depression, stress and low self-esteem, as well as abuse and childhood trauma, can also trigger an eating disorder. Other factors thought to be significant risk stimuli for eating disorders are self-esteem and body dissatisfaction issues linked to impossible ideals of female beauty - and nowadays even male ideals - on traditional and social media.

The epidemiology of eating disorders provides information about trends in frequency and occurrence of eating disorders over time. Despite challenges in data collection, the epidemiological study of EDs remains extremely important in providing a general picture of how these disorders develop and progress. Epidemiological studies show that the most studied cohort is 15-19-year old females, and that eating disorders are on the increase in non-Western countries, as well as being on the rise among men and older women. Prevalence data shows that lifetime prevalence for a full threshold ED is 2.9% for females and 0.1% for males. For sub threshold EDs, lifetime prevalence figures are 2.2% for females and 0.7% for males (Nagel et al., 2016).

Persons afflicted with eating disorders suffer a number of adverse medical and psychological problems. Eating disorders put the body under great strain and the medical impact of an eating disorder touches every organ system in the body (Jahraus, 2018). Eating disorders have various physical effects, such as fatigue, they disrupt natural growth, have detrimental effects on the circulation and nervous system, can cause cardiac and renal difficulties and chronic pain. Although some of these effects can be reversed once detrimental feeding behaviours are stopped, some health consequences can be lasting. The negative outcomes are even more severe for children and adolescents. As well as impacting health, eating disorders also cause significant disturbance to an individual's social and psychological wellbeing. Eating disorders, particularly Anorexia and Bulimia, have the highest mortality rate of all the psychological illnesses. Suicide attempts are common among patients with EDs, particularly sufferers of Anorexia.

Given the several adverse consequences of EDs on every area of a patients' life, and the diminished quality of life that sufferers lead, identifying and treating EDs is crucial. The earlier the patient is diagnosed and treatment started, the better the outcome. Awareness of EDs by

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primary care professionals and specialists is extremely important. The consensus nowadays is that best treatment practice is a multidisciplinary and tailored approach that will treat the physical and medical aspects of the disorder, as well as psychological factors and other attributes.

THE SITUATION IN MALTA

Until rather recently, in Malta, general awareness of eating disorders and their impact on the lives of sufferers was limited. In 2012 a national survey was conducted to evaluate the prevalence of eating disorders in 15 to 50-year olds in Malta, and ascertain requirements for treatment. The study found that the prevalence of EDs in Malta was comparable to that in other European countries and led to the setting up of Dar Kenn għal Saħħtek, in 2014. This residential and semi-residential facility provides holistic treatment for eating disorders and obesity, and since its inception has treated several sufferers. However, gaps remain in our knowledge and in public awareness of EDs.

Dar Kenn għal Saħħtek found that they were seeing patients coming in at younger ages and asked the Faculty for Social Wellbeing to examine eating disorders among young people in Malta. This study examined the eating habits and attitudes of 10 to 16 year-olds in the Maltese Islands. It is the first study to examine eating disorders among young persons, and there is currently no local data on the prevalence of eating disorders among this age group.

PROJECT PURPOSE AND DESIGN

This study had the following objectives:

- 1) to understand the prevalence of eating disorders amongst children and young people in Malta;
- 2) to identify the interplay, if any, between social-demographic variables such as gender, age, educational background and other related variables, and
- 3) to provide empirical data to enable Dar Kenn għal Saħħtek to develop plans for future treatment and to tailor the treatment provided to the needs revealed via this study

The data was collected through the use of a telephone interview, and the sample was contacted by calling randomised telephone numbers. The survey consisted of demographic question put to parents/guardians and the questions of the Children's Eating Attitudes Test (ChEAT), a well-established, standardised, questionnaire that examines disordered eating, were asked of the children, who were 10 to 16 years old. The questionnaire was available in both Maltese and English and data was collected during the month of August 2020.

THE SAMPLE

The study surveyed 400 children – 212 females and 188 males – and was a representative stratified random sample of 10 to 16-year old children living in the Maltese Islands. The sample was stratified to ensure that the data would be adequately representative of the ages and by gender and district, for the sector of the population under examination.

RESULTS

The results show that, as expected, the majority of Maltese children aged 10 to 16 years do not have an eating disorder. Of the 5.5% who are affected, 3.25% are female and 2.25% are male.



Within the general population of 10 to 16-year olds in Malta, this translates to 1675 youngsters affected by eating disorders, of whom, potentially, 990 are female and 685 are male. This shows that while more females than males are affected, the proportion of affected males is relatively high. The findings also indicate that males within this age group may be more severely affected than females. Additionally, we found that, for this age group and cohort, there are no significant associations for age, gender and socio-economic status. Eating disorders cut right across the socio-economic strata.

RECOMMENDATIONS

The above findings give rise to a number of recommendations for research, practice and policy, and will enable Dar Kenn għal Saħħtek to plan future treatment and interventions. Policy recommendations include suggestions for measures to combat images of idealised beauty that give rise to body-dissatisfaction among young people, the dissemination of information and raising of awareness of eating disorders, and working with primary care professionals and others who could be at the front line in recognising eating disorders among young people. Further research could take the shape of a further study of 10 to 16-year olds to include individual interviews in order to ascertain the type of eating disorders that affect this age group, an examination of ARFID among children and adolescents in Malta, an investigation into the prevalence and experience of EDs in non-mainstream demographics, such as males, older women and in LGBTQ communities, and a study of the gaps in the knowledge of first-contact professionals.

CHAPTER 1

Introduction and a Review
of the Literature



1.1 PREAMBLE

Eating disorders affect several people across the globe and do not discriminate by race, ethnicity, gender or age. The National Eating Disorder Association (NEDA) states that in the US alone, at any one time, there are about 30 million people suffering from eating disorders. In the UK, this figure is estimated to be between 1.25 and 304 million people (Statistics for Journalists, 2020). Globally, it is estimated that eating disorder sufferers number 70 million (Farrar, 2014). However, as the tendency for secretive of persons affected by eating disorders distorts diagnostic figures, these numbers could well be higher.

Eating disorders such as Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Binge Eating Disorder (BED), affect women more than men, with young female adolescents being the most at-risk group (Langer, 2013). However, there is increasing awareness that this is not only a young women's issue, as men and older women are being increasingly diagnosed with eating disorders. An added concern is that the mortality rate for eating disorders is very high. Overall sufferers from Anorexia Nervosa have a six-fold increase in mortality compared to the general population, which is about 3 times higher than for other psychiatric illnesses. Mortality rates for Bulimia Nervosa are comparable and also unacceptably high. The mortality rates for Binge Eating Disorder are not as high, however complications linked to overweight are common. (Nielsen, 2001; Kaye, 2012). Examination of causes of death for eating disorder sufferers include suicide, starvation, substance abuse and cancer. The cost in terms of lives cut short is far too high and emphasizes the sociological and public health impact of eating disorders.

These disorders affect society at all levels - the individual, the support system around the individual and also society at large. The duration and course of an eating disorder can be anywhere from a few years to around 15 years, with a resulting detrimental impact on an individual's life, including very real costs to education, employment productivity and future security (Statistics for Journalists, 2020). At a wider societal level, the economic impact is felt in loss of revenue to employers and taxation revenue to government as well as loss of personal potential. The personal suffering of the eating disordered person also impacts their support system such as family, friends and significant others. Besides the anguish of viewing their loved one's struggles, the persons around them often bear the costs of their informal care. In addition, the health care burden of disease in Australia alone amounts to over 50 billion Australian dollars, comparable to estimated value of the cost burden for anxiety and depression (Paying the Price, 2012). The wide reach of eating disorders and the severity of the repercussions to sufferers from a medical and psychological perspective make them major public health concerns. People suffering from eating disorders make high use of health services which can place a considerable burden on the health care system. Eating disorders are at 15th place among the top 20 causes of disability in Australian women measured in years lost due to disability (NICE Clinical Guidelines, 2004).

Eating disorders have a complex aetiology and various psychological, behavioural, cognitive, as well as physical components. Studies of eating disorder treatment show that best outcomes are obtained with treatments that are similarly multidisciplinary. Early diagnosis, prevention of chronicity and treatment of the underlying compulsions in addition to treatment of the physical symptoms are far more likely to be effective and have long lasting results. Selecting effectual treatments that are cost effective and tailored to needs will reduce the sociological burden as well as the cost burden of eating disorders (NICE Clinical Guidelines, 2004; Görmez et al., 2018).

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1.2 STRUCTURE OF THE PROJECT

Eating Disorders Amongst Young Persons in Malta focuses on examining the situation in Malta and especially on examining the prevalence of eating disorders in Malta in order to predict future treatment needs and assess the effectiveness of the current provision. Such information will assist Dar Kenn għal Saħħtek and the Ministry for Health in creating a service that is truly tailored to the needs of the users.

The project will start with a study to understand the sector of eating disorders and assess what gaps there are in the knowledge and treatment of eating disorders. It will proceed with a qualitative survey via questionnaire to a youth cohort between the ages of 10 to 16 years. The data will be analysed and a report with conclusions and recommendations will be issued.

Following this introduction, the next section will delve into an examination of eating disorders and an exposition of the most commonly recognised EDs, namely Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder and Avoidant/Restrictive Food Intake Disorder. It will go on to look at what can trigger eating disorders such as psychological or genetic factors or low self-esteem and body image, after which it will delve into the epidemiology of eating disorders. It will then proceed to examine the medical, psychological and social consequences of eating disorders and will look at common treatment practices. The review will conclude by examining the current provision in Malta and by drawing conclusions on the state of play.

1.3 DEFINING EATING DISORDERS

The American Psychological Association (APA) defines eating disorders (EDs) as abnormal eating habits that can threaten health or even life. (American Psychological Association, 2020). Eating disorders cause disruptions to normal perceptions and attitudes to food whereby, depending on the disorder, the sufferer exerts intense control, typical with Anorexia Nervosa, or loses control over their food intake, such as with Binge Eating Disorder or Bulimia. "Eating disorders are severe psychological illnesses associated with a host of adverse medical morbidities, negative psychological sequelae, and substantial reductions in quality of life." (Sim et al, 2010, p.750).

The Diagnostic and Statistical Manual of Mental Disorders, (DSM-5, 2013), lists six specific eating disorders, and two more general categories that are also clinical diagnoses - OSFED (other specified feeding and eating disorders) and UFED (unspecified feeding and eating disorders). Of these, the most commonly recognized and prevalent are Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Binge Eating Disorder (BED). The latter was acknowledged as a separate diagnosis for the first time in DSM-5 in 2013 (Williamson, 1990; Treasure et al., 2010). Another eating disorder, known in DSM-5 as Avoidant/Restrictive Food Intake Disorder (ARFID), but previously referred to as Selective Eating Disorder (SED), is also gaining recognition and being increasingly diagnosed (Kohn, 2016; Zimmerman & Fisher, 2017).

The majority of ED sufferers are female - prevalence data shows that lifetime prevalence for a full threshold ED is 2.9% for females and 0.1% for males. For sub threshold EDs, lifetime prevalence figures are 2.2% for females and 0.7% for males (Nagl et al., 2016). A comparative prevalence study Galmiche et al. (2019), found that the "the weighted means (ranges) of point prevalence were 4.6% (2.0–13.5%) in America, 2.2% (0.2– 13.1%) in Europe, and 3.5% (0.6–7.8%) in Asia". Moreover, this study found that between 2000 to 2006 and 2013 to 2018, there was a 4.3% increase in weighted means of point-prevalence of EDs (Galmiche et al., 2019).



1.4 EATING DISORDERS

1.4.1 Anorexia Nervosa (AN)

Despite being the rarest of the eating disorders, Anorexia Nervosa (AN) is perhaps the most renowned (Nardone & Brook Barbieri, 2010; Treasure, 1997). However, it has the highest mortality risk of all the EDs and lowest recovery outcomes (Morris, 2008; Lask and Bryant-Waugh, 2000). As explained by Byrd-Bredbenner et al., (quoted in Barthet, 2013, p.11), “the term Anorexia implies a loss of appetite, however, a denial of appetite more accurately describes the behaviour of people with AN”. Sufferers of Anorexia are extremely preoccupied with weight loss and have a distorted body image and have an intense fear of gaining weight - to the extent that losing weight becomes a way of life (Treasure, 1997; Morris, 2008). Persons suffering from Anorexia achieve their weight loss either through starvation alone, or a combination of restrictive food intake and exercise or purging (Treasure, 1997; Morris, 2008). Although food is a central part of this disorder, anorexia is a complex illness and usually not about food but rather a psycho-social mechanism, where self-restraint becomes a coping system for psychological vulnerabilities. (Treasure, 1997; Lask and Bryant-Waugh, 2000). “Abstinence is therefore the attempted solution [that is] impossible to abandon” (Nardone & Brook Barbieri, 2010, p.120). Anorexia sufferers are notoriously resistant to treatment and the disease eventually becomes part of their personality and *raison d'être* (Orsini, 2017; Nardone & Brook Barbieri, 2010). Orsini suggests that sufferers of eating disorders are on a “moral self-transformative process, where sufferers consider their disorder as an attainment of the state of moral transformation”, which could explain why so many anorexics do not seek or are so resistant to treatment (Orsini, 2017, p. 117).

1.4.2 Bulimia Nervosa (BN)

Bulimia is characterised by extreme preoccupation with body shape and weight (Williamson, 1990). Frequent and uncontrollable episodes of overeating – binges – often consisting of the consumption of thousands of calories in a single sitting, are accompanied by extreme efforts to avoid gaining weight (Palmer, 2000; Morris, 2008). Such efforts often take the form of purging through emesis, use of laxatives - sometimes as many as 100 a day - or diuretics (Dippel & Becknal, 1987). However, some sufferers opt for other compensatory behaviours, such as exercising to excess or extreme fasting (Brownstone et al, 2013; Morris, 2008). These behaviours set up a vicious cycle that wreaks havoc on the body, as well as psychologically and socially. BN tends to be accompanied by extreme secrecy, whereby sufferers will go to great lengths to hide their condition from those around them (Khairallah et al, 2013; Orbanic, 2001). The average estimate for lifetime prevalence of Bulimia is 1%, and women who are affected far outnumber men (1.1% to 0.1%, respectively), with average age of onset of about 21 years (Bulimia, 2018).

Anorexia may evolve into Bulimia. In several cases bulimics will have at some point in their lives been anorexics. (Williamson, 1990, p.17). Orsini discusses the idea that sufferers of Bulimia are failed Anorexics, in that they aspire to thinness but cannot sustain the rigours of starvation (Orsini, 2017). She goes on to stipulate that this could be the reason why persons affected by Bulimia seek help more often than those affected by Anorexia, because “they are extremely unsatisfied with their lack of self-control, but also because being diagnosed with a medical condition relieves them from their sense of guilt at not having been able to put into practice their core values” (Orsini, p.132).

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1.4.3 Binge Eating Disorder (BED)

Although it remains under diagnosed, Binge Eating Disorder (BED), formerly known as non-purging bulimia (Morris, 2008), is the most common eating disorder in the world, affecting close to 2% people globally (Mandl, 2017). BED is compulsive eating without purging behaviours. It is characterized by recurring episodes of excessive food consumption over a short period of time and often to the point of discomfort, accompanied feelings of loss of control, guilt and shame. As a result, sufferers are highly likely to be overweight or obese, although, however, not everyone who has BED is overweight (Allen et al., 2015; Palmer 2000).

Typically binge eaters are dissatisfied with their body shape, although this is not accompanied by body image distortion as with AN or BN (Williamson, 1990). Binge eating is most likely to emerge after an unsuccessful diet or if weight loss occurs too slowly (Guimarães Melo et al., 2015). Patients suffering with BED struggle with emotions of disgust and guilt and it has also been linked to depression and impulse control difficulties. Roberto et al. (2010), argue that depression and distress are present in both BN and BED because of the binge eating aspect, which results in weight gain, however it is unclear whether these are causes or effects of the disorder.

1.4.4 Avoidant Restrictive Food Intake Disorder (ARFID)

Previously known as Selective Eating Disorder, or SED for short, (NEDA, 2018), Avoidant Restrictive Food Intake Disorder (ARFID), is characterised by a restriction or avoidance of food to such an extent that sufferers cannot meet their nutritional needs through food intake alone (Kohn, 2016; Zimmerman & Fisher, 2017; Bryant-Waugh et al., 2012). Patients whose nutritional deficiencies are of “clinically significant levels” and are made up via vitamin or other supplements or enteral feeding are also considered to have ARFID. A clinical diagnosis also requires that the disorder interferes significantly with the patient’s life. (Bryant-Waugh et al., 2012).

Studies have found that patients with ARFID tend to be younger than those with AN or BN. Average age of onset for ARFID is 12.9 years as opposed to 15.6 years for Anorexia and 16.5 years for Bulimia. ARFID sufferers also have longer duration of illness and, unlike with other EDs, they are more likely to be male (Kohn, 2016; Karadere, 2018). Although this is mainly a disorder associated with children and adolescents, it is not restricted to the young and can also be seen in adults (Bryant-Waugh, 2012; Kohn, 2016). However, in adults, at present, this phenomenon remains inadequately studied (Norris et al., 2016). Persons affected by ARFID may have a phobia about certain foods, eat a very limited diet, find certain foods to be repulsive either in taste, smell or texture, or have difficulty swallowing specific foods. For sufferers of ARFID, it is not a choice to not eat certain foods, they simply cannot. They may reject certain foods or even whole food groups, usually meat and vegetables (Ellernmede 2018; Bryant-Waugh et al., 2012). Eating in general is an ordeal for sufferers, and eating in public is an especial cause of embarrassment and shame, and sufferers will often go to great lengths to avoid doing so (Lask & Bryant-Waugh, 2000; Fisher et al., 2014). Fear and anxiety are frequent accompaniments to thoughts of food, particularly a fear of choking or vomiting. In distinction to most other eating disorders, typical ARFID behaviour is not about body image but about the food itself (Zimmerman & Fisher, 2017; Fisher et al., 2014).



This disorder is often accompanied by other conditions, such as Obsessive-Compulsive Disorder (OCD), autism, Sensory Processing Disorder, food trauma or gastrointestinal disorders, as well as anxiety and depression, (Bryant-Waugh & Kreipe, 2012; Cooney et al., 2018). ARFID sufferers also experience a number of health consequences, mainly related to malnutrition. They may be underweight, experience significant weight loss or fail to gain weight in accordance with their developmental milestones. The vitamin and mineral deficiencies of this type of diet can have serious implications for a persons' physical health, such as digestive problems, electrolyte imbalances that impair the functioning of the heart, nerves and muscles; damage to the nervous system, low blood pressure, low bone density, cardiac problems and stunted growth (Fisher et al., 2014; Bryant-Waugh & Kreipe, 2012; Kohn, 2016). Fisher et al, (2014) suggest that patients with long-term ARFID might go on to develop AN or BN, however at present not enough is known about this disorder to enable a long-term prognosis for sufferers.

Since ARFID sufferers come from a wide array of histories and risk factors, currently treatment practices tend to tailored and multidisciplinary (Cooney et al, 2018; Bryant-Waugh & Kreipe, 2012). Zimmerman and Fisher (2017), distinguish between patients with short-term ARFID, which is characterised by fear of choking or vomiting and is usually brought on by a negative experience or by witnessing one; and long-term sufferers who have a long-standing history of poor eating linked to anxiety or gastro-intestinal issues. They posit that treatment of these two groupings should be differentiated, adding, that outcomes for patients with short term ARFID are more positive. Cooney et al, (2018) state that the longer the disorder is allowed to go untreated, the higher the “potential [...] for medical complications and effect on quality of life”.

1.5 WHAT CAUSES EATING DISORDERS?

“Eating disorders are like a gun that’s formed by genetics, loaded by a culture and family ideals, and triggered by unbearable distress.”
Aimee Liu (author and sufferer)

Eating disorders arise for complex reasons and may take many forms, however they usually centre around a desire to control food intake (Morris, 2008; Williamson, 1990). For many sufferers, achieving an ideal of thinness is a major aspiration, and it is often this desire that results in an ED. What starts as an attempt to lose weight or aspiration to eat healthily can spiral out of control (Williamson 1990; Journal of Analytical Psychology, 2006,). This “pursuit of thinness seems like a culturally endorsed solution to life’s difficulties and a route to better self-esteem”. (Polivy and Herman, 2004, p. 3). Issues of body image and self-esteem, or of psychological suffering are also indicated as the underlying triggers for an eating disorder. (Polivy & Herman, 2005). Emotional issues, such as perfectionism, feelings of unworthiness, a desire to establish control - or dismay at the lack of it - are also potential drivers of EDs (Orsini, 2017; Sim et al, 2010). There is usually no single, overarching cause for an eating disorder, and much less expert agreement as to what causes EDs, but rather various possible contributing factors (Lask & Bryant-Waugh, 2000; Morris, 2008).

1.5.1 Dieting

Dieting or eating restraint - “reducing one’s eating despite having a healthy appetite” is one of the most frequently cited causes for the development of an eating disorder. (Morris, 2008; Palmer, 2000; Guimarães Melo et al, 2015). One of the effects of self-induced reduced

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eating is that the less a person eats, the more they think about food, as was established in the Minnesota Starvation Experiment of 1945, which is still today considered the classic study of the effects of starvation (Kalm & Semba, 2005). Polivy & Herman (2005), note that this is also true of animals. This vicious cycle is thought to play a significant part in the genesis of many eating disorders (Morris, 2008; Orsini, 2017). The converse may also be valid for Binge Eating - the more a person eats, the higher the likelihood that they will continue to eat (Palmer, 2000).

1.5.2 Family History

Coming from a family with a history of EDs also accentuates the risks (Morris, 2008; Palmer, 2000). A 2016 Swedish study by Keski-Rahkonen & Mustelin, examining medical registry records, found that having a parent diagnosed with an eating disorder increased the risk for female children. Additionally, other parental mental disorders also increased offspring risk of contracting an ED (Le Grange et al., 2010). Children and adolescents hailing from families with very high expectations are also more likely to develop disordered eating habits that could lead to an eating disorder. Parenting styles - too involved, not involved enough, high expectations-low contact, parental coldness or distance, are similarly thought to be among the influences affecting the onset of an ED, although this view has begun to shift somewhat, in that family dynamics are no longer seen as the sole initiators of an eating disorder but are thought to interact with other factors (Micali et al., 2015).

Current thinking also holds that genetic vulnerabilities may predispose an individual to developing an eating disorder (Le Grange et al., 2010; Treasure 1997). "Specific genes that are relevant to reward neurobiology and cerebral dopamine pathways or relevant to mood or other psychological features and cerebral serotonergic activity" might be an influencing factor in the development of EDs (Mitchison & Hay, 2014, p. 95). Findings suggest that in the case of BN particularly, genetics may play a higher role than with the other EDs (Solmi, 2019; Le Grange et al, 2010). A study by Davis et al. assessed the lifetime psychiatric morbidity in relatives of sufferers of BED and found that, compared to control groups, the relatives of the BED participants exhibited significantly more psychiatric disorders (as quoted in Mitchison & Hay, 2014, p. 95). Family dynamics and genetic factors are shown to have significant influence on the predisposition to eating disorders, and are believed to be one of a number of risk factors influencing susceptibility (Le Grange et al., 2010; Fursland, 2019).

1.5.3 Psychological and emotional factors

Psychological factors such as anxiety, stress and low self-esteem are also often cited as factors affecting the genesis of eating disorders (Rothschild-Yakar, et al., 2018; Palmer, 2000). Compared to control groups, sufferers of EDs report having experienced "more abuse and adversity in general" (Morris, 2008, p. 7).

Most EDs emerge in adolescence, a time of change and vulnerability when youths are forming their persona and world view (Doba et al, 2018; O'Donnell and Warren, 2004, as quoted in Apap, 2007, p.45). It is also a period of physical changes which sometimes may not be welcome. Girls in particular start to develop a womanly figure and may rebel against or feel mortified by these changes. Added to these anxieties are the stresses of study and exams, which combine with other preoccupations to put pressure on adolescents (Palmer, 2000; The Brown University Child and Adolescent Behavior Letter, 2014). Youths respond differently to these stressors. Some may react by adopting alternative coping strategies such as food restriction. By the time an eating disorder takes hold, a sufferer's self-worth

has become invested in the disorder such that the ED becomes internalised and takes the place of healthy coping mechanisms (Morris, 2008; Brownstone et al., 2013).

Emotional issues have strong effects on eating and several studies have linked negative emotions to the onset of eating disorders (Bekker et al., 2004; Volkow, et al., 2013; Sim et al., 2010). Negative emotional states have a vast effect on our reactions to food and to eating and could influence one's susceptibility to an eating disorder (Bekker et al., 2004; Stice et al., 2012). Eating disorders also share risk factors with other emotional disorders. Anorexia has been linked to negative emotive and psychological states such as depression, obsessive-compulsive disorder, alexithymia - an inability to express feelings verbally - and empathy disorder (Rothschild-Yakar et al., 2018; Doba et al., 2018). Depression and anxiety have been associated with Bulimia, Binge Eating and ARFID (Khairalla et al., 2019; Kohn, 2016). Bulimia and Binge Eating have also been linked to affective disorders, anxiety, high emotion, avoidance strategies, impulsivity and disinhibition (Khairallah et al., 2019; Palmer, 2000). In addition, Brownstone et al. (2013) cite studies that show that hard exercise in connection with BN and BED can also be linked to suicidal thoughts. ARFID sufferers often experience depression and this disorder is commonly linked to neurodevelopmental and anxiety disorders such as ADHD, autism spectrum disorders and obsessive-compulsive disorders. Persons affected by ARFID are also very likely to limit their food intake to deal with negative feelings or difficult experiences (Kohn, 2016; Fisher et al., 2014). However, studies find that ARFID sufferers are less likely to have a mood disorder (Zimmerman et al., 2017; Khairallah et al., 2019).

1.5.4 Personal Characteristics

Several studies suggest that personal characteristics also play a significant role in the onset and maintenance of EDs (Palmer 2000; Peterson et al., 2010; Farstad et al., 2016). Sufferers of EDs in general show higher emotional instability and lower self-esteem and tend to exhibit higher perfectionism and neuroticism when compared to control groups (De Caro & Di Blas, 2016; Gual et al., 2002). An inability to develop adequate emotion regulation strategies may lead to the development of an eating disorder, which becomes a means of constructing a sense of cohesiveness and self-regulation (Rothschild-Yakar et al., 2018; Morris, 2008).

People affected by Anorexia, especially, tend to be more diligent and perfectionist. They are often high achievers, very motivated, persistent and conscientious. However, they are also very self-critical, not great risk takers and have feelings of unworthiness (De Caro & Di Blas, 2016; Fassino et al., 2002). Lask & Bryant-Waugh (2000) describe sufferers of anorexia as "pathologically compliant" and suggest that their perfectionist persona could be a salient feature in the persistent restraint that is needed to maintain their ED. This perfectionism becomes increasingly exhibited and gratified in the disorder, as dieting and starvation allow a sense of being in control (de Groot et al., 1994).

Personality attributes associated with Bulimia are disinhibition, (also seen in BED), and attachment disturbances (Roberto et al., 2010; McDonald, 2019). Gregariousness, impulsivity, novelty seeking, harm avoidance and risk taking are also characterises frequently observed in persons affected by Bulimia (Farstad et al., 2016; Fassino et al., 2002; Bekker et al., 2004). These features are unsuited to the restraint needed to sustain anorectic starvation, and are more likely to encourage binge and purge behaviours (Lask & Bryant-Waugh, 2000). Compared to control groups or suffers of BED, persons affected with BN tend to be more

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reactive to stress and experience more negative emotions (Peterson et al., 2010, p.34). Brown et al. (2011), suggest that a greater compulsive rigidity, combined with disinhibition and anxiety, contributes to the cycle of bingeing and purging.

People suffering from Binge Eating Disorder tend to share some characteristics with sufferers of Bulimia, such as negative emotionality, higher levels of depression relative to control groups, low self-esteem and anxiety. They exhibit higher harm avoidance and may be more averse to danger and risk taking in general (Keski-Rahkonen et al., 2009; Peterson et al., 2010; Brown et al., 2011). Some studies have found BED to be associated with greater depressive symptoms, struggles with impulse control and greater difficulties in restraint (Roberto et al., 2010; Allen et al., 2015).

Since ARFID is a relatively new diagnostic category, there is limited data regarding causes, maintenance and treatment. However, some understanding can be gained from the literature and case studies available. Persons affected by ARFID tend to have sensitive personalities and there is evidence that, in some cases, sufferers might be restricting their food to cope with difficult feelings, an emotional crisis, or an unpleasant experience (Görmez et al. 2018; Karadere, 2018).

While personality is generally thought to have a relationship to eating disorders, the debate remains as to whether and to what extent, personality is causal to EDs, predisposes an individual to an eating disorder, or generates complications during the course of the disorder (Farstad et al., 2016; Fassino et al., 2002).

1.5.5 Self-esteem and Body Image

In examinations of causes of eating disorders, the main debate seems to be between personal vulnerabilities and low self-esteem. Low self-esteem is generally linked to exposure to images of impossible beauty ideals. Media representations of idealised female beauty, and increasingly also male ideals, are thought to heighten or create dissatisfaction with one's own body. The impossibly thin and unhealthy bodies that are touted in the media and online as ideals of beauty are internalised and constant exposure to these images is credited with causing the body-image dissatisfaction that is strongly associated with the onset of EDs. (Morris, 2008; Treasure, 1997; De Caro et al., 2016; Polivy & Herman, 2004). The increase in eating disorders in the Fiji Islands following the introduction of Western TV and TV programmes in 1996, is often cited as proof of the negative influence of the media on self-esteem and body image (Scheel, 2014). However, Gerbasi et al. (2014) attest that media influence is not solely responsible for this. They list peer pressure and the effects of globalisation as significant influences for the sharp increase of eating disorders post-1996. In China and Japan, eating disorders have also been seen to be increasing. New models of body image, together with the rise of a consumer economy, have led to concerns about being 'fat', particularly among young females (Hoek, 2016).

The dieting that low self-esteem and body image concerns often lead to has repeatedly been proposed as a significant risk factor for eating disorders, (Stice et al., 2012; Treasure et al., 2010). In addition, the ubiquity and impossibility of the modern ideal of thinness sets women up for failure (Tiggemann et al., 2010). Modern female images of idealised beauty are on average 23% thinner than an average-weight woman (Bowman, 2000, quoted in Esposito, 2008, p. 9). Comparisons between oneself and the constant onslaught of beautiful images seen in the media and on social media, particularly in the arenas of fashion and

beauty, contribute to poor self-esteem, setting up the vicious cycle that leads, ultimately, to eating disorders (Morris, 2008; Treasure et al., 2010; Tiggemann et al., 2010). Some researchers believe that women may equate this idealised beauty and thinness with success in life, rendering them vulnerable to the behaviours that could lead to an ED (Tiggemann et al., 2010; de Groot et al., 1994). In instances where these comparisons between success and thin-ideal are not present, there is less likelihood of body dissatisfaction and disordered eating. (Tiggemann et al., 2010; Orsini, 2017).

1.5.6 - Negative experiences

Food and weight-related detrimental experiences, such as negative comments related to weight, bullying, and a generalised bias towards thinness and stigmatisation of fatness are also deemed contributing factors to the onset of eating disorders. General adversity or trauma, such as neglect and physical, emotional or sexual abuse are also seen as factors that could precipitate the risk of developing an ED, particularly childhood or adult sexual abuse (Treasure et al., 2010; Monaco et al., 2016; Holzer et al., 2008, p. 561).

Eating disorders arise from an interaction between multiple factors. Although the causes of eating disorders are diverse and complex, and there is never one single trigger, it is helpful to distinguish the risk factors for the development, maintenance and escalation of an ED (Treasure et al., 2010; Zhang and Wing, 2015). However, the factors that set off a disorder may not be what maintains it and it is unclear whether these factors are a cause or a consequence of the eating disorder (Khairallah et al., 2019).

1.6 The Epidemiology of Eating Disorders

The epidemiology of eating disorders provides information about their occurrence and trends in frequency over time. Longitudinal epidemiological studies of EDs are difficult because data gathering methods vary, diagnostic criteria may change over time, and also because ED patients tend to hide their disorder from health professionals, making diagnosis tricky, raising the possibility that studies may be underestimating the incidence of EDs. With studies based on data from clinical settings there is an increased likelihood that figures are not representative, as inpatient settings represent the more severe cases of the disorder. Disparities regarding access to appropriate care may also result in situations where the rates of persons affected with eating disorders are higher than shown by the study. However, despite the challenges, epidemiological studies remain extremely important in providing a wider picture of eating disorders, particularly within understudied areas of the world, and provide health care authorities with the understanding on which to base their provision of care (Hoek, 2016; Van Hoeken, Burns & Hoek, 2016; Keel et al., 2003).

Erskine et al., (2016), note that the inclusion of Anorexia and Bulimia in The Global Burden of Disease, marked an important recognition of these disorders. In the 2013 Global Burden of Disease study, Anorexia Nervosa and Bulimia Nervosa combined were ranked as being the 12th leading cause of disability-adjusted life years (DALYs) out of 306 mental and physical disorders for the high-risk group of females aged 15-19 in high income countries. Meanwhile, the ranking for low- and middle-income countries was 46 (Erskine et al., 2016). Globally, the US, India and China lead the world in DALYs lost to eating disorders for women aged 15-19 years (Hoek, 2016).

Time trend data for incidence of eating disorders show that they have remained relatively stable over time, apart from in the 1960s and 1970s there was an increase in incidence.

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This jump also coincides with a change in the idealised female form from a healthy-weight Marilyn Monroe to very thin ideals such as Twiggy, whose weight was below the healthy average for females (Hoek, 2016; Keski-Rahkonen and Mustelin, 2016). Otherwise, the relative stability of figures for ED incidence is thought to be due to better diagnostic criteria and mental health care. European figures show that reported incidence rates for Anorexia Nervosa seem to be increasing, however this has been attributed to improved detection, and indications are that the true incidence remains stable. Rates for Bulimia show that this disorder may be declining, while rates for Binge Eating Disorder, on the other hand, seem to be on the increasing. This increase is especially marked among multi-ethnic and minority groups. (Keski-Rahkonen & Mustelin, 2016; Smink et al., 2012).

Point prevalence for Anorexia in Europe and the USA is 0 to 0.9%, with an increase to 0.29% for the high-risk group of females aged 15-19. In Europe, Anorexia Nervosa is reported by 1-4%. Scheel, (2014) reveals that female Anorexia is highly prevalent in Austria (1.55%) and France (1.42%). The lowest prevalence was in Northern Ireland and the Netherlands. Point prevalence for Bulimia in Europe is 1-2%. The estimated point prevalence for Bulimia in the US is up to 1%. In Europe, Binge Eating Disorder is reported by 1-4% of women. Figures for men reporting eating disorders in Europe are 0.3-0.7% (Hoek, 2016).

For the other continents and countries, prevalence rates are far less widely studied. The prevalence of eating disorders in Japan and China is widely held to be at par with European levels, while estimates for the Arab countries show that prevalence is lower, although it is known that EDs in these countries is also on the rise (Hoek, 2016). The scarcity of available literature for Latin America precludes an analysis of cultural differences in prevalence of eating disorders on this continent, however it is known that EDs are common. A meta-analysis study conducted by Kolar et al. (2016), found that the weighted mean point prevalence for AN in Latin America is 0.1%, that for BN is 1.16% while that for BED is 3.53%. There is a lower prevalence rate for AN but a higher rate for BN and BED when compared to Europe and the US, which ties in with studies of Hispanic immigrants to the US (Kolar et al, 2016; Hoek, 2016). Figures for Africa are even harder to calculate, given the paucity of epidemiological studies of the African continent. A meta-analysis of studies by Van Hoeken et al., (2016), found that no cases of AN were reported in Africa, although that might have been due to use of DSM-IV criteria. It is likely that the use of the newer DSM-5 criteria would have resulted in more cases. Point prevalence of BN was found to be 0.87%. Rates for BED were challenging to calculate as they would have been included in EDNOS diagnoses. The point prevalence rate for the latter was 4.45% (Van Hoeken, 2016). These figures are also in line with the rates reported for African-American women in the USA. Potential reasons for the lower rates of AN in Latin America and Africa compared to Western Countries, is that the preferred body ideal in these cultures is more curvaceous and body weight of the idealised body type is higher than in Western cultures (Van Hoeken, 2016; Hoek, 2016).

These studies show is that although the most studied cohort is females aged 15-19-years, eating disorders do exist among men and older women, and are also on the increase in non-Western countries, such as Arab and Asian countries. However, studies of all these demographics are limited and further study is needed in order to provide a better perspective of the epidemiology of eating disorders.

A study of socio-demographic and environmental factors for ED epidemiology by Mitchison & Hay (2014), confirmed a strong correlation between age and sex. EDs,



apart from BED, are more prevalent in younger females. This study also found no clear correlation between ethnicity and EDs, although BED tended to have higher prevalence among minority ethnicities. Lower education and socioeconomic status were found to have a minor impact, while marital status and the impact of urbanicity were found to have null effects. Geophysical environment was also seen as having no effect on prevalence of EDs. However, sporting environments, namely those where low weight and lightness are valued, such as dancing, gymnastics, modelling, wrestling and being a jockey, were seen to have clear associations with EDs, although not with BED. Mitchison & Hay (2014), also confirmed that an association exists between history of abuse, past traumatic or disruptive events and eating disorders. However, the authors state that although correlations were established, it remained unclear whether these are causal to EDs or effects. They state that it is more likely that “a reciprocal relationship whereby individual characteristics (such as perfectionism) interact with environmental pressures to result in the development of an ED symptomatology” (Mitchison and Hay, 2014, p. 94).

Understanding of the epidemiology of eating disorders informs decisions on future care. The European study by Keski-Rahkonen & Mustelin (2016), in particular, sheds light on the routes in which sufferers of eating disorders come to treatment. Their study of epidemiology in Finland and London, showed that only one third of sufferers had been detected by health professionals. This points to the fact that even in countries with an advanced socio-economic status and adequate healthcare system, eating disorders are not readily diagnosed in a primary care setting and that perhaps more needs to be done to enable practitioners to recognise and assist sufferers.

1.7 THE EFFECTS OF EATING DISORDERS

Eating disorders have wide-ranging effects on the lives of sufferers. The medical, psychological and social consequences of an eating disorder could have severe detrimental effects for sufferers. The rationale for treating these disorders as well as the impacts are examined below.

1.7.1 Why treat?

Persons suffering from eating disorders are affected by a number of adverse medical and psychological problems. As a consequence of their disorder, sufferers lead blunted, subpar lives, and make costly and high-volume use of health services (Fursland, 2019, Stice et al., 2012). In more extreme cases the effects of the disorder can become acute, necessitating intensive hospitalisation and life-saving treatment (Treasure et al., 2010; Sim et al., 2010). AN and BN, particularly, have the highest mortality rate of all the psychological illnesses (Crow et al. 1999; Eating Disorders, 2013) and suicide attempts are common among patients with EDs, particularly for sufferers of AN, where it remains the most common cause of death (Patton, 1988; Suokas et al., 2014).

1.7.2 Medical consequences

While EDs can begin at any age, the average age of onset is between 10 and 19 years of age. These are crucial years for physical and psychological development (Treasure et al., 2010; Eating disorders and early adolescence, 2014), and the presence of an eating disorder at this developmental stage tends to disrupt natural growth and can have an impact on the health and wellbeing of the patient. Eating disorders put the body under great strain. Jahraus (2018) states that the medical impact of eating disorders touches every organ system in the body. For ED sufferers, the repercussions of the disorder can last for years after remission, especially those affecting the skeleton, brain or reproductive system

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(Lask & Bryant-Waugh, 2000; Morris, 2008). Additionally, Anorexia affects the fertility and maternity rate of female sufferers, and infant birth weight is generally lower in mothers with AN, (although it tends to be higher in those with Bulimia). There is also an elevated risk of miscarriage and perinatal problems (Treasure et al., 2010).

Once body weight improves and damaging behaviours, such as starvation, purging and misuse of laxatives, are stopped, most complications can be reversed. Typical effects of nutritional deficiencies are flaky skin, lanugo, poor circulation, brittle and discoloured nails, fatigue, gastro-intestinal complaints, seizures, amenorrhea, brittle bones, depleted bone marrow, swollen joints, muscle loss, cardiac and renal difficulties (Morris, 2008; Palmer, 2000; Bulimia, 2018). In children and young adolescents, especially sufferers of ARFID, where onset is often in childhood, the main physical effects are weight loss, growth delay, and the other complications arising out of malnutrition or nutritional deficiency (Bryant-Waugh & Kreipe, 2012). In both adults and children with ARFID, several of these negative effects can be overcome once weight gain ensues.

Some physical consequences however are more substantial and can have long-term effects or even be life-threatening. The effects of the electrolyte imbalances, such as lack of calcium, sodium, phosphate, iron and zinc, (all necessary to the regular functioning of various organs), brought about by vomiting and laxative abuse can be long lasting, with consequences being experienced even after weight gain (Treasure et al., 2010; Palmer, 2000) Growth retardation, osteoporosis and bone loss can lead to future bone fragility, fractures, deformity and chronic pain (Morris, 2008; Treasure, 1997; Treasure et al.). Additionally, nutritional deficiencies increase the risk of cardiac arrhythmias, renal failure and infection (Treasure et al., 1997). These negative outcomes are even more severe for children and adolescents, who have less physical reserves than adults, meaning that risks and consequences can escalate rapidly (Lask & Bryant-Waugh, 2000). Physical effects that in adults and older adolescents can be reversed with treatment might not be rectified in the growing child and can have serious, long-term implications on brain function, growth, fertility and bone density (Lask & Bryant-Waugh, 2000; Bryant-Waugh & Kreipe, 2012).

1.7.3 Psychological and social consequences

As well as impacting health, eating disorders cause significant disturbance to an individual's social and psychological wellbeing. As the Minnesota Starvation Experiment showed, "starvation dramatically alters personality" (Kalm & Semba, 2005, p. 1347), and subsequent studies have also shown that nutritional deficiency has a powerful effect on a person's mood (Espie & Eisler, 2015; Khairallah et al., 2019; Stice & Desjardins, 2018).

Matytsina et al., (2014), state that many of the behavioural and personality changes shown by sufferers of Anorexia are a result of starvation and malnutrition. These include fixed thoughts about food (they will happily collect recipes or pictures of food or cook for their family), ritualistic eating, being secretive about their eating and other features of obsessive-compulsive personality disorder which are not only limited to food. Sufferers also often tend to be beset by feelings of unworthiness and hold themselves to punishing standards that make it very difficult for them to ease their anorectic behaviours. Tendencies towards self-harm and suicide are also a risk and might increase during treatment, as, once the patient starts to get better and gain weight, old insecurities will return (Matytsina et al., 2014). Sufferers of Bulimia and of Binge Eating Disorder experience feelings of shame, guilt, being out of control, low self-esteem and self-contempt (Dippel & Becknal, 1987;



Khairallah et al., 2019). These negative feelings may be related to opinions about failure in restraint or to thoughts of weight gain (Roberto et al., 2010). ARFID also causes distress and dysfunction (Görmez, 2018). Apart from the distress experienced by some sufferers when in proximity to the food that causes their disorder, inadequate nutrition contributes to mood changes such as irritability and anxiety (Zimmerman & Fisher, 2017).

In addition, eating disorders engulf a patient's social and daily life. The debilitating effects of Anorexia disrupt concentration and motivation, and cause disturbances to education and employment. This has a knock-on effect on independent living even, in some cases, up to 10 or 20 years from onset. (Treasure et al., 2010). Anorexia sufferers are also often sensitive about their condition and isolate themselves from their peers, which results in diminishing social connectivity and increasing loneliness (Nardone & Brook Barbieri, 2010). Loneliness and social isolation are also effects of Bulimia and Binge Eating, usually related to the time needed to plan and set up a binge, and the secrecy surrounding binges (Dippel & Becknal, 1987). Persons affected by ARFID also report feelings of social exclusion and loneliness, as well as disruption to studies due to medical requirements and hospitalisations (Görmez, 2018; Zimmerman & Fisher, 2017).

EDs have several adverse consequences on every area of a patient's life. They cause physical and psychological harms and greatly diminish the quality of life that sufferers lead, making timely identification and treatment crucial.

1.7.4 How are EDs treated?

With increasing awareness of the severity and extent of eating disorders, most healthcare systems are paying more attention to this problem and seeking to increase the resources and funding available for treatment (NHS Children's and Young People's Eating Disorder Programme, nd; Södersten et al., 2019). The consensus among health and mental professionals is that eating disorders are treatable, however the earlier the patient is diagnosed and treatment is started, the better the outcome (Zhang & Wing, 2015; Matytsina, 2014).

Primary care practitioners, such as dentists, gynaecologists, educators and other professionals, are extremely well placed to do this and can make the appropriate onward referrals (Zhang & Wing, 2015; Morris, 2008). However, EDs share similarities among themselves, as well as differences, and in addition, symptoms of eating disorders overlap with a range of other conditions, making diagnosis challenging for the primary care practitioners and other professionals who might be the first line of contact (Treasure et al, 2010).

Treatment for EDs has evolved empirically based on the clinical experience of what works. (Treasure, 1997). The consensus nowadays is that best practice is a multidisciplinary and tailored approach (Zimmerman & Fisher, 2017). Once an ED is diagnosed, and especially if it is not severe or life threatening, eating disorders are often managed in the community. In cases where the disorder is causing acute medical or psychological problems, the patient will often be referred for inpatient treatment (NICE guidelines for eating disorders: Recognition and treatment, nd; Rothschild-Yakar et al., 2018). The primary focus of treatment is usually the physical and medical aspects of the disorder, however the psychological aspect is also seen as necessary to sustained recovery, and several studies suggest that other aspects should also to be dealt with in treatment, such as nutritional and social aspects, mood tolerance,

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coping skills and the ability to learn to identify and express emotions (Rothschild-Yakar et al., 2018; Peterson et al., 2010). The National Institute for Health and Care Excellence (NICE) states that psychotherapies are the most effective treatment for EDs (nice.org.uk, nd) and cognitive behavioural therapy (CBT) is often recommended as the psychotherapy of choice in the recovery of eating disorders (Shapiro et al., 2010; Görmez et al., 2018). Sometimes the use of antidepressant drugs is recommended, however, some studies have reported negative findings and their efficacy is uncertain (Treasure et al., 2010). In adolescents use of antidepressants is not recommended, due to the possibility of increased suicidal risk. For all the disorders, treatment may be complicated by medical or psychiatric co-morbidities, which will also need to receive attention (Treasure et al., 2010).

For sufferers of Anorexia, the primary aim is to restore a healthy and stable weight. To ensure long term success however, treatment needs to encourage and enable a different approach to food and eating for the patient. Alternative strategies that will replace the anorectic coping behaviours will also be necessary. The return to a more stable weight may cause extreme distress and this will need to be anticipated and managed (Treasure, 1997). Although a short inpatient stay will alleviate acute risk, in general, a longer, inpatient residency is thought to be the most beneficial system of treatment. With AN patients, and in other cases where weight needs to be restored to a satisfactory level, this reduces the risk of relapse (Treasure et al., 2010). Recovery from Anorexia can be slow and if the patient has had the disorder for a number of years there is a significant chance that full recovery may not be possible. Many sufferers may experience relapses and recurrences and, for some, the best course might be to manage their condition (Palmer, 2000; Keski-Rahkonen et al. 2009). For Bulimia and Binge Eating Disorder, psychological interventions such as CBT have also been shown to be efficacious. For BED particularly, pharmacotherapy alongside CBT has shown positive results (Treasure et al, 2010; Eating disorders - binge eating disorder, 2019). However due to the likelihood that the patient is overweight, weight management will also need to be a part of treatment. (Treasure et al, 2010).

With ARFID there is less clinical evidence regarding treatment and not much outcomes information, particularly for adults (Zimmerman & Fisher, 2017). However, there are a number of case studies that show the effectiveness of a multidisciplinary approach for this disorder too. Treatment involving collaboration between medical practitioners, nutritionists, psychologists and behavioural interventions, particularly systematic desensitisation, has demonstrated positive results (Görmez et al., 2018; Bryant-Waugh & Kreipe, 2012).

Several treatment models have shown that, unless there are pressing reasons not to, such as a history of abuse, including a sufferers' family in their treatment plan will dramatically increase the likelihood of a successful outcome, particularly for children and adolescents (Treasure et al., 2010; Nardone & Brook Barbieri, 2010; Le Grange et al., 2010). For family members find the disorder of their loved one is generally extremely distressing and ED treatment programmes often include support for family and carers. (Treasure et al., 2010; NICE guidelines for Eating disorders: recognition and treatment, nd). Along with day or outpatient treatment, other forms of treatment delivery are being trialled especially for BN and BED, such as text message, email treatment or CBT sessions via internet (Treasure et al., 2010; Shapiro et al., 2010). With all eating disorders there is a chance that the disease might run a chronic course. Recovered sufferers remain vulnerable and there is a chance that they may relapse (Palmer, 2000). In fact, about one third of patients relapse within 5 years from treatment (Keel et al. 1999; Orsini, 2017).



As seen above, clinical evidence shows that the best approach to treating EDs is through a multidisciplinary system that treats the whole person and not just the disorder. Despite wanting to get better, sufferers in the grip of an eating disorder may present much opposition to treatment and this will require patience and careful management from the practitioners entrusted with their care.

1.8. THE SITUATION IN MALTA

Whereas until rather recently, general awareness of eating disorders and their impact on the lives of sufferers was limited, this has greatly improved in recent years. In a 2008 document issued by the Department of Health, (Information and Research Strategy and Sustainability Division within the Ministry for Social Policy in Mental Well-Being), the study found that there was only one person in Malta at the time suffering from an ED:

“only 3 respondents reported having a lifetime experience of anorexia and/or bulimia nervosa. All were female. 2 were between 15 – 24 years of age, while 1 was between 65 – 74 years. One respondent only reported having symptoms during the past year and having the condition diagnosed by a doctor.”

Department of Health, Information and Research Strategy and Sustainability Division Ministry for Social Policy, 2008. European Health Interview Survey 2008 - Mental Well-Being. (p.17)

The report goes on to speculate that awareness of EDs in the population was estimated to be low. In fact, prior to 2012, very few services for ED sufferers existed. Severe cases received inpatient treatment in the psychiatric institution of Mount Carmel Hospital, while extremely serious cases of Anorexia were treated at Mater Dei Hospital, Malta's general hospital. Anecdotal accounts reveal that treatment for patients with less severe cases of eating disorders was mostly self-sought, with sufferers self-referring to their general practitioner and subsequently seeking out the help of nutritionists, psychologists and other professionals on their own initiative. Many found this to be “very expensive and time consuming” (Esposito, 2008, p. 16). However, in 2008 there were discussions about this problem with a view to setting up a better system (Esposito, 2008, p. 23).

To this end, in 2012, a survey was conducted to determine the prevalence of eating disorders in Malta and ascertain what the requirements were. The study, which examined a representative sample of 15 to 50-year olds from the general population, found that the prevalence of EDs in Malta was comparable to that in other European countries, with a lifetime prevalence of Anorexia at 2.4%, 0.8% for Bulimia and 2.6% for Binge Eating. In Malta, similarly to the rest of Europe, females were found to be affected more than males (4.7% compared to 1.2% for males). Awareness was seen to be quite good, although more was required, especially to improve knowledge among those with a lower level of education (Grech, 2013).

To tackle this problem, in 2014 Dar Kenn għal Saħħtek, a center for the treatment of eating disorders and obesity, was set up in Mtarfa. This is a residential and semi-residential facility that provides holistic treatment led by a multidisciplinary team of professionals. The treatment programmes available also offer support to the family and carers of sufferers and there is a follow-up programme through which patients are followed for two years after discharge to reduce rates of relapse. Since its inception, Dar Kenn għal Saħħtek has provided much needed treatment for numbers of sufferers of eating disorders. The holistic treatment follows

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best practices found in the literature, as well as mirroring the practices at an Italian centre in Umbria with which it has a collaboration and training agreement (Falzon et al., 2015).

In 2018, students at a local secondary school, conducted a study of ED knowledge in the community (Gatt et al., 2018). They found that there are still gaps in public knowledge of eating disorders. A common misconception is that EDs only affect females and not males, and there is a general lack of knowledge about the three main EDs – AN, BN and BED. Also, despite the fact that Dar Kenn għal Saħħtek had already been operational for 4 years and had received positive coverage in the national press, as well as having a presence on Facebook, the study found that there was not much knowledge of where to go for treatment for eating disorders (Gatt et al., 2018, p. 4). Orsini (2017), also found that there is not enough awareness in Malta. She felt that “the general Maltese perception [is] that eating disorders are a non-threatening medical condition at a social level”. She added that while there have been several public health campaigns, such as those advocating safe sex or not drinking and driving, there have been no widespread public information campaigns about eating disorders. (Orsini, 2017, p. 114). This shows that while we have done very well in treating eating disorders and are on par with best practice in Europe, we still have some way to go when it comes to raising public awareness and correcting common misconceptions about eating disorders.

1.9 CONCLUDING REMARKS

This chapter has outlined theoretical conceptualisations of eating disorders and examined the principal disorders as well as the factors influencing onset and continuation of EDs in sufferers. Information about the epidemiology of eating disorders was presented, as well as an overview of the effects of EDs, the range of treatments available and their effectiveness. Lastly, it looked at the situation in Malta. This literature review found that although the area of eating disorders is widely studied, there remain gaps in our knowledge that require further investigation. Prevention of EDs, early detection, training of first-contact professionals and awareness of non-typical demographics are a few areas that require attention. In addition, education and dissemination to the wider population would also be beneficial.



CHAPTER 2

Methodology

METHODOLOGY

This research project sought to understand the prevalence of eating disorders amongst young persons in Malta. To conduct the study, a review of the academic literature on the topic was necessary to gain an in-depth understanding of the nature and processes of eating disorders, as well as of general trends in the development and maintenance of these disorders. This section of the report explains the methodology adopted in this study, presents the research questions underpinning the study, and the research design implemented to engage with the research questions. It also discusses the choice of data-gathering tools and sampling and recruitment strategies. This part of the report explains the methods adopted to analyse the data and the ethical considerations of the study.

2.1 RESEARCH QUESTIONS AND AGENDA

In 2012, the National Office of Statistics carried out a survey to determine the prevalence of eating disorders in Malta, in persons aged 15 to 50 years old (Falzon Aquilina et al., 2015). This study led to the opening, in May 2014, of Dar Kenn għal Saħħtek, a residential and semi-residential centre offering treatment for obesity and eating disorders (Falzon Aquilina et al., 2015). Since then, however, there have been no nation-wide studies examining eating disorders in the Maltese population and to date there have been no studies that have examined the prevalence of eating disorders among 10 to 16-year olds. Nevertheless, the experience of Dar Kenn għal Saħħtek is that the numbers are present and rising (Zerafa, D., personal communication, November 2019).

The current study was commissioned by Dar Kenn għal Saħħtek to examine the prevalence of eating disorders amongst young people in Malta. The objectives of this project were:

- 1) to understand the prevalence of eating disorders amongst children and young people in Malta;
- 2) to identify the interplay, if any, between socio-demographic variables such as gender, age, educational background and other related variables, and
- 3) to provide empirical data to enable Dar Kenn għal Saħħtek to develop plans for future treatment and to tailor treatment to the need, as revealed via this study

Prior to data collection, the following hypotheses were made:

- 1) that a proportion of young people, albeit not a large one, would be affected by eating disorders;
- 2) that more females than males would be affected, but that however the proportion of affected males would be higher than expected; and
- 3) that the presence of disordered eating will cut across the socio-economic strata.

2.2 STUDY DESIGN AND PROCEDURE

During the month of August 2020, we examined the eating attitudes and behaviors of 400 children aged 10 to 16 years. According to a sample size calculator¹, the minimum sample size needed for this study to be representative of this age group within the population of the

¹ <https://www.surveysystem.com/sscalc.htm>

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Maltese Islands, with a 95% confidence level and a margin of error of 5, was 379.

The data was collected by random sampling, via a telephone questionnaire. The questionnaire was divided into two parts – demographic questions, to be asked to the parents/guardians; and the questions of the Children's Eating Attitude Test (ChEAT; Maloney et al., 1988) to be put to the children. ChEAT is an adaptation of the EAT, (a self-report instrument for adults), and is designed specifically for use in children. The ChEAT is a well-tested, standardised questionnaire that is widely used for studies of abnormal eating attitudes and behaviours in children and young people. It is made up of 26 questions, all of which were asked to the children. For the data collection, the Faculty for Social Wellbeing collaborated with statistician Dr. Vincent-Anthony Marmara. Together with his team, Dr. Marmara collected the data by calling telephone numbers – mainly mobile numbers – randomly and non-sequentially, using a random number generator. Of the respondents who were contacted, those who had children within the required ages and who consented to participate, were recruited for the study. A total of 1,636 numbers were called. Of these, 547 were not eligible, 174 declined to participate although they were eligible, 6 opted out and 509 did not answer the telephone. The remaining 400 completed the survey. Steps were taken to ensure that the sample was stratified by age, gender and district, in order to ensure that the study was equally representative of this age group within the general population. Once the study was explained to the eligible adult/guardian who answered the phone call, and the necessary consent collected, the parents were asked to reply to the demographic questions. Following this, the conversation was passed on to the children who were asked for their assent and, upon this being received, were then asked the questions of the Children's Eating Attitude Test (ChEAT).

2.2.1 Instrument

ChEAT was identified as the most suitable standardised questionnaire for use with this age group. The ChEAT tests for the presence of eating disorders or disordered eating via 26 questions with responses being ranged on a 6-point Likert scale from “always” to “never”. It has been widely tested and has been used in many countries, with various age brackets of children and young adolescents. ChEAT has been found to have good psychometric properties with good reliability and validity, even when translated into other languages. Research into the validity of ChEAT states that although it is not to be considered a diagnostic instrument on its own - it would need to be used in conjunction with a clinical interview for a full diagnosis - it is an extremely useful indicator of the presence of disordered eating and possibly an eating disorder.

Some studies have used modified versions of ChEAT, such as a 23-item, and a 25-item version, however for this study we elected to use the original version as designed by the creator of the instrument, and will be utilizing the terminology ChEAT26 to refer specifically to the 26-item version of the questionnaire. A decision was also made to utilise the conventional scoring system, whereby answers of “sometimes”, “rarely” and “never” are assigned a score 0, “often”, a score 1, “very often” scores 2 and “always” is assigned a score of 3, and total score is the aggregate of the points assigned to the items, (as per Murphy et al., 2019). ChEAT26 scores for each respondent are added up, with the range of scoring being from 0 to 78. Some studies have reverse-coded one or other of the questions², depending

2 For example Chiba et al., (2016) reverse coded item 25 (I enjoy trying rich new food). This item is often seen as having low, negative correlation to the total score and in this study, it was eventually disregarded in the findings as it gave a low Chronbach's alpha (0.37). Sohvi et al., (2020), reverse coded item 19 (I can show self-control around food), which is also often seen as problematic.



on what results they were examining. Since for the purposes of this study we are looking at prevalence of eating disorders among young people, we opted not to do this. The creators of ChEAT26 established 20 as the cut-off point, whereby a score of 20 or higher indicates the presence of disordered eating or an eating disorder, and with higher scores indicating greater eating disturbances. Permission for use in the current study was obtained from Dr. Michael M. Maloney, the copyright holder and main author (Maloney et al., 1988), and the questionnaire was translated into Maltese and back-translated into English by two independent researchers to test the validity of the translations. The Maltese version was also tested to ensure that it was understandable for the cohort.

2.2.2 Ethical Approval

All study materials and procedures were submitted to the ethics committee (FREC) of the Faculty for Social Wellbeing, at the University of Malta. Due to the sensitive subject matter and young age of the cohort under study, the proposal was also forwarded by them to the University Research Ethics Committee (UREC) and further reviewed by the Information and Data Protection Commissioner (IDPC) to ensure that the integrity of the study and anonymity of respondents was maintained. Approval to proceed was granted in July 2020 and the data was gathered in August 2020.

2.2.3 Statistical Analysis

The data gathered was analyzed using Excel and SPSS (Statistical Package for the Social Sciences). Descriptive statistics were used mainly to summarize the socio-demographic characteristics of the cohort. Crosstabs and means testing were used to further analyze the results. Chi-square tests were used to evaluate associations between variables and to perform a 5-factor analysis of the responses to examine the actors of weight preoccupation, dieting, food preoccupation, vomiting or purging and social pressure, as specified in the 5-factor model illustrated in Murphy et al.³. Results were considered to be statistically significant if the p-values were less than or equal to 0.05. The internal consistency was evaluated using Cronbach's alpha coefficient, as was the consistency for the individual items of the ChEAT26.

CHAPTER 3

Findings



3.1 RELIABILITY

Internal consistency was tested using Cronbach's alpha. The Cronbach's alpha for the entire scale was 0.77, which compares well to other studies using ChEAT ⁴. An analysis of Cronbach's alphas for each of the 26 items on the ChEAT showed that mostly, even if individual items were deleted, the Cronbach's alpha would remain in the range of 0.745 (achieved for Item 14, I think a lot about having fat in my body) to 0.783 Item 5, (I cut my food into small pieces). However, the elimination of Item 19 (I can show self-control around food), would have resulted in a Cronbach's alpha of 0.806. This item, as explained above, has been shown in various studies to be problematic and in some cases to strongly alter the Cronbach's alpha for the survey. However, in this case, as the difference that the potential elimination of this item would have made would not have been radical, it was decided to not eliminate it from the analysis.

Table 1 – Individual item Cronbach's alphas effect

Question	Cronbach's Alpha if Item Deleted
1 I am scared about being overweight	0.759
2 I stay away from eating when I am hungry	0.766
3 I think about food a lot of the time	0.773
4 I have gone on eating binges where I feel that I might not be able to stop	0.774
5 I cut my food into small pieces	0.783
6 I am aware of the energy (calorie) content in foods that I eat.	0.752
7 I try to stay away from foods such as breads, potatoes, and rice	0.759
8 I feel that others would like me to eat more	0.765
9 I vomit after I have eaten	0.773
10 I feel very guilty after eating	0.766
11 I think a lot about wanting to be thinner	0.764
12 I think about burning up energy (calories) when I exercise	0.750
13 Other people think I am too thin	0.765
14 I think a lot about having fat in my body	0.745
15 I take longer than others to eat my meals	0.775
16 I stay away from foods with sugar in them	0.758
17 I eat diet foods	0.761
18 I think that food controls my life	0.766
19 I can show self-control around food	0.806
20 I feel that others pressure me to eat	0.761
21 I give too much time and thought to food	0.770
22 I feel uncomfortable after eating sweets	0.770
23 I have been dieting	0.761
24 I like my stomach to be empty	0.766
25 I enjoy trying new, rich foods.	0.778
26 I have the urge to vomit after eating	0.773

⁴ Studies by Chiba et al., (2016); Maloney et al., (1988); and Sancho et al., (2005); had Cronbach's alpha scores of 0.81, 0.76 and 0.71 respectively.

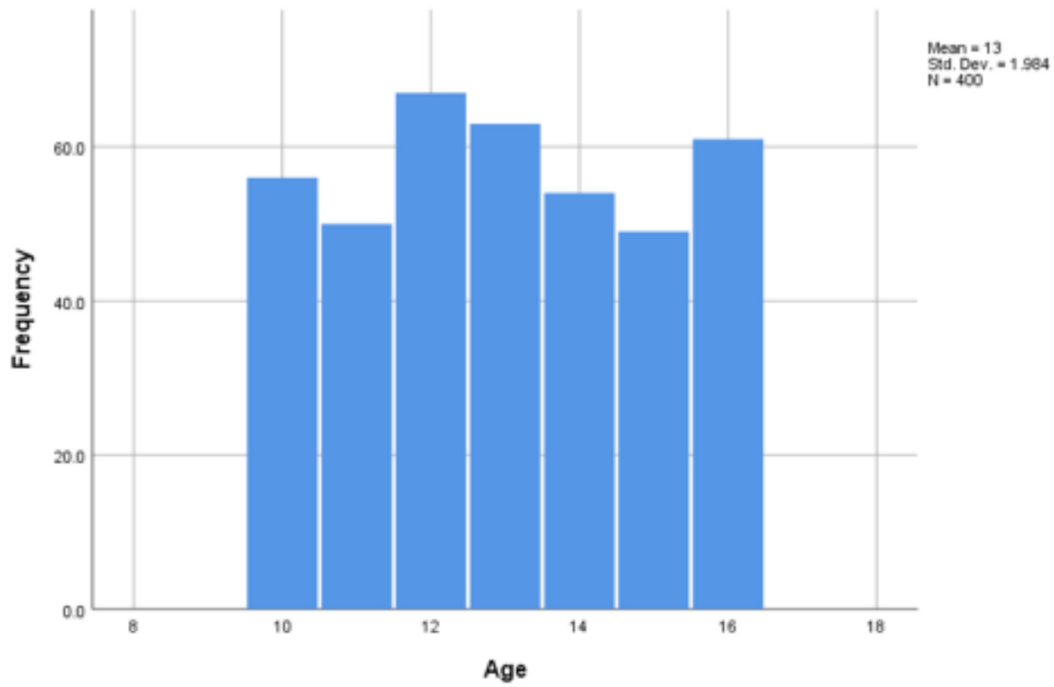
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3.2 PARTICIPANTS

400 participants completed the ChEAT26, of whom 212 were females (53%) and 188 were males (47%). The mean age was 13 with a standard deviation (SD) of 1.98. Distribution across the ages was relatively even, as seen in Figure 1.

Figure 3 - Distribution of respondents by age



The main characteristics of the respondents are presented in Table 1, below.

Table 2 – Main Characteristics of the study population

Characteristic	N	%
Gender		
Female	212	53
Male	188	47
Region		
Gozo and Comino	38	9.50
Northern	50	12.50
Western	44	11.00
Northern Harbour	113	28.25
Southern Harbour	82	20.50
South Eastern Region	73	18.25

Characteristic	N	%
Parents' marital status		
Married	294	73.50
Separated or divorced	75	18.75
Unmarried but living with own children	19	3.00
Lives with partner but not own children	12	4.75
Parent 1 – Educational level		
Primary level	10	2.50
Secondary level	231	57.75
Tertiary level	116	29.00
Post-graduate level	43	10.75
Parent 2 – Educational level		
Primary level	6	1.84
Secondary level	157	48.16
Tertiary level	123	37.73
Post-graduate level	40	12.27
Parent 1 – Employment status		
Employed for wages	220	56.12
Self-employed	32	8.16
Homemaker	113	33.93
Unemployed but looking for work	5	1.28
Unemployed and not looking for work	2	0.51
Parent 2 – Employment status		
Employed for wages	226	71.07
Self-employed	78	24.53
Homemaker	7	2.20
Unemployed but looking for work	4	1.26
Unemployed and not looking for work	1	0.31

Table 3 – Distribution of sample by gender and district

District	Gender		Total
	Female	Male	
Gozo and Comino Region	23	15	38
Northern Region	22	28	50
Western Region	26	18	44
Northern Harbour Region	57	56	113
Southern Harbour Region	56	26	82
South Eastern Region	28	45	73
Total	212	188	400

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Table 4 – Distribution of sample by gender and parents’ marital status

Parents’ Marital Status	Gender		Total
	Female	Male	
Married	163	131	294
Separated or Divorced	40	35	75
Unmarried but living with their children	6	13	19
Lives with partner but not own children	3	9	12
Total	212	188	400

3.3 CHEAT26 SCORE ANALYSIS

From the 400 participants a total of 94.5% of the sample (n = 378), scored below 20 on the ChEAT26. Of these, 49.75% (n = 199) were female and 44.75% (n = 179) were male. 5.5% (n = 22) reported scores at or above the cut-off threshold of 20, signifying that for this proportion of the cohort the presence of disordered eating or an eating disorder is indicated, with higher scores denoting greater likelihood of the presence of an eating disorder.

Table 5 – ChEAT26 Scores by Gender

CHEAT Score	Female N	Female %	Male N	Male %	Total	Total %
< 20	199	49.75%	179	44.75%	378	94.5%
> = 20	13	3.25%	9	2.25%	22	5.5%
Number of Respondents	212	53%	188	47%	400	100%

Examining the distribution of the total ChEAT26 scores for the cohort, (Figure 2), we can see that most of the respondents scored below the cut-off point of 20, as expected since the prevalence of EDs in children and young people is thought to be between 3-5% (Sohvi, 2020; NEDA, 2018b). These figures suggest that the majority of 10 to 16-year olds in our study are not indicated for disordered eating or an ED. This is supported by the mean ChEAT26 score, which was 6.46, with a standard deviation (SD) of 6.81. For females, the mean score was 6.47, with SD of 6.60, and for males the mean was 6.45 with SD of 7.06.

Figure 2 – Distribution of total ChEAT Score

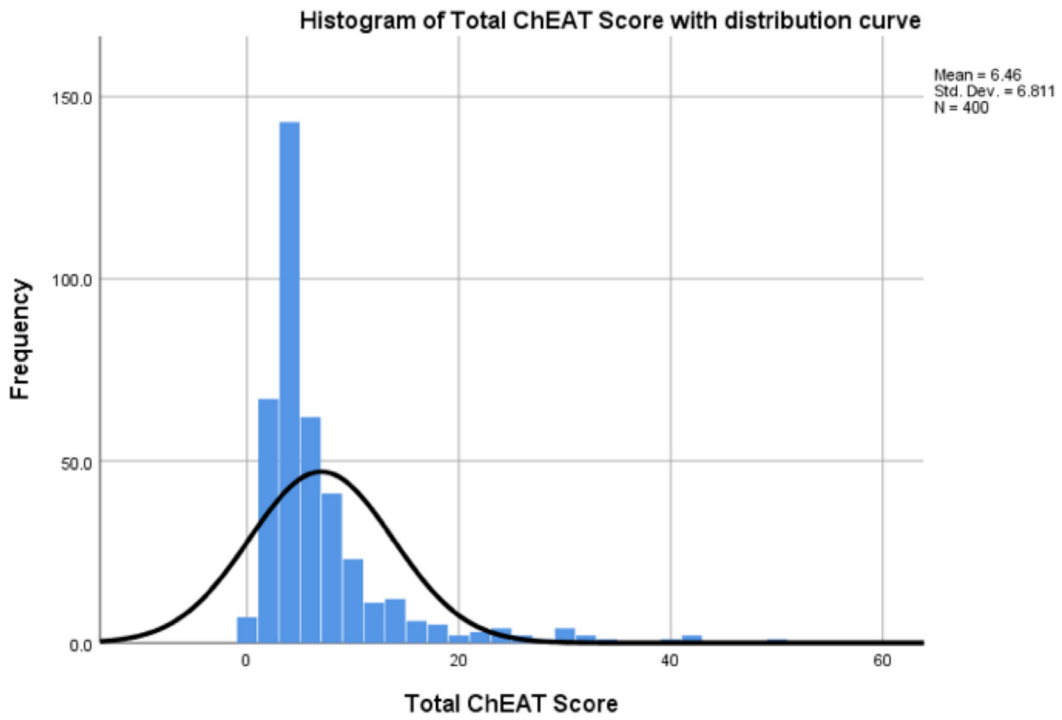
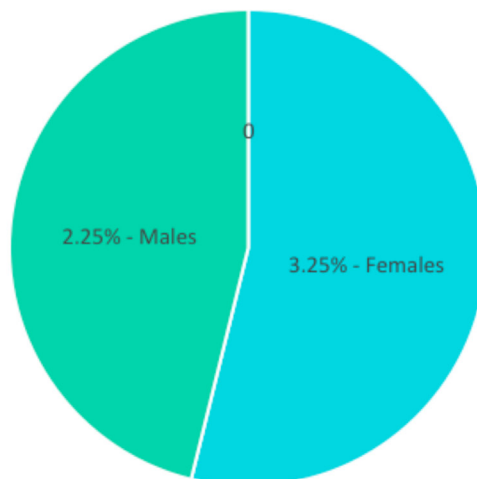


Figure 3 – Respondents with ChEAT26 scores ≥ 20

Total ChEAT 26 score ≥ 20 : is 5.5%



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Table 6 – Demographic details of respondents with ChEAT scores of scoring ≥ 20

Child	Gender	Age	School	Score
1	F	10	Government	25
2	F	14	Government	40
3	F	14	Government	42
4	F	16	Government	22
5	F	11	Government	29
6	F	16	Government	23
7	F	16	Government	20
8	F	12	Private/Independent	21
9	F	10	Government	30
10	F	10	Church	28
11	F	15	Church	22
12	F	14	Government	30
13	F	16	Government	24
14	M	16	Government	32
15	M	15	Private/Independent	49
16	M	13	Government	42
17	M	16	Government	31
18	M	14	Church	29
19	M	16	Government	24
20	M	16	Government	25
21	M	16	Government	23
22	M	12	Private/Independent	33

Of the respondents who scored ≥ 20 , 59.1% (n = 13) are female and 41% (n = 9) are male. The highest score, 49, belonged to a 15-year-old male, living in the Northern Harbour region and who attends a Private/Independent school. The female respondent with the highest ChEAT26 score is a 14-year old female from the Northern Harbour region, who attends a Government school. The mean ChEAT26 ≥ 20 score for females is 27.38, for males it is 28.89.

Table 7 – School attended for respondents scoring ≥ 20 on ChEAT26

School Attended	Female N	Male N	Total
Private/Independent Schools	1	2	3
Church School	2	1	3
Government school	11	6	17

Table 8 – Scoring range for total scores ≥ 20 on ChEAT26

School range	Female N	Male N
20-29	9	4
30-39	2	3
40-49	2	2
> 49	0	0



3.4 INDIVIDUAL ITEM ANALYSIS

Responses for the individual items in the ChEAT26 range from “always” (score of 3), through “very often” (score of 2), “often” (score of 1), “sometimes”, and “rarely” to “never” (all scoring 0). Table 8, below, displays the mean response and standard deviation for each question. Question 19 (I can show self-control around food) had the highest mean score (1.87), with a standard deviation (SD) of 1.150, indicating that “always” was the most common response for this item. In fact, 42.86% (n = 171), of the sample replied “always” to this question, 19.05% (n = 76), replied “very often”, 20.55% (n = 82), replied “often”, 8.02% (n = 32), replied “sometimes”, 4.01% (n = 16), replied “rarely”, while 5.51% (n = 22), replied “never”. The question with the lowest mean score (0.01) was Question 9 (I vomit after I have eaten), with a SD of 0.181. Replies for this question were “always”: 0.25% (n = 1), “very often”: 0.25% (n = 1), “often”: 0.00% (n = 0), “sometimes”: 3.02% (n = 12), “rarely”: 8.54% (n = 34), while 87.94% (n = 350), replied “never”.

Table 9 – Individual item analysis amongst the whole sample

	Individual Items	Mean	Std. Deviation
1	I am scared about being overweight	0.44	0.885
2	I stay away from eating when I am hungry	0.06	0.320
3	I think about food a lot of the time	0.17	0.572
4	I have gone on eating binges where I feel that I might not be able to stop	0.08	0.414
5	I cut my food into small pieces	0.76	1.030
6	I am aware of the energy (calorie) content in foods that I eat.	0.22	0.691
7	I try to stay away from foods such as breads, potatoes, and rice	0.11	0.468
8	I feel that others would like me to eat more	0.16	0.533
9	I vomit after I have eaten	0.01	0.181
10	I feel very guilty after eating	0.04	0.272
11	I think a lot about wanting to be thinner	0.18	0.625
12	I think about burning up energy (calories) when I exercise	0.20	0.637
13	Other people think I am too thin	0.13	0.502
14	I think a lot about having fat in my body	0.22	0.666
15	I take longer than others to eat my meals	0.54	0.904
16	I stay away from foods with sugar in them	0.25	0.753
17	I eat diet foods	0.15	0.551
18	I think that food controls my life	0.08	0.431
19	I can show self-control around food	1.87	1.150
20	I feel that others pressure me to eat	0.12	0.539
21	I give too much time and thought to food	0.12	0.539
22	I feel uncomfortable after eating sweets	0.10	0.471
23	I have been dieting	0.11	0.488
24	I like my stomach to be empty	0.06	0.352
25	I enjoy trying new, rich foods.	0.28	0.685
26	I have the urge to vomit after eating	0.02	0.219

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Table 10 – Individual item analysis by percent and sample size

No.	Question	Always		Very often		Very often		Often		Some- times		Rarely		Never	
		%	N	%	N	%	N	%	N	%	N	%	N	%	N
1	I am scared about being overweight	8.25%	33	2.00%	8	15.25%	61	29.50%	118	13.75%	55	31.25%	125		
2	I stay away from eating when I am hungry	0.75%	3	0.25%	1	2.76%	11	11.78%	47	16.04%	64	68.42%	273		
3	I think about food a lot of the time	1.75%	7	4.01%	16	3.76%	15	15.29%	61	18.80%	75	56.39%	225		
4	I have gone on eating binges where I feel that I might not be able to stop	1.25%	5	1.00%	4	2.50%	10	29.50%	118	22.50%	90	43.25%	173		
5	I cut my food into small pieces	10.83%	43	11.34%	45	20.91%	83	23.68%	94	12.85%	51	20.40%	81		
6	I am aware of the energy (calorie) content in foods that I eat.	4.51%	18	1.75%	7	4.76%	19	17.54%	70	9.52%	38	61.90%	247		
7	I try to stay away from foods such as breads, potatoes, and rice	1.50%	6	1.50%	6	3.51%	14	14.79%	59	14.29%	57	64.41%	257		
8	I feel that others would like me to eat more	1.76%	7	2.27%	9	5.79%	23	18.14%	72	6.80%	27	65.24%	259		
9	I vomit after I have eaten	0.25%	1	0.25%	1	0.00%	0	3.02%	12	8.54%	34	87.94%	350		
10	I feel very guilty after eating	0.25%	1	1.00%	4	1.25%	5	12.03%	48	10.78%	43	74.69%	298		
11	I think a lot about wanting to be thinner	3.50%	14	1.50%	6	4.75%	19	24.00%	96	10.25%	41	56.00%	224		
12	I think about burning up energy (calories) when I exercise	3.25%	13	2.50%	10	5.25%	21	16.25%	65	8.25%	33	64.50%	258		
13	Other people think I am too thin	2.01%	8	1.00%	4	4.76%	19	7.02%	28	5.51%	22	79.70%	318		
14	I think a lot about having fat in my body	3.26%	13	3.76%	15	4.76%	19	19.80%	79	14.04%	56	54.39%	217		
15	I take longer than others to eat my meals	7.59%	30	5.57%	22	19.75%	78	27.59%	109	12.66%	50	26.84%	106		
16	I stay away from foods with sugar in them	5.26%	21	3.01%	12	3.51%	14	20.05%	80	17.04%	68	51.13%	204		
17	I eat diet foods	2.25%	9	2.00%	8	4.25%	17	13.75%	55	13.00%	52	64.75%	259		
18	I think that food controls my life	1.51%	6	1.01%	4	1.51%	6	4.79%	19	5.04%	20	86.15%	342		
19	I can show self-control around food	42.86%	171	19.05%	76	20.55%	82	8.02%	32	4.01%	16	5.51%	22		
20	I feel that others pressure me to eat	2.50%	10	1.50%	6	2.00%	8	10.25%	41	7.50%	30	76.25%	305		
21	I give too much time and thought to food	2.53%	10	1.52%	6	1.77%	7	7.07%	28	11.62%	46	75.51%	299		
22	I feel uncomfortable after eating sweets	1.75%	7	1.50%	6	1.25%	5	11.28%	45	12.53%	50	71.68%	286		
23	I have been dieting	1.77%	7	1.52%	6	3.03%	12	9.60%	38	9.60%	38	74.49%	295		
24	I like my stomach to be empty	0.75%	3	1.00%	4	2.00%	8	6.00%	24	8.50%	34	81.75%	327		
25	I enjoy trying new, rich foods.	3.02%	12	4.27%	17	10.55%	42	42.46%	169	15.83%	63	23.87%	95		
26	I have the urge to vomit after eating	0.51%	2	0.00%	0	0.25%	1	1.27%	5	3.82%	15	94.15%	370		



3.5 FACTOR ANALYSIS

Various studies have examined the latent factorial structure of the ChEAT, with the most widely used being the 3-factor, 4-factor and 5-factor models (Murphy et al., 2019). For this study we have followed the 5-factor model based on 14 items as set out in Murphy et al., as these authors have found this model to be the most robust. The 5 factors examined are: Weight Preoccupation (WP), Dieting (D), Food Preoccupation (FP), Vomiting and Purging (VP), and Social Pressure (SP).

Table 11 – Item-factor pairings for factor analysis

Factor	Item	Wording
Weight Preoccupation (WP)	1	I am scared about being overweight
	11	I think a lot about wanting to be thinner
	14	I think a lot about having fat in my body
Dieting (D)	6	I am aware of the energy (calorie) content in foods that I eat
	16	I stay away from foods with sugar in them
	17	I eat diet foods
Food Preoccupation (FP)	3	I think about food a lot of the time
	4	I have gone on eating binges where I feel that I might not be able to stop
	21	I give too much time and thought to food
Vomiting and Purging (VP)	9	I vomit after I have eaten
	26	I have the urge to vomit after eating
Social Pressure (SP)	8	I feel that others would like me to eat more
	13	Other people think I am too thin
	20	I feel that others pressure me to eat

3.5.1 Examination of mean scores and standard deviation (SD) for the 5 factors

The mean for Weight Preoccupation (WP) is 0.84 with a standard deviation of 1.738. For Dieting (D) the mean is 0.62 with SD of 1.631. Food Preoccupation (FP) has a mean of 0.36 and SD of 1.101, while the mean for Vomiting and Purging is 0.03 with a SD of 0.398 and Social Pressure has a mean of 0.41 and SD of 1.261. Comparing means we can conclude that WP is the most strongly influential factor for this cohort, while vomiting and purging is not a common behavior within this sample.

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Table 12 – Means Factorial Examination – Weight Preoccupation

Factor	Mean	Standard Variation
Weight Preoccupation (WP)	0.84	1.738
Dieting (D)	0.62	1.631
Food Preoccupation (FP)	0.36	1.101
Vomiting and Purging (VP)	0.03	0.398
Social Pressure (SP)	0.41	1.261

Figure 4 – Factorial Examination – Weight Preoccupation

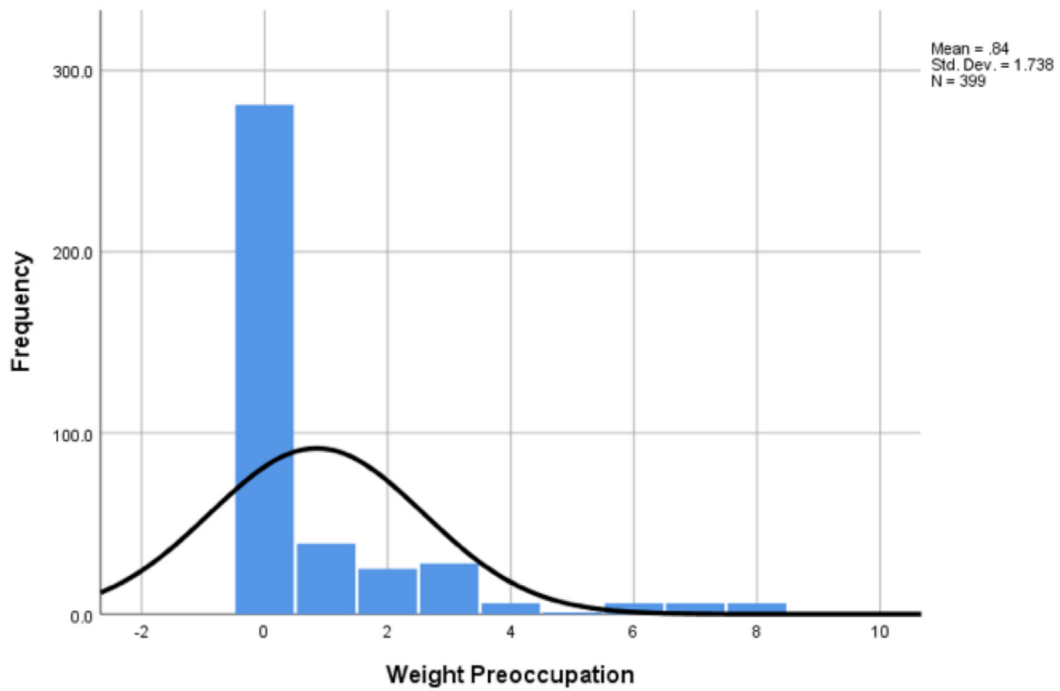


Figure 5 – Factorial Examination – Dieting

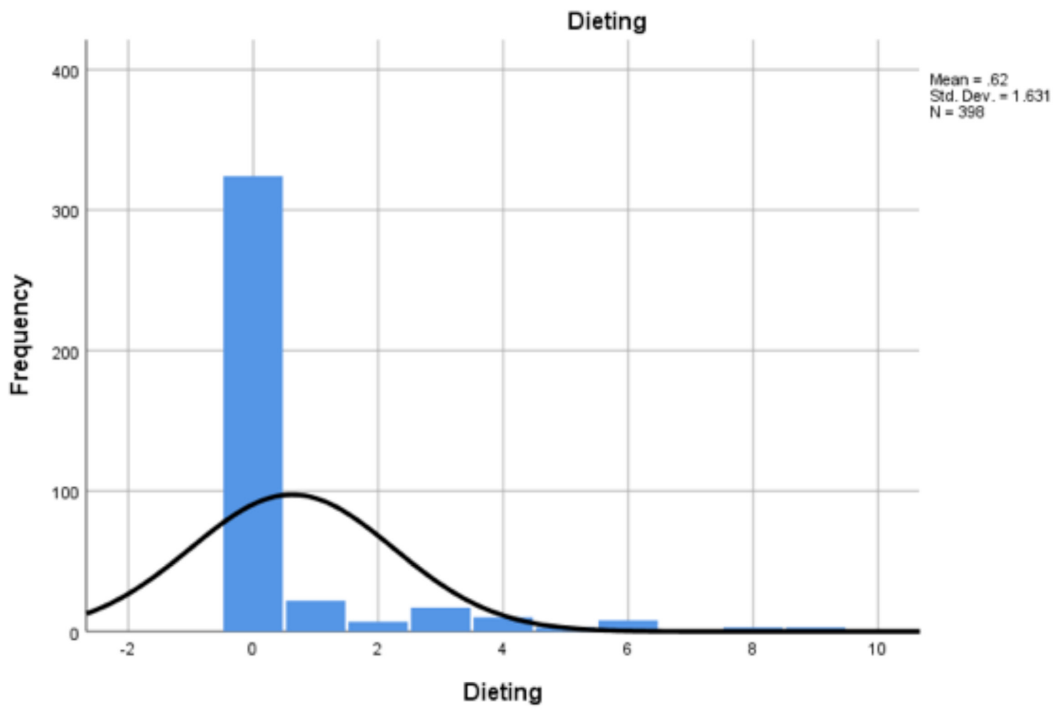
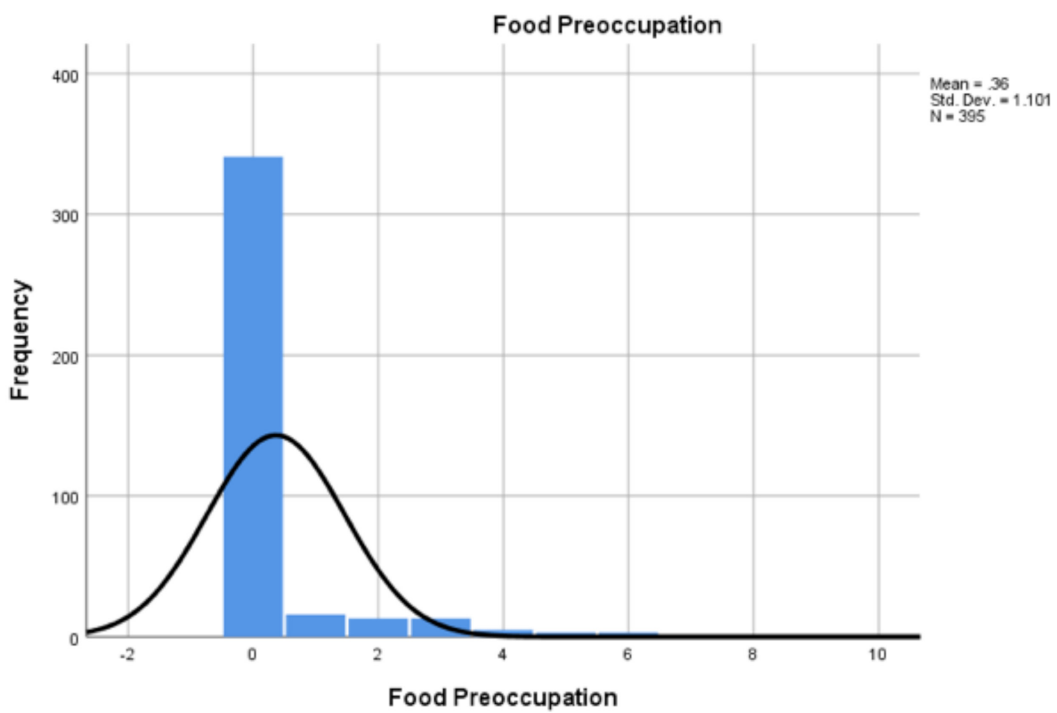


Figure 6 – Factorial Examination – Food Preoccupation



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Figure 7 – Factorial Examination – Vomiting and Purging

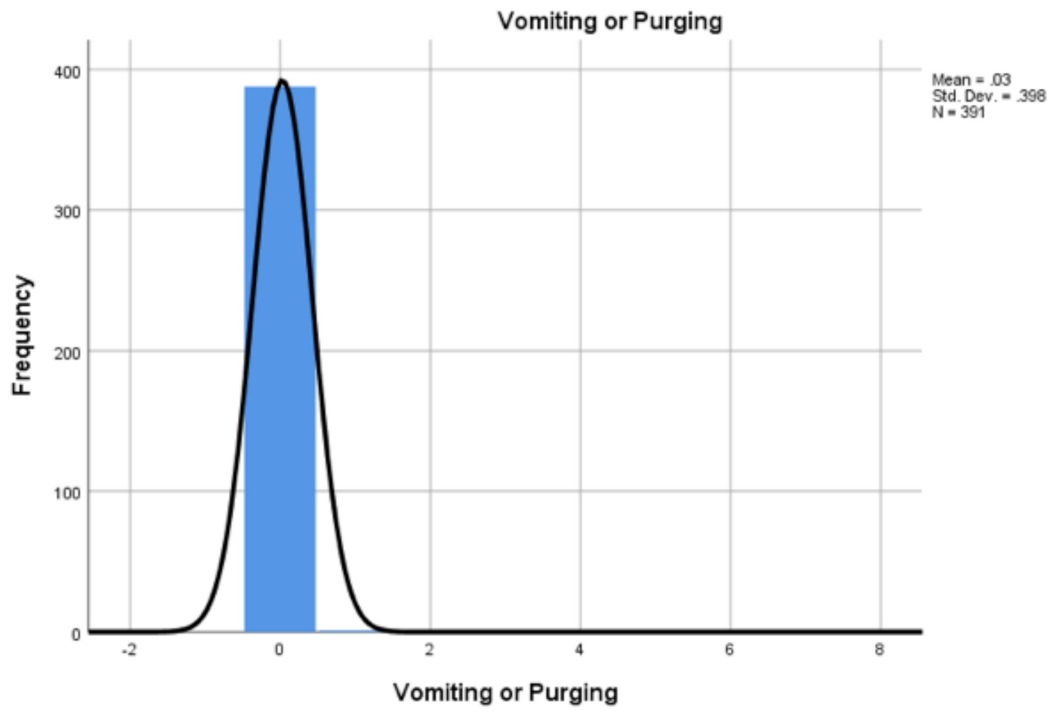
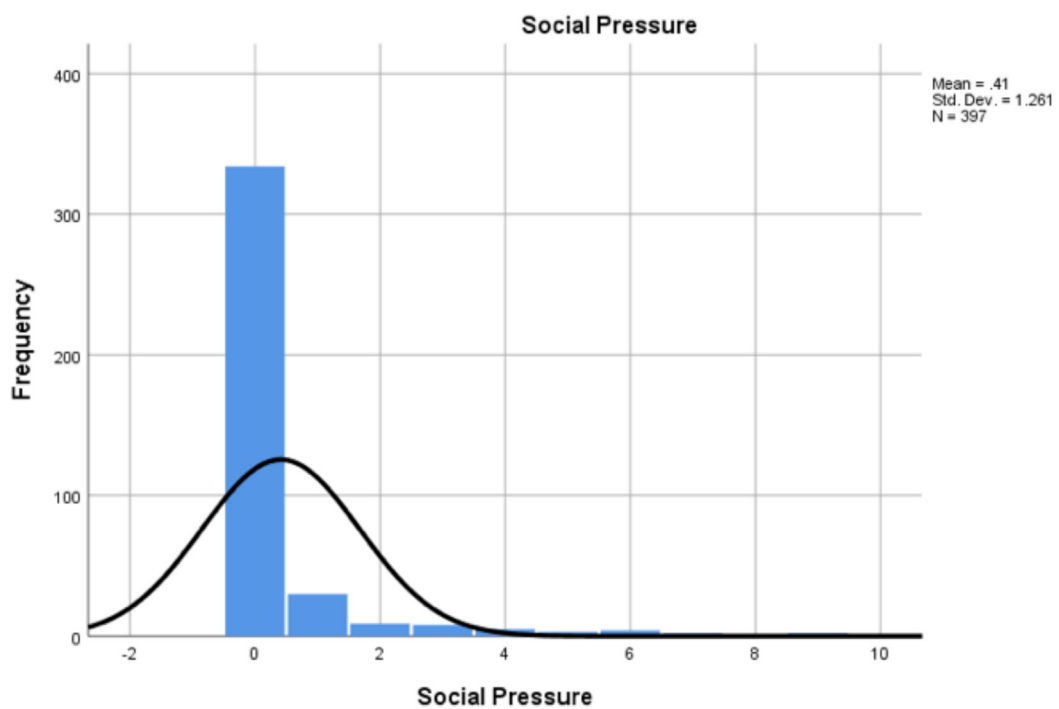


Figure 8 – Factorial Examination – Social Pressure





3.6 EXAMINATION OF ASSOCIATIONS

Chi-squared tests were performed for the demographic variables of age, gender, region, marital status of the parents, and educational level and employment status of Parent 1 (P1) and Parent 2 (P2), to test for any significant associations. The Chi-squared tests did not reveal any significant association for age or gender for this sample, while it was inconclusive due to insufficient data groupings for region, parents' marital status, employment and education. Therefore, the data was recoded to enhance the groupings to better enable statistical examination for association. Data for region could not be regrouped as this would have produced a false result. Parents' marital status was regrouped into two groups: i) both parents living with child and, ii) one parent households. This regrouping also showed no significant association for marital status and disordered eating. Level of education for P1 and P2 was regrouped into two divisions – i) highest level of education achieved up to secondary level and, ii) highest education level achieved tertiary and post graduate. An assumption was made that these divisions better reflected socio-economic divisions within the cohort. However, again, no significant association was found. Similarly, employment was divided into two groupings: i) employed for wages & self-employed; and ii) non-earning forms of employment comprising homemaker, unemployed but looking for work, unemployed and not looking for work and retired. While these groupings might have had some bearing on socio-economic status within the household, once again no significant relationship was found.

3.7 CONCLUSIONS

The results show that this survey had good internal validity with a Cronbach's alpha of 0.77, which is comparable to other studies. The vast majority of children surveyed had total ChEAT26 scores below the cut-off point of 20, with the mean score being 6.46. This suggests that the majority of 10 to 16-year olds in our study are not indicated for disordered eating or an ED. These outcomes tally with the findings of the literature review, which state that although EDs are on the increase among youths, at any given point in time they affect a small subset of the population. In fact, Sohvi et al., (2020), report that the prevalence of EDs in 12 to 20-year olds has been estimated at 3-4%, while Stice et al., (2010) found that that 5.2% of 8 to 20-year old girls met criteria for anorexia, bulimia or binge eating. This places the result obtained in our study, where the vast majority of the cohort has ChEAT26 scores below the cut-off point of 20, within the norm. However, as this is the first study to examine disordered eating among young people in Malta, there is no data from any prior studies for this age group, therefore we cannot tell whether EDs are rising within this section of the population.

The mean ChEAT26 score for both male (6.45) and female (6.47) respondents was essentially identical, suggesting that for the majority of this sample, gender does not affect perceptions of food and eating. The mean of 6.46 obtained for the ChEAT26 compares well with the mean obtained in other studies. Chiba et al. (2016), report that the mean ChEAT26 score in their study of Japanese school children aged 10 to 15 years, was 7.94 for females (F) and 5.86 for males (M). This study did not report standard deviation. A study of Spanish 5th and 6th graders (9 to 13-year olds), males and females, by Sancho et al., (2005), utilized an experimental version of the ChEAT (ChEAT20), which yielded a mean of 8.95 and reported no difference between females (mean of 9.01 and SD of 7.13) and males (mean of 8.88 and SD of 6.50). Rolland et al. (1997), in their study of Australian children aged 8-12 found mean ChEAT26 scores of 9.89 for females with SD of 8.20 and mean of 9.60 for males with SD of 7.00. A study of Polish 9 to 12-year olds (Pilecki et al., 2013) found a mean of 7.65 with a SD of 7.48 for females and a mean of 7.55 and SD of 5.91 for males. Meanwhile, a Finnish study of 10-15-year olds, (Sohvi et al., 2020),

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found a mean for female participants of 3.06 with SD of 5.39, while for males the mean was 1.98 with SD of 3.07. The authors point out that that the mean scores were lower for the sample in their study than that observed in other studies, and state that this could be due to the fact that the children under study live in rural or small to medium-size cities rather than large cities. They add that mean ChEAT26 scores have been observed to be higher for participants living in large cities, possibly due to greater social pressure and media influence, as well as socio-demographic factors (Sohvi et al., 2020, pp.967-7).

Table 13 – Comparison of ChEAT26 mean and SD with various other studies

Author	Country	Mean ChEAT Score for females	SD for females	Mean ChEAT Score for males	SD for males
Current study	Malta	6.47	6.60	6.45	7.06
Chiba et al, 2016	Japan	7.95	n/a	5.86	n/a
Sancho et al., 2005	Spain	9.01	7.13	8.00	6.50
Rolland et al., 1997	Australia	9.89	8.20	9.60	7.00
Pilecki et al., 2013	Poland	7.65	7.48	7.55	5.91
Sohvi et al., 2020	Finland	3.06	5.39	1.98	3.07

While the majority of the cohort is not indicated for disordered eating, of the 5.5% (n = 22) who scored ≥ 20 , 3.25% (n = 13) were female (F), and 2.25% (n = 9) were male (M). As anticipated, more females than males are affected, however the ratio M-F is higher than expected. This reflects findings from other studies whereby, notwithstanding the fact that previous thinking held that EDs primarily affected young white females, males are increasingly being diagnosed with eating disorders (Frank, 2020; Pressler, 2019). The National Association of Eating Disorders states that as many as 30% of people affected by EDs are male, and that subclinical ED behavior affects males and females equally (NEDA, 2018a). This may be due to a hidden trend for young boys to be more body-conscious and under diagnosed, especially as EDs manifest differently in males than in females. The fact that the mean score for ChEAT26 ≥ 20 is slightly higher for males than females (F - 27.38, M - is 28.89), could indicate that in our study, male disordered eating may be more severe. Expanding the figures (5.5% of the sample affected by disordered eating, of which 3.25% are F and 2.25% are M) obtained in this study to the age group within the general population, gives us a figure of 1675 children aged 10-16 in the Maltese population who could have an ED, of whom, potentially, 990 are female and 685 are male.

Chi-square tests examining associations between variables, including age, gender, type of school attended, as well as socio-economic indicators, such as education and employment status of the parents for this cohort, did not reveal any significant association. This could signify that for this age group, factors such as those listed above do not notably affect them. In fact, some other studies have found little difference between ages and genders for disordered eating (Murphy et al, 2019; Sancho et al., 2005; Rolland et al., 1997). However, a number of studies have found that variances start to occur for age 15 to 18 years, although not below 15 years, especially as regards gender (Chiba et al., 2016; Sancho et al., 2005). Both Rolland et al. and Chiba et al. suggested that for children toward the younger end of the scale, the results might be very sensitive, as they either may not understand the questions or responded too literally to some items such as the purging items, adding that possibly they do not understand the use of purposeful purging as a strategy towards thinness. In addition, both Chiba et al. and



Sohvi et al., found differences between rural and more urban areas, suggesting that children living in urban environments may be more exposed to media influences and pressures towards thinness.

To sum up, it was indeed found that a number of young people are affected by eating disorders. Although the number of children affected is not very high, it is certainly enough to be of concern. As expected, females are more affected than males, however the number of affected males is substantial enough to enable us to infer that eating disorders are indeed not just primarily female (NEDC, 2012). One unexpected finding was that there is a probability that eating disorders affect young males more strongly than young females. We also did not discover any significant difference for socio-demographic status, age and gender, which fits our hypothesis that, for this age group, eating disorder behavior cuts across the socio-demographic strata. Although findings for correlations between socio-economic status differ, some studies have indeed found that these correlations do not always exist (Litmanen et al., 2017; Solmi et al, 2016). This could be a reflection of the fact that eating disorders have complex causes and that no one single factor can be said to be a major influence on the emergence of EDs.

CHAPTER 4

Conclusion and Recommendations



4.1 SUMMARY OF MAIN FINDINGS

The present study has revealed that although the vast majority of 10 to 16-year olds do not have an eating disorder, there is a minority proportion who do. No strong associations have been found between age, gender or socio-economic status for this age group, however this could be a function of the age of the young persons under investigation. It is possible that these factors may come into play after the age of 15 years (Litmanen et al., 2017; Solmi et al, 2016). Eating disorders are complex disturbances that have their origins in personal mental, hereditary and environmental factors. The severity of the medical consequences and difficulty of treating an entrenched eating disorder necessitate early recognition, intervention and treatment.

4.2 STRENGTHS AND LIMITATIONS OF THE STUDY

The study has several strengths, such as the fact that almost as many young males as females were surveyed, that the study was carried out as a self-response survey conducted over the telephone, thus guaranteeing anonymity and minimizing the any inhibitions that could arise on the part of the interviewees, the fact that the sample was representative and that a well-tested, standardized measure was used. However, there are also some limitations. These include the fact that, while ChEAT is a useful instrument for estimating prevalence, on its own it cannot determine the exact presence and nature of EDs in the community. For the definitive diagnosis of an ED, clinical interviews would be needed. Additionally, diagnostic interviews would have captured the possible presence of an eating disorder in children scoring below 20. Further studies examining eating attitudes and accompanied by interviews with the cohort under examination would redress this limitation.

4.3 RECOMMENDATIONS FOR POLICY AND PRACTICE

- Increase understanding of Eating Disorders among the community by disseminating knowledge via a nation-wide public communication campaign.
- Tackle understanding and awareness of problematic issues such as the distinction between healthy, as opposed to excessive, levels of food restraint and exercise. An initiative such as a National Eat Well Day could be helpful in this respect.
- Work with schools to promote a more targeted information campaign to young people to promote self-esteem and self-acceptance, and especially to increase awareness of the methods used in social media to air brush and modify the 'perfect' images seen on these platforms
- Collaboration with educational institutions to assist them in recognizing and providing first-contact care to cases and potential cases of EDs among the children entrusted to their care.
- Utilise social media to disseminate awareness of the dangers of EDs and set up ED prevention strategies.
- Set up a training programme for primary care workers such as GPs and dentists who are at the forefront of identifying EDs, to enable them to recognise the signs and refer the person concerned to care and treatment, and especially to tackle under-recognition and under-diagnosis of EDs in males and minority demographics

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- Undertake efforts to set up support services for family members and other persons supporting recovering sufferers, to ensure that they are assisted and mentored in their assistance to the person concerned.
- Undertake awareness campaigns with employers, partnering with Corporate Social Responsibility providers to ensure that knowledge and support are in place for both employers and employees.

4.4 RECOMMENDATIONS FOR FURTHER RESEARCH

As well as the policy recommendations listed above, it is recommended that further research be undertaken, in order to expand the investigation of eating disorders in Malta. The following research topics are recommended:

- A qualitative study of 10 to 16-year olds, that would include interviews with the cohort, to deepen understanding of the nature of eating disorders and pressures faced by this age group.
- A similar study of 10 to 16-year olds to be undertaken in a few years' time, to assess prevalence over time and examine any differences in results over time.
- An investigation of ARFID among children in the Maltese Islands that would look at links with other disorders such as Sensory Processing Disorder (SPD), Autism, Attention Deficit Hyperactivity Disorder (ADHD) and Obsessive-Compulsive Disorder (OCD).
- A study of primary care practitioners and other professionals who could be at the front line of diagnosing eating disorders, to establish the levels of knowledge and reveal any gaps or areas in which these practitioners feel they would benefit from further training.
- An investigation of EDs in non-typical demographics, such as males, older women and in LGBTQ+ communities.



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APPENDIX A – DEMOGRAPHIC QUESTIONS FOR PARENTS/LEGAL GUARDIANS (ENGLISH VERSION):

Questionnaire: Eating Disorders among young people in Malta - Demographic Data [to be asked to parents]		
1	Age of child	_____
2	Gender of child	Male <input type="radio"/> Female <input type="radio"/> Other <input type="radio"/>
3	What school does your son/daughter attend?	Public (Government) <input type="radio"/> Church School <input type="radio"/> Private/ Independent School <input type="radio"/>
4	Where do you live?	_____
Note	Data collector to tick box for region	<input type="checkbox"/> Gozo and Comino Region <input type="checkbox"/> Northern Region <input type="checkbox"/> Western Region <input type="checkbox"/> Northern Harbour Region <input type="checkbox"/> Southern Harbour Region <input type="checkbox"/> South Eastern Region
5	Marital Status of parents'	<input type="checkbox"/> Married <input type="checkbox"/> Separated or divorced <input type="checkbox"/> Single parent household <input type="checkbox"/> Unmarried but two parent household
6a	Education level of parent 1	<input type="checkbox"/> Primary level <input type="checkbox"/> Secondary level <input type="checkbox"/> Tertiary level <input type="checkbox"/> Post graduate level
6b	Education level of parent 2 [Not to be asked if this is a single parent household]	<input type="checkbox"/> Primary level <input type="checkbox"/> Secondary level <input type="checkbox"/> Tertiary level <input type="checkbox"/> Post graduate level
7a	Employment status of parent 1	<input type="checkbox"/> Employed for wages, doing _____ <input type="checkbox"/> Self-employed <input type="checkbox"/> Homemaker <input type="checkbox"/> Unemployed but looking for work <input type="checkbox"/> Unemployed and not currently looking for work <input type="checkbox"/> Student <input type="checkbox"/> Retired <input type="checkbox"/> Unable to work
7b	Employment status of parent 2 [Not to be asked if this is a single parent household]	<input type="checkbox"/> Employed for wages, doing _____ <input type="checkbox"/> Self-employed <input type="checkbox"/> Homemaker <input type="checkbox"/> Unemployed but looking for work <input type="checkbox"/> Unemployed and not currently looking for work <input type="checkbox"/> Student <input type="checkbox"/> Retired <input type="checkbox"/> Unable to work

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APPENDIX B – DEMOGRAPHIC QUESTIONS FOR PARENTS/LEGAL GUARDIANS (MALTESE VERSION)

Data Demografika [Mistoqsijiet għall-ġenituri]		
1	Età tal-wild	_____
2	Sess tal-wild	Tifel <input type="radio"/> Tifla <input type="radio"/> Ohrajn <input type="radio"/>
3	L-iskola tal-wild	Tal-Gvern <input type="radio"/> Tal-Knisja <input type="radio"/> Privata/Indipendenti <input type="radio"/>
4	Fejn toqgħod?	_____
Nota	<i>Il-kollettur tad-data jrid jimmarka l-kaxxa tar-reġjun – tista' ssir wara</i>	<input type="checkbox"/> Reġjun t'Għawdex u Kemuna <input type="checkbox"/> Reġjun tat-Tramuntana (North) <input type="checkbox"/> Reġjun tal-Punent (West) <input type="checkbox"/> Reġjun tal-Port tat-Tramuntana (Northern Harbour) <input type="checkbox"/> Reġjun tal-Port tan-Nofsinhar (Southern Harbour) <input type="checkbox"/> Reġjun tax-Xlokk (South-East)
5	Stat taż-żwieġ tal-ġenituri	<input type="checkbox"/> Miżżewġin <input type="checkbox"/> Separati jew iddivorzjati <input type="checkbox"/> Unità domestika b'ġenitur wieħed <input type="checkbox"/> Mhux miżżewġin imma jgħixu fl-istess unità domestika
6a	Livell ta' edukazzjoni ta' ġenitur 1	<input type="checkbox"/> Primarja <input type="checkbox"/> Sekondarja <input type="checkbox"/> Terzjarja <input type="checkbox"/> <i>Post-graduate</i>
6b	Livell ta' edukazzjoni ta' ġenitur 2 [Aqbeż din il-mistoqsija jekk din hija unità domestika b'ġenitur wieħed]	<input type="checkbox"/> Primarja <input type="checkbox"/> Sekondarja <input type="checkbox"/> Terzjarja <input type="checkbox"/> <i>Post-graduate</i>
7a	Stat ta' impjeg ta' ġenitur 1	<input type="checkbox"/> Persuna impjegata bħala _____ <input type="checkbox"/> Persuna li taħdem għal rasha (<i>self-employed</i>) <input type="checkbox"/> Persuna li taħdem ġod-dar (<i>housemaker</i>) <input type="checkbox"/> Persuna diżokkupata u qed tfittex xogħol <input type="checkbox"/> Persuna diżokkupata u mhux qed tfittex xogħol <input type="checkbox"/> Student/a <input type="checkbox"/> Irtirat/a <input type="checkbox"/> Persuna li ma tistax taħdem
7b	Stat ta' impjeg ta' ġenitur 2 [Aqbeż din il-mistoqsija jekk din hija unità domestika b'ġenitur wieħed]	<input type="checkbox"/> Persuna impjegata bħala _____ <input type="checkbox"/> Persuna li taħdem għal rasha (<i>self-employed</i>) <input type="checkbox"/> Persuna li taħdem ġod-dar (<i>housemaker</i>) <input type="checkbox"/> Persuna diżokkupata u qed tfittex xogħol <input type="checkbox"/> Persuna diżokkupata u mhux qed tfittex xogħol <input type="checkbox"/> Student/a <input type="checkbox"/> Irtirat/a <input type="checkbox"/> Persuna li ma tistax taħdem

APPENDIX C – CHEAT (ENGLISH VERSION):

Children's Eating Attitude Test							
© Michael J. Maloney							
		Always	Very Often	Often	Sometimes	Rarely	Never
1	I am scared about being overweight.	3	2	1	0	0	0
2	I stay away from eating when I am hungry.	3	2	1	0	0	0
3	I think about food a lot of the time.	3	2	1	0	0	0
4	I have gone on eating binges where I feel that I might not be able to stop.	3	2	1	0	0	0
5	I cut my food into small pieces.	3	2	1	0	0	0
6	I am aware of the energy (calorie) content in foods that I eat.	3	2	1	0	0	0
7	I try to stay away from foods such as breads, potatoes, and rice.	3	2	1	0	0	0
8	I feel that others would like me to eat more.	3	2	1	0	0	0
9	I vomit after I have eaten.	3	2	1	0	0	0
10	I feel very guilty after eating.	3	2	1	0	0	0
11	I think a lot about wanting to be thinner.	3	2	1	0	0	0
12	I think about burning up energy (calories) when I exercise.	3	2	1	0	0	0
13	Other people think I am too thin.	3	2	1	0	0	0
14	I think a lot about having fat in my body.	3	2	1	0	0	0
15	I take longer than others to eat my meals.	3	2	1	0	0	0
16	I stay away from foods with sugar in them.	3	2	1	0	0	0
17	I eat diet foods.	3	2	1	0	0	0
18	I think that food controls my life.	3	2	1	0	0	0
19	I can show self-control around food.	3	2	1	0	0	0
20	I feel that others pressure me to eat.	3	2	1	0	0	0
21	I give too much time and thought to food.	3	2	1	0	0	0
22	I feel uncomfortable after eating sweets.	3	2	1	0	0	0
23	I have been dieting.	3	2	1	0	0	0
24	I like my stomach to be empty.	3	2	1	0	0	0
25	I enjoy trying new, rich foods.	3	2	1	0	0	0
26	I have the urge to vomit after eating.	3	2	1	0	0	0

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APPENDIX D – CHEAT (MALTESE VERSION):

Kwestjonarju: Disturbi fil-komportament alimentari (<i>eating disorders</i>) fost it-tfal f' Malta © Michael J. Maloney							
		Dejjem	Spiss Hafna	Spiss	Ġieli	Rari	Qatt
1	Nibża' li jkolli piż żejjed	3	2	1	0	0	0
2	Nevita li niekol meta jkolli l-ġuħ	3	2	1	0	0	0
3	Inqatta ħafna ħin naħseb dwar l-ikel	3	2	1	0	0	0
4	Ġieli kilt b'mod eċċessiv u ħassejt li ma stajtx nieqaf	3	2	1	0	0	0
5	Inqatta' l-ikel f'biċċiet żgħar	3	2	1	0	0	0
6	Jien konxju/a tal-enerġija (kaloriji) li fih l-ikel li niekol	3	2	1	0	0	0
7	Nipprova nevita ċertu ikel, bħal ħobz, patata u ross	3	2	1	0	0	0
8	Inħoss li ta' madwari jixtiequ jarawni niekol iktar	3	2	1	0	0	0
9	Nirremetti l-ikel wara li niekol	3	2	1	0	0	0
10	Inħoss sens qawwi ta' ħtija wara li niekol	3	2	1	0	0	0
11	Naħseb ħafna dwar ix-xewqa li nkun irqaq	3	2	1	0	0	0
12	Meta nagħmel l-eżerċizzju, naħseb fuq kemm qed naħraq kaloriji	3	2	1	0	0	0
13	Ta' madwari jaħsbu li jien irqaq/a wisq	3	2	1	0	0	0
14	Naħseb ħafna dwar li jkolli x-xaħam f'ġismi	3	2	1	0	0	0
15	Indum aktar mill-oħrajn biex niekol l-ikla tiegħi	3	2	1	0	0	0
16	Nevita ikel li fih iz-zokkor	3	2	1	0	0	0
17	Niekol ikel tad-dieta	3	2	1	0	0	0
18	Inħoss li l-ikel jikkontrollali ħajti	3	2	1	0	0	0
19	Kapaċi nikkontrolla lili nnifsi fejn jidhol l-ikel	3	2	1	0	0	0
20	Inħoss li ta' madwari jagħmluli pressjoni biex niekol	3	2	1	0	0	0
21	Niddedika wisq ħin u ħsiebijiet għall-ikel	3	2	1	0	0	0
22	Inħossni skomdu/a wara li niekol il-ħelu	3	2	1	0	0	0
23	Jien qed nagħmel id-dieta.	3	2	1	0	0	0
24	Inħobb inkun bi stonku vojta	3	2	1	0	0	0
25	Inħobb nipprova ikel ġdid li jħaxxen	3	2	1	0	0	0
26	Inħoss li għandi nirremetti wara li niekol	3	2	1	0	0	0

APPENDIX E – INFORMATION AND CONSENT FORM FOR PARENTS & LEGAL GUARDIANS (ENGLISH VERSION):

Information and Consent Form – Parents / Legal Guardians of Children for Children's Eating Attitudes Questionnaire

[To be read out at the start of the telephone interview to confirm that the parent/legal guardian understands the information provided and gives their consent to the collection of demographic data regarding their family unit and their consent to the participation of their child in the telephone survey.]

[Statement of purpose of the study:] Hello, my name is [researcher to say their name] and I'm calling from Sagalytics on behalf of the University of Malta. Would you like to speak in Maltese or English? [adapt accordingly]

[Questions determining eligibility for this study:] Are you a parent of a child who lives in the same household? How old is your child? What gender is your child?

We are conducting a short telephone questionnaire to examine eating habits and attitudes among children and adolescents in Malta and Gozo. We would like to ask you a few general questions and then ask your child some questions about their eating habits and their attitude to food.

[Method of data collection:] The data will be collected through a one-time, anonymous questionnaire, which will be administered via this telephone call and will take around 5-10 minutes. Participants' personal names and surnames will not be asked for or used in the study and are in fact not known to us at all. We did not get your telephone number from any database. We are calling randomised telephone numbers, which will also not be collected or recorded in any way.

[Use made of the information and Guarantees:] Data collected will solely be used for research purposes and handled in line with GDPR and national legislation. Only the research team will have access to the raw data collected from the questionnaires. Deception in the data collection process will not be used. Participants are free to quit the study at any point during the telephone call, without giving a reason. In the case that a participant withdraws, all the information collected pertaining to them will be destroyed. Participants can request access to the results of the research once the study is finalised by contacting the Faculty for Social Wellbeing on email: socialwellbeing@um.edu.mt. You may also contact Ms. Annabel Cuff with any queries via email annabel.cuff@um.edu.mt or telephone number 2340 2693.

We wish to point out that if at any point during the course of the telephone call we feel that your child is at risk of harm from their eating habits or attitude to food, we will ask your child to pass the call to you in order to discuss this and provide referrals for support. This will be done in the strictest confidence. If you or your children become upset about any aspect of your participation, you may seek assistance or support from kellimni.com, via their website www.kellimni.com, or from their email: info@kellimni.com.

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Additionally, in order to safeguard the confidentiality of all concerned, we wish to remind you that no part of this telephone call may be recorded, either by us or by yourself.

This study has been given clearance by the Faculty for Social Wellbeing's Research Ethics Committee. Do you have any questions or uncertainties regarding the information provided? [If parental guardian affirms that they have understood, then the interviewer will proceed to the next question. If not, the interviewer will address any queries]

Do you consent to participate in the study? Do you consent for your child to participate in this study, if they wish to do so?

Thank you for accepting to participate. Your child's and your contribution is of great value to this study.

APPENDIX F – INFORMATION AND CONSENT FORM FOR PARENTS & LEGAL GUARDIANS (MALTESE VERSION):

Formola ta' informazzjoni u kunsens - Ġenituri/gwardjani legali Għall-kwestjonarju ChEAT

Għandha tinqara fil-bidu tal-intervista bit-telefon biex tikkonferma li l-ġenitur/gwardjan legali jifhem l'informazzjoni pprovduta u jagħti l-kunsens tiegħu għal għbir ta' data demografika rigward l-unita' tal-familja tiegħu/ tagħha, u l-kunsens għall-partiċipazzjoni tal-wild tiegħu/ tagħha f'dan l-istħarriġ.

[Stqarrija dwar l-iskop tal-istudju:] Għażiż/a parteċipant/a, jien jismni [riċerkatur għandu jinserixxi ismu/isimha] u qed incempel minn Sagalytics f'isem l-Università ta' Malta. Tippreferi titkellm bil-Malti jew bl-Ingliż? [adatta skont il-bżonn].

[Mistoqsijiet biex jiddeterminaw l-eligibbiltà għal dan l-istudju:] Int ġenitur ta' wild li t/jgħix fl-istess dar? Kemm għandu/ għandha żmien? X' ġeneru għandhu/a?

Qed nagħmlu studju qasir bit-telefon biex neżaminaw x'inhuma d-drawwiet u l-attitudnijiet dwar l-ikel tat-tfal u l-adolessenti ta' Malta u Chawdex. Nixtiequ li nistaqsuk ftit mistoqsijiet generali, u nitolbu lit-tifel jew tifla biex j/twieġeb ftit mistoqsijiet dwar id-drawwiet u l-attitudni tagħhom lejn l-ikel.

[Il-metodu tal-għbir tad-data:] Id-data ser tingabar permezz ta' kwestjonarju wieħed, anonimu, li se jiġi amministrat permezz ta' din it-telefonata u li jieħu madwar 5-10 minuti. L-ismijiet u l-kunjomijiet personali talparteċipanti mhux se jkunu mitluba jew jiġu użati fl-istudju u fil-fatt mhumiex magħrufa lilna. Aħna ma sibniex n-numru tat-telefon tiegħek minn lebda database.



Qedin incemplu numri tat-telefon magħżula bl-addoċċ. Dawn in-numri wkoll m'humiex se jinġabru jew jiġu rreġistrati bl-ebda mod.

[Użu magħmul mill-informazzjoni u garanziji:] L-informazzjoni li tagħtina ser tintuża biss għall-iskopijiet tarriċerka u tiġi ttrattata f'konformità mal-GDPR kif ukoll il-legiżlazzjoni nazzjonali. It-tim tar-riċerka biss se jkollu aċċess għad-data primarja miġbura mill-kwestjonarju. Mhux se jintuża qerq fil-proċess tal-ġbir tad-data. Tista' tiegaf milli tkompli twieġeb il-kwestjonarju fi kwalunkwe ħin matul it-telefonata, mingħajr ma tagħti spjegazzjoni. Fil-każ li parteċipant jirtira, l-informazzjoni kollha miġbura li għandha x'taqsam magħhom tingered.

Il-parteċipanti jkunu jistgħu jaraw ir-riżultati tar-riċerka ladarba l-istudju jiġi ffinalizzat billi jikkuntattjaw lill- Fakultà għat-Tisħieħ tas-Socjeta' fuq l-email: socialwellbeing@um.edu.mt. Tista' wkoll tikkuntattja lil Ms. Annabel Cuff bi kwalunkwe mistoqsija permezz tal-email: annabel.cuff@um.edu.mt jew in-numru tat-telefon 2340 2693.

Nixtiequ nindikaw li jekk fi kwalunkwe punt matul il-kors tat-telefonata nħossu li t-tifel / tifla tiegħek huwa f'riskju ta' ħsara mid-drawwiet tal-ikel jew mill-attitudnijiet għall-ikel, aħna nitolbu lit-tifel / tifla biex jgħaddi ttelefonata lilek sabiex niddiskutu dan u nipprovdur referenzi għall-appoġġ. Dan isir b'kunfidenza stretta. Jekk int jew t-tifel / tifla tiegħek tħossukom ikkonċernat/i dwar il-parteċipazzjoni tagħkom f'dan l-istudju, tistgħu tirrikorru għand kellimni.com għall-għajnuna, permezz tal-websajt tagħhom www.kellimni.com, jew fuq lemail: info@kellimni.com. Barra minn hekk, sabiex tkun salvagwardjata l-kunfidenzjalità ta' dawk kollha kkonċernati, nixtiequ nfakkrukum li l-ebda parti minn din it-telefonata ma tista' tiġi rreġistrata, la minna u lanqas minn naħa tagħkom.

L-istudju ġie approvat mill-Kumitat tal-Etika tar-Riċerka tal-Fakultà għat-Tisħieħ tas-Socjeta' (Faculty for Social Wellbeing).

Għandek xi mistoqsijiet jew incertezzi dwar l-informazzjoni pprovduta? [Jekk il-gwardjan jew ġenitur jafferma li fehem, i-intervistatur ikompli għad-domanda li jmiss. Jekk le, l-intervistatur jindirizza kwalunkwe mistoqsija].

Tagħti l-kunsens biex tieħu sehem fl-istudju?

Tagħti l-kunsens għat-tifel / tifla tiegħek biex jipparteċipa/ tipparteċipa f'dan l-istudju, jekk jixtieq/ tixtieq tagħmel hekk?

Grazzi. Il-kontribut tiegħek u tat-tifel/tifla tiegħek hu importanti ħafna għal dan l-istudju.

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APPENDIX G – INFORMATION AND ASSENT FORM FOR CHILDREN AGED 10-16 YEARS (ENGLISH VERSION):

Information and Assent form for children aged 10 to 16 years Children's Eating Attitudes Questionnaire

[Research aims and description:] Dear participant, I am [researcher to say their name]. I am calling from Sagalytics on behalf of the University of Malta. Would you like to continue in English or switch to Maltese? [adapt accordingly].

We are doing a study for the University about what children your age think about food and eating and about how you eat your food. We would like to ask you to take part by answering a few questions over the phone. This should take between 5-10 minutes to answer. We would like you to know that only you can decide if you want to take part or not.

[Research procedures:] The information you give us will be collected in this phone call through the use of a questionnaire. Your details (for example your name and surname) are anonymous - this means that your name or personal details will not be used in the study. Even we will not know and do not need to know. If you say yes to taking part in this study, we will ask you the questions in this phone call. Your answers cannot be understood by those around you because you will be answering only by saying "always", "sometimes", "never", etc. The answers you will give us will only be used for the purposes of this study and will be kept electronically in a safe place, that is on a computer, that will only be accessed by the team of researchers.

In case we realise that you are at risk of harm or if we believe that your health is in danger, we will stop the questionnaire and ask to speak to your parents so that we can refer you to someone who can help you. During this phone call you can choose to not answer any questions you do not feel comfortable answering and you may choose to stop completely at anytime without giving a reason. If you decide to stop answering, your answers will be destroyed. However you will not be able to change your mind about taking part in the study after the phone call has finished, as we will not know which answers belong to which child once we have finished the call.

You will be able to read about the research once the study is finished by contacting the Faculty for Social Wellbeing through telephone number 2340 2693 or email: socialwellbeing@um.edu.mt, or via the University of Malta website.

If, at any point during or after the research process, you feel concerned or anxious and would like to talk to someone, you may seek help via chat, or message on website www.kellimni.com or email info@kellimni.com.

This study has been approved by the Research Ethics Committee of the Faculty for Social Wellbeing and we will be following General Data Protection Regulations (GDPR) as well as national legislation.

Did you understand the information provided here? Do you have any questions?
[Researcher will pause to ensure that all has been understood].

Do you agree to take part in our study?

Thank you. Your contribution is very important to the success of this study.



APPENDIX H – INFORMATION AND ASSENT FORM FOR CHILDREN AGED 10-16 YEARS (MALTESE VERSION):

Formola ta' Informazzjoni u Assent għal tfal bejn 1-10 u s-16-il sena Għall-kwestjonarju ChEAT

[Stqarrija u deskrizzjoni tar-riċerka:] Għażiż/a partecipant/a, jien jisimni [riċerkatur għandu jinserrixxi ismu/isimha] u qed incempel minn Sagalytics f'isem l-Università ta' Malta. Tippipreferi titkelllem bil-Malti jew bl-Ingliż? [adatta skont il-bżonn].

Qed nagħmlu studju f'isem l-Università dwar kif it-tfal tal-età tiegħek jaħsbu dwar l-ikel u l-konsum tal-ikel, u kif tieklu l-ikel tagħkom. Nixtiequ nistaqsuk jekk tridx tippartecipa billi twiegeb ftit mistoqsijiet f'din it-telefonata. Il-kwestjonarju għandu jieħu bejn 5-10 minuti. Nixtiequ li tkun taf li inti biss tista' tiddeciedi jekk tridx tieħu sehem jew le.

[Proċeduri ta' riċerka:] L-informazzjoni li ttina ser tiġi miġbura f'din it-telefonata permezz ta' kwestjonarju. Id-dettalji tiegħek (pereżempju ismek u kunjomok) huma anonimi - dan ifisser li la ismek u lanqas id-dettalji personali tiegħek m'huma ser jintużaw fl-istudju. Aħna stess mhux se nkunu nafu u m'għandniex għalfejn inkunu nafu. Jekk taċċetta li tippartecipa f'dan l-istudju, aħna nistaqsuk il-mistoqsijiet waqt din it-telefonata. It-twegibiet tiegħek mhux ser ikunu jistgħu jinftiehem minn dawg ta' madwarek għax inti ser tkun qed twiegeb biss billi tgħid "dejjem", "ġieli", "qatt", eċċetra. L-informazzjoni li ttina ser tintuża biss għal dan l-istudju u ser tinħażen f'post elettroniku sigur, jiġifieri fuq kompjuter, li jista' jiġi aċċessat biss mit-tim tar-riċerka.

F'każ li nindunaw li int f'xi riskju ta' ħsara jew jekk nemmnu li saħħtek tinsab fil-periklu, aħna nwaqqfu l-kwestjonarju u nitolbuk biex inkellmu lill-ġenituri tiegħek jew min jieħu ħsiebek sabiex inkunu nistgħu nirreferuk għand xi hadd li jista' jgħinek.

Waqt din it-telefonata tista' tagħzel li taqbeż dawg il-mistoqsijiet li ma tħossokx komdu/a twiegeb u tista' tieqaf milli tkompli twiegeb il-kwestjonarju fi kwalunkwe ħin mingħajr ma tagħti spjegazzjoni. Jekk tiddeciedi li tieqaf milli twiegeb il-kwestjonarju, l-informazzjoni li tkun tajna tinqered. Madankollu, ma tkunx tista' tbiddel fehmtok dwar li tieħu sehem fl-istudju wara li tkun intemmet it-telefonata, għax ladarba tkun spicċat it-telefonata ma nkunux nafu liema twegibiet jappartjenu lil liema tifel jew tifla.

Inti tkun tista' taqra dwar ir-riċerka ladarba l-istudju jiġi ffinalizzat billi tikkuntattja lill-Fakultà għat-Tiħieħ tas-Socjeta' fuq in-numru tat-telefon 2340 2693, jew permezz tal-email: socialwellbeing@um.edu.mt.

Jekk fi kwalunkwe ħin matul il-process tar-riċerka, jew anke wara, tħossok ikkonċernat/a jew anzjuż/a, u tixtieq tkellem lil xi hadd, tista' tirrikorri għand kelliimni.com jew fuq email info@kelliimni.com għall-għajnuna permezz ta' chat, email jew messaġġ.

Dan l-istudju ġie approvat mill-Kumitat għal-Etika tar-Riċerka tal-Fakultà għat-Tiħieħ tas-Socjeta' u ser insegwu r-Regolamenti Ġenerali tal-Protezzjoni tad-Data (GDPR) kif ukoll il-leġislazzjoni nazzjonali.

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Inti fhimtha din l-informazzjoni? Għandek xi mistoqsijiet? [Ir-riċerkatur jieqaf biex jiżgura li kollox għe mifhmum].

Taqbel li tiegħu sehem fl-istudju tagħna?

Grazzi. Il-kontribut tiegħek huwa importanti ħafna għal dan l-istudju.

