

**KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) OF
REGISTERED DIETITIANS IN SOUTH AFRICA REGARDING
EATING DISORDERS**

Carla Y Molenaar

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STUDY LEADER: Dr NML Meko

STATEMENT OF DECLARATION

“I, Carla Yvonne Molenaar, declare that the master’s degree research dissertation or interrelated, publishable manuscripts/published articles, or coursework master’s degree mini-dissertation that I herewith submit for the master’s degree qualification Magister Scientiae (Dietetics) at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution of higher education.”

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ABSTRACT

Eating disorders, including disorders such as anorexia nervosa, bulimia nervosa and binge-eating disorder (among others), are coined as some of the most difficult and frustrating conditions for healthcare practitioners to deal with. Despite the relatively low percentage of the population suffering from an eating disorder, it remains one of the psychiatric conditions with the highest mortality rate. Both black and white ethnic groups have been found equally at risk for developing the disease. Little is known regarding the aetiology, onset, pathology, and treatment of the condition within a South African context.

Dietitians are widely seen as an integral part of the multi-disciplinary team and treatment of patients suffering from eating disorders. However, little formal training is provided in order to provide dietitians with the advanced skills and knowledge needed to treat a patient with an eating disorder successfully. It is also been proven that the negative attitudes of practitioners towards patients with eating disorders as well as the misconceptions taken for truth may hamper treatment outcomes of the condition.

The main aim of this study was to determine the knowledge, attitudes and practices (KAP) of registered dietitians in South Africa regarding eating disorders. The researcher mainly focused on anorexia nervosa and bulimia nervosa.

In order to achieve the aim of the study, the researcher developed an electronic questionnaire with questions compiled from literature regarding diagnosis, pathology and treatment of eating disorders. After ethical clearance was obtained, an invitation was sent to participants (by means of dietetic associations' newsletters and social media platforms) inviting South African dietitians to participate in the study and complete the online questionnaire. In order to investigate participants' attitudes towards patients with eating disorders, dietitians were given statements regarding eating disorders and were asked whether they agreed or disagreed with the statement. Multiple choice questions were asked to test knowledge.

A total of 85 dietitians responded. Most dietitians responded positively to most of the attitude statements with a mean of 56% of statements. However, respondents held a more negative view towards treating patients suffering from eating disorders. Knowledge regarding eating disorders was poor with none of the participants achieving the 70% mark needed to be considered as having good knowledge. Knowledge lacked mainly regarding diagnostic criteria, which was followed by pathology. Knowledge regarding treatment fared the best, but still showed poor results.

Overall, South African dietitians showed poor knowledge in the field of eating disorders but neutral to slight positive attitudes towards patients suffering from eating disorders

despite a large portion of participants still holding some misconceptions regarding the condition.

Due to the complex nature of the disease and the intensive training needed to treat patients with eating disorders competently, the researcher recommends that dietitians be allowed to specialise in the treatment of eating disorders via a formal training programme. This will ensure that patients receive optimal treatment for their condition.

Keywords

Eating disorders, anorexia nervosa, bulimia nervosa, nutrition therapy, knowledge, attitudes, counselling models, nutrition counselling, dietitian.

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GLOSSARY

Eating disorders

Eating disorders are a group of psychiatric conditions characterised by a profound disturbance in eating behaviours and/or weight control behaviours as well as related cognitive thoughts and emotions (American Psychiatric Association, 2013; Gilbert, 2014). These conditions include anorexia nervosa (both AN-BP and AN-R subtypes), bulimia nervosa, binge-eating disorder, other specified feeding and eating disorders, night-eating syndrome and purging disorders.

Anorexia nervosa

A medical psychiatric condition that includes (but is not restricted to) the “restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health”(American Psychiatric Association, 2013). Anorexia nervosa may be classified as either the binge-purging (AN-BP) subtype, or the restrictive (AN-R) subtype (American Psychiatric Association, 2013).

Bulimia nervosa

Bulimia nervosa refers to engaging in inappropriate compensatory behaviours (weight control behaviours) in the context of episodes of binge-eating (American Psychiatric Association, 2013; Gilbert, 2014).

Binge-eating refers to eating an objectively larger amount of food than what most people would eat in the same amount of time. A binge is characterised by a feeling of loss of control during the eating period, which causes marked distress in the individual. Compensatory behaviour may consist of one or more of the following actions: using and/or misusing laxatives or diuretics; purging (self-induced); doing high levels of deliberate exercise, or using weight loss medicine excessively (American Psychiatric Association, 2013; Fairburn, 1995; Gilbert, 2014).

These binge-eating episodes happen two (or more) times per week and continue for at least three months (American Psychiatric Association, 2013).

Part of the diagnostic criteria is that patients suffering from bulimia nervosa regard weight and shape as an important indicator of self-worth (American Psychiatric Association, 2013).

Nutritional rehabilitation

Nutritional rehabilitation forms part of the nutritional management of eating disorders. It is the process of helping a patient gain/lose weight to achieve a normal body mass index

(BMI) and recognise (and act appropriately upon) feelings of hunger and satiety; teaching a patient to eat normal portion sizes at appropriate times of the day; and correcting any malnourished state if present (Yager *et al.*, 2006). Nutrition rehabilitation also includes establishing acceptable social eating and enjoyment of food (Ozier & Henry, 2011). This is often done by providing patients with nutrition education, boundaries (rules), menus and behavioural strategies (Cairns & Milne, 2006).

Nutrition therapy

Nutrition therapy is the process of obtaining nutritional rehabilitation by “attending to subjective experiences as manifested in perceptions feelings and thoughts” regarding food and weight (Cairns & Milne, 2006). Nutrition therapy of eating disorders is process-orientated, complex and uses counselling models and therapeutic models such as dialectical behavioural therapy, cognitive behavioural therapy and motivational interviewing to achieve holistic healing and a healthy relationship with food (Cairns & Milne, 2006; Hart, Russell & Abrahams , 2011).

Other specified feeding and eating disorders

Other specified feeding and eating disorders (OSFED) have similar presentations as anorexia nervosa and bulimia nervosa with the exception that the patient may not present with the specified frequency or duration of abnormal eating behaviour as with bulimia nervosa or the low weight as with anorexia nervosa (American Psychiatric Association, 2013). These conditions are also termed atypical anorexia nervosa or atypical bulimia nervosa, respectively (Hoek, 2013).

LIST OF ABBREVIATIONS

ADSA	Association for Dietetics in South Africa
AN-R	Anorexia Nervosa Restrictive Subtype
AN-BP	Anorexia Nervosa Binging-purging Subtype
APA	American Psychiatric Association
ASD	Autism Spectrum Disorder
BDD	Body Dysmorphic Disorder
BED	Binge-eating Disorder
BMI	Body Mass Index (weight [kg]/height [m] ²)
CBT	Cognitive Behavioural Therapy
DBT	Dialectical Behavioural Therapy
DIP	Dietetics as a Profession
DSM-V	Diagnostic and Statistical Manual of Mental Disorders: 5 th edition
e-CBT	Enhanced Cognitive Behavioural Therapy
GAD	General Anxiety Disorder
HPCSA	Health Professions Council of South Africa
HSREC	Health Sciences Research Ethics Committee
IPT	Interpersonal Psychotherapy
KAP	Knowledge, Attitudes and Practices
MANTRA	Maudsley Model of treatment for adults with anorexia nervosa
MCQ	Multiple Choice Question
NG	Nasogastric
NICE	National Institute for Health and Care Excellence
OCD	Obsessive Compulsive Disorder
OSFED	Other Specified Feeding and Eating Disorder
TPN	Total Parenteral Nutrition
USA	United States of America

CHAPTER 1: INTRODUCTION TO THE STUDY AND PROBLEM SETTING

1.1 Eating Disorders as a Rising Health Problem

The broad term ‘eating disorder’ includes (among others) anorexia nervosa, bulimia nervosa, binge-eating disorder (BED) and other specified feeding or eating disorders (OSFED) (American Psychiatric Association, 2013). It is estimated that about 1% of the world’s population suffers from bulimia nervosa, 0.2–0.9% from anorexia nervosa, and 2.4% from OSFEDs (Smink, Van Hoeken & Hoek, 2012). Though these numbers may seem small, it is important to note that only about 30–74% of people who suffer from an eating disorder are diagnosed and receive treatment (Bezance & Holliday, 2013:352–360; Hart, Granillo *et al.*, 2011:727-735; Keel & Brown, 2010:195–204; Pettersson *et al.*, 2016:172–178), meaning that the actual number of people suffering from eating disorders may be much higher.

Eating disorders typically manifest during mid-adolescence and early adulthood, but midlife onset also occurs (Rohde, Stice & Marti, 2016). The onset of eating disorders peaks between 14 and 22 years of age for anorexia nervosa and bulimia nervosa with a median age of 18 years. The onset of BEDs is often later between 17 and 32 years of age with a median age of 21 years (Rohde, Stice & Marti, 2016).

The causes and aetiology of eating disorders are complex and multi-factorial with risk factors starting intra-uterine (e.g. exposure to rubella and herpes) and escalating during teenage years, which explains the young age at the onset of the disease (Rohde, Stice & Marti, 2016). Risk factors for the development of eating disorders can be classified into genetic predispositions, psychological causes and psychosocial causes (Bakalar *et al.*, 2015; Culbert, Racine & Klump, 2009).

Genetic causes pertain to the body’s ability to produce appropriate amounts of neurotransmitters (serotonin and dopamine) and reproductive hormones (oestradiol, testosterone and progesterone) for optimum emotional functioning (Bakalar *et al.*, 2015).

Psychological risk factors include poor development of a self-concept (Claude-Pierre, 1999), difficulty understanding and controlling negative emotions, cognitive rigidity, greater sensitivity to reward and punishment, and pathological perfectionism (Bakalar *et al.*, 2015; Culbert, Racine & Klump, 2011). Psychosocial causes of eating disorders are mostly family-based and include dysfunctional family structures, maternal obesity, higher paternal age, interpersonal distrust, household rigidity, parents and siblings with a high level of education, parental criticism, and a perceived lack of emotional support and empathy (Bakalar *et al.*, 2015; Culbert, Racine & Schmidt, 2011).

All these risk factors (and more) can work together to cause a perceived pressure to be thin and an internal belief that thinness (and self-discipline) equals worthiness, leading

to restrictions, dieting and body dissatisfaction, which play a major role in the pathology of eating disorders (Claude-Pierre, 1999; Culbert, Racine & Klump, 2011).

Research of eating disorders in South Africa is very limited and there are no precise statistics for the prevalence of eating disorders in South Africa (Gitau, 2014; Le Grange *et al.*, 2006). The occurrence of eating disorders has been described in white South African females since 1970 (Szabo & Allwood, 2004). Before 1995, it was thought that eating disorders appeared exclusively amongst the white population in South Africa (Gitau, 2014; Le Grange *et al.*, 2006; Szabo & Allwood, 2004). In 1995, the first cases of black South African females suffering from eating disorders were reported in Johannesburg – all suffering from bulimia nervosa (Szabo & Allwood, 2004; Szabo & Hollands, 1997).

This report was followed by a few studies exploring the occurrence of eating disorders in different ethnic groups in South Africa (Gitau, 2014; Lachenicht, 2000; Szabo & Allwood, 2004). These studies found that there are no differences between urban black and white South African females regarding eating pathology and the risk of developing eating disorders. The actual prevalence of eating disorders in these population groups could not be established (Lachenicht, 2000; Szabo & Allwood, 2004).

A study done in 2004 comprising girls attending an urban secondary school in South Africa (median age 16.4 years) established that 18.6% of black urban school-going girls and 21.2% of white urban school-going girls presented with disordered eating attitudes and an increased risk of developing an eating disorder (Szabo & Allwood, 2004). This number is suspected to increase as South Africa moves to a more Western urban culture (Gitau *et al.*, 2014; Lachenicht, 2000; Szabo & Allwood, 2004), which is defined by materialism, individualism and a change in religion and moral values (Eckersley, 2006).

This transit to a Western urban culture has led to an emphasis on female sexuality and sexual attractiveness (without maternity) (Ponterotto, 2016), as well as the development of Western beauty ideals of thinness of the waist and legs, moderate breast size and a light skin colour (Swami, 2015). The Western culture and its portrayed ideals (as described) strengthen the bond between thinness and worthiness, or acceptability. This bond causes vulnerable individuals to adopt perfectionism and discipline (including the perfect body shape) as part of their personality and self-concept, causing them to fall victim to the development of an eating disorder (Claude-Pierre, 1999).

Eating disorders have poor prognostic outcomes. Of patients diagnosed with bulimia nervosa, 50–70% may recover; of those diagnosed with anorexia nervosa, only about 50% recover (Fairburn *et al.*, 2000; Keski-Rahkonen *et al.*, 2007; Vrabel, Rosenvinge & Hoffart, 2008; Zipfel *et al.*, 2000). The anorexia nervosa binge-purging subtype (AN-BP) has the poorest recovery rate of all eating disorders. Of patients treated for anorexia nervosa, 41% will relapse within the first year of therapy (Vrabel, Rosenvinge & Hoffart, 2008; Zerwas *et al.*, 2013). Mortality rates from anorexia nervosa and bulimia nervosa are estimated at

around 0.51% and 0.17%, respectively, with suicide being the most common cause (Smink, Van Hoeken & Hoek, 2013).

Premature termination of therapy is the main contributor to the high relapse rates associated with eating disorders (Marzola *et al.*, 2013; Sly *et al.*, 2014). Up to 50% of patients in treatment for eating disorders will be discharged before full recovery has been reached (DeJong, Broadbent & Schmidt, 2012; Huas *et al.*, 2011). The main reason for premature discharge is that staff feel that patients resist treatment or fail to cooperate with treatment requirements (Marzola *et al.*, 2013).

Premature termination of treatment is not always staff-initiated and up to 100% of eating disorder patients may drop out from nutritional interventions and dietary treatment (DeJong, Broadbent & Schmidt, 2012). Including instructional nutrition education (patients are provided with rigid meal plans and dictations that need to be followed) in the therapy for eating disorders has not shown to be beneficial to treatment outcomes (Cairns & Milne, 2006).

Despite the poor statistics, evidence-based nutrition therapy and counselling (as part of a multi-disciplinary approach) have been found useful in the treatment of eating disorders (Cockfield & Philpot, 2009; Cook *et al.*, 2006; Gilbert, 2014; Hart, Russell & Abraham, 2011; Kohen *et al.*, 2009; Mehler *et al.*, 2010; Ozier & Henry, 2011; Reiter & Graves, 2010). Evidence-based nutrition therapy and counselling for eating disorders include nutritional assessment, assessment of perceived 'rules' regarding food and eating, as well as the patient's relationship with food (Reiter & Graves, 2010). Nutrition therapy further extends to assisting the patient with nutrition education, clarifying nutrition myths and working towards behaviour modification (Ozier & Henry, 2011; Reiter & Graves, 2010).

In order for a dietitian to achieve medical nutrition therapy goals, it is important for them to have advanced knowledge and training of the psychological and neurological aspects of eating disorders (Ozier & Henry, 2011; Reiter & Graves, 2010). Knowledge and practice of scientifically based treatment methods and counselling models – including dialectical therapy, cognitive behavioural therapy (CBT), family therapy, interpersonal therapy, motivational interviewing as well as other effective treatment models – are important for dietitians to master (Maine, 2009; Ozier & Henry, 2011; Reiter & Graves, 2010; Sylvester & Forman, 2008).

Dietitians must also be able to identify the symptoms of eating disorders and then refer the patient for specialised psychological treatment while continuing with nutrition therapy (Mittnacht & Bulik, 2015; Ozier & Henry, 2011). Poor knowledge of first-line health professionals, including dietitians, regarding the condition is the leading cause of misdiagnosis, or patients failed to be diagnosed and receive treatment (Hart, L. *et al.*, 2011:727–735). Currently, most eating disorder patients are diagnosed late (10–15 years after onset), which in turn decreases their prognosis (Hart, L. *et al.*, 2011:727–735).

Of patients with eating disorders (especially bulimia nervosa), 30–74% first seek treatment for weight problems; meaning that their first point of contact with a health professional may most likely be a dietitian (Hart, L. *et al.*, 2011:727–735).

1.2 Treatment Experiences of Patients Suffering from Eating Disorders

Negative treatment experiences cause patients to drop out from therapy, which hampers treatment outcomes. Feelings of failure to meet the high standards of a therapist or no perceived improvements in psychological symptoms contribute to negative experiences during therapy (Sly *et al.*, 2014). Many therapists do not adhere to recommended practice guidelines, causing the above frustrations experienced by patients (Hart *et al.*, 2013:36).

A systematic review done in 2013 examined the experiences of adolescent girls regarding inpatient and outpatient treatment for anorexia nervosa, which discovered factors that might have contributed to their experiences of treatment (Bezance & Holliday, 2013). From this systematic review it was clear that patients desire professionals who are knowledgeable about their condition; who are sensitive; who show empathy, clarity, transparency and consistency; and who are willing to listen and collaborate with them (Bezance & Holliday, 2013). The authors especially found that healthcare providers who pushed their own agenda (e.g. to only achieve weight gain or to shorten hospital stay for their own reputation) created a significant negative experience amongst patients, which was supported by Susan Hart *et al.* (2013:36) who suggested that therapy should be slower and progress according to the readiness of patients to avoid dropouts.

Treatment progression together with a power healthcare provider–patient relationship (the healthcare provider assumes they know what is best, or stigmatises the condition) made the patients feel controlled and treated as failures, which decreased their confidence in their ability to heal (Maine, 2009). Patients receiving nasogastric feeds especially felt this way (Susan Hart *et al.*, 2013:36). One factor that stood out as a problem to a power healthcare provider–patient relationship was the healthcare provider assuming that they know how an anorexic patient thinks and feels (Bezance & Holliday, 2013; Maine, 2009). These results showed a number of challenges to treatment: Patients felt mistrusted by their therapists, which led to lower self-esteem that affected their treatment outcome negatively (Claude-Pierre, 1999; Maine, 2009). The second problem was that patients often feel a loss of identity and uniqueness, which is also counter-productive to treatment (Claude-Pierre, 1999).

It is thus clear that the attitude and knowledge of the healthcare providers involved together with a good relationship and collaboration between the patient and healthcare provider are of crucial importance to the treatment experience and outcome of the treatment of eating disorders (Bezance & Holliday, 2013:352–360; Claude-Pierre, 1999; Hart, S. *et al.*, 2011:144–153; Maine, 2009:3–17).

1.3 Measuring Knowledge, Attitudes and Practice (KAP)

In order to determine healthcare provider's knowledge, the attitudes they hold and the practices they implement regarding a specific field can be measured by the knowledge, attitudes and practices (KAP) model (World Health Organization, 2008). KAP surveys were first designed in the 1950s for researchers to gain an understanding of how knowledge influences society's perceptions and, consequently behaviours regarding a specific topic (Launiala, 2009). When used in a healthcare system, KAP studies can help identify shortcomings and barriers to providing effective healthcare and what can be done to improve healthcare delivery (World Health Organization, 2008).

The use of KAP surveys in the general public has been criticised previously because of the assumption that knowledge influences attitudes, and that attitudes are the main driver for behaviour, which is not always the case (Launiala, 2009). Confounding factors that play a major role in creating a direct link between KAP include cultural beliefs and practices, logistics, and availability of resources. Despite critique on the KAP model, KAP surveys are still widely used to study knowledge, beliefs and practices of healthcare professionals but care should be taken when making conclusions of direct links between the attributes (Launiala, 2009; World Health Organization, 2008).

KAP surveys typically comprise several set questions that may be asked in a structured interview style or written depending on the literacy of the population group (World Health Organization, 2008). These questions should be designed specifically to meet the exact objectives of the study where they will be used.

1.4 Eating Disorder Knowledge and Attitudes of Healthcare Professionals

The complex nature of eating disorders makes them some of the most difficult diseases to treat successfully (Carter *et al.*, 2012; Dalle-Grave, 2011; Weiss *et al.*, 2013). The chronicity of the disorder, the high relapse rates, slow recovery and difficulty in treatment place a high financial, psychological and social burden on families of sufferers (Zerwas *et al.*, 2013).

Studies by Currin, Waller & Schmidt (2009) and Thompson-Bremmer *et al.* (2012) found that primary healthcare professionals in several countries, including the United Kingdom and Australia, have insufficient knowledge regarding eating disorders. This lack of knowledge is often combined with negative prejudiced attitudes and beliefs regarding the condition (Currin, Waller & Schmidt, 2009; Thompson-Brenner *et al.*, 2012).

According to a study done in England, psychiatrists (who are often treatment team leaders) hold a significantly more positive attitude towards the prognosis and treatability of eating disorders than primary healthcare physicians, but only 15% of them felt comfortable treating a patient with the disease (Jones, Saeidi & Morgan, 2013). The main

contributor was the perceived gap in psychiatrists' knowledge when it comes to treating eating disorders.

Similarly, a Canadian study, which explored the perceived challenges dietitians face when treating eating disorders, found that dietitians experience some of the same challenges as other healthcare providers as well as some unique challenges (Trammell, Reed & Boylan, 2016). Unclear boundaries of the dietetic scope of practice, poor knowledge of pathology and symptomology of eating disorders, and few formal training opportunities are some of the perceived challenges dietitians experience when treating patients with eating disorders (Trammell, Reed & Boylan, 2016).

Healthcare professionals (including dietitians) may need to receive more formal specialist training in the field of eating disorders to ensure that patients receive appropriate and effective scientifically proven therapy (Cairns & Milne, 2006; Currin, Waller & Schmidt, 2009; Fassino *et al.*, 2009; Hart, Granillo, *et al.*, 2011). Fassino *et al.* (2009) suggest that inappropriate treatment may be even more harmful to specific subgroups of patients than no treatment at all.

1.5 Problem Statement

Specialised nutrition therapy is a crucial aspect in the treatment and rehabilitation of eating disorders (Susan Hart *et al.*, 2011:144–153; Ozier & Henry, 2011:1236–41; Wilson & Shafran, 2005:79–81).

South Africa has limited opportunities for advanced training in the treatment of eating disorders. The Health Professions Council of South Africa (HPCSA) does not recognise any specialised training in a specific field or subfield of dietetics other than an unspecified master's or doctoral degree (Health Professions Council of South Africa (HPCSA), 1974). This policy has not been updated since 1974.

None of the major universities in South Africa offering a master's degree in dietetics have the option of taking a specialised subject on the topic (Nelson Mandela Metropolitan University, 2017:185; North-West University, 2017:98; University of Cape Town, 2017:82; University of Pretoria, 2017; University of the Free State, 2017:12; University of Stellenbosch, 2017); however, some basic information may be included in the coursework.

To date, there have been few international studies investigating the knowledge of dietitians in the field of eating disorders (Cairns & Milne, 2006; Trammell, Reed & Boylan, 2016) and no published study could be found done within the South African context. It is therefore important to evaluate the KAP of dietitians in South Africa regarding eating disorder therapy in order to determine if there is a need for such formal training.

1.6 Aims and Objectives

The aim of the study was to determine the KAP of South African dietitians regarding diagnosis and scientifically proven treatment approaches in the field of eating disorders.

In order to reach the overall aim of the study, the following objectives were pursued:

- Dietitians' knowledge relating to the diagnosis and pathology of patients with eating disorders;
- Dietitians' knowledge relating to the nutritional management of eating disorders;
- Dietitians' attitudes regarding eating disorders and prognosis of eating disorder sufferers;
- Dietitians' confidence in their ability to treat patients suffering from eating disorders sufferers;
- Dietitians' use of recommended counselling models and strategies in the management of eating disorders, and
- Determine if an association exists between the knowledge of South African dietitians regarding eating disorders and their attitudes towards patients with eating disorders.

1.7 Layout of This Dissertation

Chapter 2

In Chapter 2, the researcher will present a thorough review of the literature pertaining to eating disorders. In the literature review, the researcher will explain what an eating disorder is, and how it is diagnosed. The pathology, symptomology and presentation of the condition will also be described. The literature review will look at the drivers that maintain this psychological condition.

This will be followed by a review of the treatment options available to patients suffering from eating disorders as well as how to best measure progress of treatment. Thereafter, there will be a brief description of counselling models that have been found useful in the treatment of anorexia nervosa, bulimia nervosa and BEDs.

Finally, the literature review will look at the role of the dietitian as part of a multi-disciplinary team treating patients suffering from eating disorders. This will elaborate into recommended strategies for dietitians to use when counselling patients with eating disorders.

Chapter 3

Chapter 3 will describe the methodology of the study including study design, how the questionnaire was developed, how participants were sourced, and how the study questionnaire was presented to the participants. Chapter 3 also includes measures that

were taken to ensure that the study was ethical, and that the risk of poor validity and reliability was minimalised.

Chapter 4

Chapter 4 will include the results of the study and the outcomes of each objective. The overall demographics of the population will be discussed including age, years of practice as a dietitian, experience in treating eating disorders, highest qualification as well as area of practice.

The results chapter will also include the outcome of attitude and knowledge section of the questionnaire and describe what proportion of the study sample had sufficient knowledge in the field of eating disorders and felt comfortable dealing with a patient suffering from an eating disorder.

Chapter 5

Chapter 5 will discuss the results. This will include a discussion on common misconceptions that are still held towards patients with eating disorders as well as gaps in knowledge. The correlation between attitudes and knowledge will also be explored.

Chapter 6

Chapter 6 is an overall summary of the study and outcomes as well as recommendations for future training, practice and research. The discussion and results in the foregoing chapters will be combined to draw the conclusions presented in Chapter 6.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction to the Literature Review

Eating disorders have been known for several centuries; however, they have only received attention through research since the early 1980s (Gilbert, 2014). The 21st century saw healthcare professionals in multiple disciplines including psychology and psychiatry paying increased attention to eating disorders.

In order to treat these complex conditions effectively, a multi-disciplinary team needs to work together, paying attention to all aspects of the condition. The team includes a psychiatrist, psychologist, social worker and dietitian (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Wilson & Shafran, 2005; Yager *et al.*, 2010). It is important that the tending therapists have in-depth knowledge regarding the conditions, pathology and the treatment thereof so that they can apply scientifically proven treatment approaches and methods (Ozier & Henry, 2011).

This literature review focuses on the knowledge that healthcare professionals (including dietitians) need regarding eating disorders to understand the pathology and aetiology of the condition fully. The literature review also looks at the research done on treatment strategies, counselling models and recommended nutrition practices to be applied when treating a patient with an eating disorder.

2.2 Classification of Eating Disorders

2.2.1 Diagnostic criteria for Eating Disorders

The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V) is a written manual for clinicians to aid in diagnosing patients with abnormal psychology (American Psychiatric Association, 2013). The DSM-V is accepted as the international manual for diagnosing psychiatric disorders, which was compiled with the help of medical practitioners and research across the globe. It includes research from developing and developed countries including Western and non-Western societies (American Psychiatric Association, 2013). Therefore, South Africa also adopts the DSM-V criteria for diagnosing eating disorders. The DSM-V diagnostic criteria for eating disorders are depicted in Appendix A. Both anorexia nervosa and bulimia nervosa have a profound characteristic that patients consider weight and body shape important in determining their self-worth. Anorexia nervosa is differentiated by a low weight (compared to what is normal for age, sex, physical health and development) while bulimia nervosa is distinctive in that it contains episodes of binge eating followed compensatory behaviour such as excessive exercise, laxative misuse, and self-induced vomiting.

It is, however, important to note that the DSM-V criteria for diagnosing eating disorders merely describe the characterising symptoms of eating disorders and not necessarily the pathology, which may differ between cultures. As found in clinical cases, symptoms will often overlap, which therefore makes the classification flexible and mutable, and not rigid (Gilbert, 2014).

2.2.2 Limitations of the DSM-V

Additional to the symptoms explained in the DSM-V, there are many cognitive and emotional aspects as well as pathological thought patterns prevalent in the condition (Claude-Pierre, 1999; Gilbert, 2014). The DSM-V is only a diagnostic system and should by no means generalise or standardise therapy for individuals. In other words, the specific diagnosis of the patient cannot necessarily predict the type of therapy that would be most effective for each individual; however, some therapies have been found more successful in treating anorexia nervosa, bulimia nervosa or BED, respectively, than other therapies.

Symptoms may also vary in severity, which can influence the diagnosis of the patient. The severity of clinical symptoms and exact classification of diagnosis are not related to the severity of the disorder/disease or the quality of life of the patient (DeJong *et al.*, 2013).

This makes it important to keep in mind that pathologies and the development of an eating disorder differ greatly between cases (Maine, 2009). It is clear that therapists should be guided by their patients as to how the disorder developed, matured and presented. The clinician should be wary of generalising the condition and treating every patient the same. The author hereby implies that the presented literature only acts as guidance to common presentations seen within eating disorder symptomology.

2.2.3 Fluctuations between eating disorders

Although pathology of eating disorders has been widely described in literature, it is difficult to predict the exact combination of symptoms in individuals (Claude-Pierre, 1999; Dalle-Grave, 2011; Fairburn & Walsh, 2002; Gilbert, 2014; Uher & Rutter, 2012). The course of symptoms and the pathology of the illness differ substantially between individuals. Symptoms may change fluently as patients progress through the different stages of disease and recovery (Dalle-Grave, 2011; Zerwas *et al.*, 2013). This might imply that patients can fluctuate between eating disorder diagnoses as the different diagnoses are based on specific symptoms (Dalle-Grave, 2011).

The fact that patients can migrate between diagnoses strongly indicates that all eating disorders could have a common underlying condition or pathology and that anorexia nervosa restrictive (AN-R) type, AN-BP type, bulimia nervosa and BED are all different stages of the same disease (Claude-Pierre, 1999; Morris & Szabo, 2013; Nordbø *et al.*, 2006; Uher & Rutter, 2012). These stages are related to the degree of the development of the

individual and stages of the disease. Younger children, adolescents and patients in the early stages of the disorder are more likely to present with AN-R, while adults and patients with a longer duration of the illness have more features of AN-BP, and then bulimia nervosa or even BEDs (Uher & Rutter, 2012). Most patients will change diagnosis during the course of the illness (Uher & Rutter, 2012)

These changes in diagnosis can often be predicted as moving from AN-R to AN-BP to bulimia nervosa and even BED. Progression of symptoms in the opposite direction is less common; therefore, it can be argued that different diagnoses are only developmental stages of the same disorder. OSFEDs, including atypical anorexia nervosa and subclinical bulimia nervosa, are described as transitional stages before the onset of diagnosis, while symptoms are changing and before recovery. Therefore, a diagnosis of atypical anorexia nervosa or subclinical bulimia nervosa does not necessarily mean that the patient has a less severe condition or that it can be seen as an improvement in the condition (Uher & Rutter, 2012).

The fluent and interlinked conditions provide challenges in formulating effective clinical standards; therefore, the therapist should be adaptable and be able to integrate different treatment strategies instead of following a simple plan.

2.3 Symptoms of Eating Disorders

The pathology and symptomology of an eating disorder can be divided into several layers of the disease. The first layer is the behavioural symptoms that can be observed and upon which the DSM-V criteria are based. These symptoms form portraits together with the psychological symptoms of the disorder. Psychological symptoms comprise emotions and thought patterns that are persistent in the individual. These psychological symptoms and emotions are driven by the patient's core beliefs, and how they perceive their society and the world (Claude-Pierre, 1999; Espetet *et al.*, 2012; Gilbert, 2014; Hartmann *et al.*, 2013; Morris & Szabo, 2013; Nordbø *et al.*, 2006; Ponterotto, 2016).

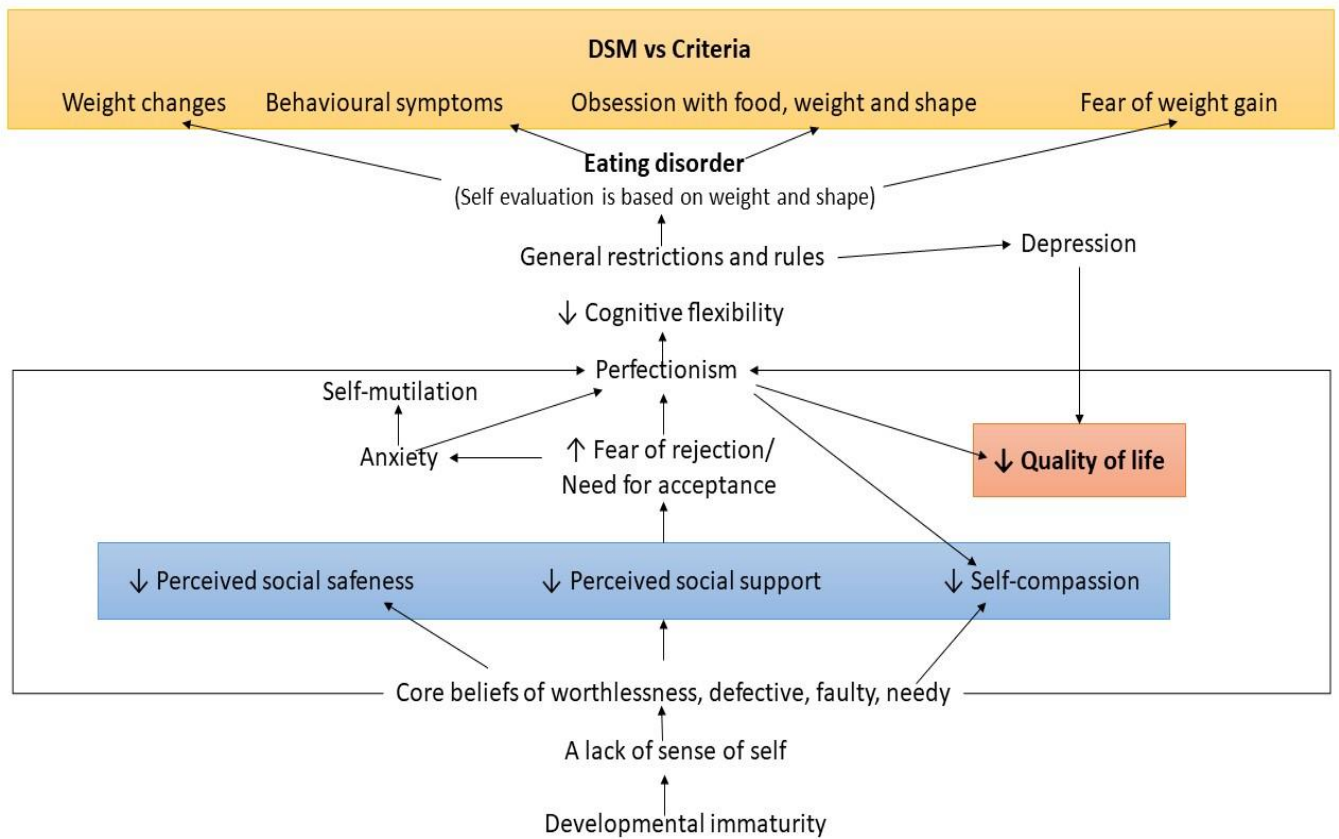


Figure 2-1: Relationship between the DSM vs criteria and psychological symptoms

2.3.1 Behavioural symptoms

Although the DSM-V criteria already indicate a number of eating disorder symptoms, there are many other non-specific behaviours and symptoms related to eating disorders (Gilbert, 2014). The main symptom is an obsession with food, calories, body weight and shape (Claude-Pierre, 1999; Gilbert, 2014). It is important to remember that this obsession is merely a symptom of an eating disorder and stems from deeper core beliefs common in most individuals with eating disorders. These deeper core beliefs are discussed as psychological symptoms below.

Fundamental to anorexia nervosa is the severe restriction of food intake (American Psychiatric Association, 2013; Gilbert, 2014). These restrictions can be as little as 600–800 kJ/day for anorexic patients. Patients suffering from bulimia nervosa also show significant restrictions in food intake, which are similar to those of patients suffering from anorexia nervosa between binge-eating episodes (Fairburn, 1995; Gilbert, 2014). To achieve this level of food restriction, patients may develop some behavioural rituals around food and weight, which will be discussed shortly.

Patients with eating disorders are often obsessed with the food itself (Claude-Pierre, 1999; Gilbert, 2014). They present with an interest in food and cooking. They might collect recipes, often cook for others, or watch food programmes and shows. They will, however, avoid eating the foods themselves.

Patients have a tendency to hide food (Claude-Pierre, 1999). This practice often serves two purposes: The one is to deceive caregivers as to how much they actually eat. The second is the preoccupation with food and severe hunger that present in a patient with an eating disorder. Taking and hiding food give the patient the illusion of having food to temporarily still their hunger. This also results in a feeling of accomplishment that develops inside a patient to be able to resist and control their intake of food.

Patients may also discard perfectly edible food (Claude-Pierre, 1999). Discarding of food relates to the removal of temptations. If the food has been discarded, it is not available for consumption anymore; therefore, making it easier for the patient to achieve a low-calorie diet.

Another phenomenon seen in patients with eating disorders (specifically anorexia nervosa and bulimia nervosa) is chewing and spitting out food (Gilbert, 2014). This is to satisfy the “sensory need for food” without the guilt associated with consuming the food.

Social withdrawal is a result of efforts made by patients to avoid food (Allen *et al.*, 2013). It has also been described that patients suffering from eating disorders are reluctant to eat in front of others because they experience guilt and shame for eating more than they should (Allen *et al.*, 2013).

Patients may have a tendency to eat non-food substances such as grass and paper (pica). This is to satisfy hunger temporarily without the guilt of a calorie-dense meal (Claude-Pierre, 1999; Gilbert, 2014).

Excessive exercise has been described elaborately in both anorexia nervosa and bulimia nervosa. This is a compensatory method to achieve a negative energy balance and lose weight (Allen *et al.*, 2013).

Other extreme weight control methods often practised by eating disorder sufferers are misusing/abusing laxatives and diuretics, and purging forcefully (Allen *et al.*, 2013; American Psychiatric Association, 2013; Gilbert, 2014). This is only prevalent in bulimia nervosa and AN-BP.

Non-suicidal self-mutilation or self-harm has also been described as a common side effect of eating disorders – both anorexia nervosa and bulimia nervosa (Gilbert, 2014). Self-mutilation or self-harm may include cutting, blood-letting, slapping, punching, scratching or any form of behaviour with the intention of causing pain to oneself without the

intention of committing suicide (Claes *et al.*, 2012; Paul *et al.*, 2002; Verschueren, 2011). Self-harm has been described as being used both as a punishment (especially when gaining weight or eating forbidden food) and as a method of dealing with anxiety, depression or guilt, and the shame associated with eating disorders (Paul *et al.*, 2002; Verschueren, 2011).

2.3.2 Psychological symptoms

2.3.2.1 Poor quality of life

Quality of life can be defined as, “An individual’s position in life in the context of the culture and value system in which they live and in relation to their goals, expectations standards and concerns” (DeJong, Broadbent & Schmidt, 2013). Quality of life can be actual or perceived. It is assessed in four domains of life, namely, physical, emotional, social and psychological. According to DeJong *et al.* (2013), patients with eating disorders specifically suffer from a perceived impaired quality of life in psychological and social domains. A study by DeJong *et al.* (2013) showed that patients with eating disorders have significantly higher scores in clinical impairment questionnaires than normal healthy individuals. This supports the hypothesis that eating disorder sufferers have a decreased quality of life (DeJong *et al.*, 2013). Anorexia nervosa reported higher scores for quality of life than other eating disorders (DeJong *et al.*, 2013). This could be due to the reward system associated with weight loss and the achievement of high standards of restrictions.

The decrease of quality of life has been associated with social isolation, non-adaptability, feelings of worthlessness, guilt, shame, inadequacy and not being good enough (Claude-Pierre, 1999; Guarda *et al.*, 2015). Some patients may be emotionally unstable and psychologically obsessed with rules and rigidity (Mattar *et al.*, 2012; Williams & Reid, 2012). It is also important to note that the standards and expectations that patients have of themselves are often very high and may include perfectionism together with concerns regarding their value, food and weight (Bardone-Cone *et al.*, 2010; Claes *et al.*, 2012; Gilbert, 2014; Watson *et al.*, 2011). These concerns together with rigidity also decrease the quality of life of patients living with eating disorders (DeJong *et al.*, 2013).

2.3.2.2 Immaturity

Some authors argue that patients (especially adults) present with traits associated with individuals who are at an earlier stage of emotional development (Gilbert, 2014). These traits include limited verbal capacity, trouble with abstracting abilities, and less awareness and ability to identify emotions.

According to Claude-Pierre (1999), people with eating disorders suffer from a non-understanding of the self and an underdevelopment of the self-concept, which are similar to that of young children. Therefore, eating disorders often fulfil the role of the patient having an

identity as well as distracting the patient from painful self-discovery and self-reflection (Nordbø *et al.*, 2012).

2.3.2.3 *Self-compassion*

Self-compassion is “an attitude of kindness and acceptance towards one’s personal distress and disappointments” (Morris *et al.*, 2014). A lack of self-compassion has a major influence on psychological dysfunction in patients suffering from eating disorders. Low self-compassion is also linked to rigid evaluation of oneself, self-criticism and impatience. Self-criticism can lead to shame, anxiety and anger that drive the desire for perfectionism and maladaptive behaviours to achieve perfectionism (Scott, Hanstock & Thornton, 2014).

It is important to note that patients often present with a reluctance or resistance to self-compassion (Kelly, Carter & Borairi, 2014). This could be due to the fear of becoming a burden to others, and that self-compassion will lead to narcissism, arrogance, laziness and social criticism and abandonment (Claude-Pierre, 1999; Kelly, Carter & Borairi, 2014). All of the above will escalate to shame and guilt, which again drives the maladaptive behaviours of eating disorders.

2.3.2.4 *Social safeness and perceived social support*

Experiencing a sense of warmth, reassurance and belonging in social relationships is the basis on which social safeness is built (Morris *et al.*, 2014). Social safeness is the absence of fear of abandonment or rejection (Kelly, Carter & Borairi, 2014). Self-compassion and compassion from others increase social safeness by decreasing feelings of shame, and being faulty and defective.

Patients with an eating disorder have shown to have a core belief system of being unworthy, defective and faulty (Carter *et al.*, 2012; Gilbert, 2014; Kelly, Carter & Borairi, 2014). This leads to a decreased perception of social safeness and an increased fear of rejection and abandonment. In turn, this fuels perfectionism, social isolation and other eating disorder symptoms (Kelly, Carter & Borairi, 2014).

A low sense of social safeness also decreases the amount of social support an individual perceives to have. If the individual does not perceive to belong to a social group, structure or system, they also do not perceive emotional support, acceptance, guidance assistance, nurturance and emotional closeness (Allen *et al.*, 2013; Kelly, Carter & Borairi, 2014; Zerwas *et al.*, 2013).

Eating disorder patients have a high need for nurturing that is often unmet, which leads to a low level of perceived social support (Claude-Pierre, 1999). Another reason for the decreased perception of social safeness in eating disorders is that they often have a poor sense of self. This leads to an increased need of recognition and reassurance of worth that

is seldom provided by society. Patients often have a fear that emotional closeness will lead to rejection. Therefore, patients lack emotional closeness and often feel 'alone', which decreases the perception of social safeness and support further.

2.3.2.5 Perfectionism

Perfectionism is commonly associated with eating disorders in contemporary theories and empirical investigations (Bardone-Cone *et al.*, 2010; Watson *et al.*, 2011). Perfectionism is often an individual's reaction to a fear of abandonment and low social safeness. It drives the majority of eating disorder behaviours. Perfectionism can be divided into two components, namely, intrapersonal and interpersonal perfectionism.

Interpersonal perfectionism is related to a patient's own standards and expectations, leading to conditional goal-setting of the patient (Watson *et al.*, 2011). These goals are believed to increase self-worth or happiness when achieved. Social attention given to the patient regarding food behaviours or weight reinforces the belief that perfectionism increases self-worth and social acceptance. This again reinforces perfectionistic behaviour (Engel *et al.*, 2005).

Patients with eating disorders place an excessive degree of importance on shape, weight and eating habits as an evaluation of perfectionism (Watson *et al.*, 2011). In other words, patients view weight, shape and eating behaviours as criteria to be met in order to be a perfectionist, increase self-worth, and avoid social rejection (which is a main driver of eating disorders).

The second type of perfectionism is intrapersonal perfectionism (Watson *et al.*, 2011). This refers to the individual's perception of the goals and standards that other people expect from them. This is accompanied by the individual's desire to meet these goals and standards, or the belief that meeting these goals and standards will increase their self-worth or social acceptance.

It has been hypothesised that patients with eating disorders have a lack of self-perception (Claude-Pierre, 1999; Watson *et al.*, 2011). This leads them adopting a self-perception that is congruent to what they believe is socially acceptable. This relates to intrapersonal perfectionism where the patient adopts a sense of self that they believe is expected by other people and that will be accepted by others. This self-perception developed to meet the "expectations of others" is often perfectionist, rigid, focused on body weight, shape and eating habit (Watson *et al.*, 2011).

Control of eating behaviours is often seen as a quest by the patient to the perfect the self (Williams & Reid, 2012). They especially want to portray this control and 'selflessness' to other healthy individuals.

It is important to mention that this rigid perfectionism is often not achievable (Watson *et al.*, 2011). The failure to achieve the goals results in depression, anxiety, guilt and shame, which consequently decreases the quality of life (DeJong *et al.*, 2013). The failure of perfectionism also reinforces core beliefs of worthlessness and defectiveness, which in turn drive the interpersonal goals and standards (Gilbert, 2014).

2.3.2.6 Shame and guilt

Shame and guilt especially forms an important link in this cycle of perfectionism and the drive for self-perception, self-worth and acceptance (Kelly, Carter & Borairi, 2014; Troop & Redshaw, 2012). It also drives the compensatory behaviours seen in bulimia nervosa and AN-BP, where purging, excessive exercise, laxatives and other behaviours are focused to get rid of these feelings of shame and guilt (related to food and to the self) (Fairburn, 1995; Gilbert, 2014).

“Shame is the fear or expectation of elicit disgust from others.” Shame is the perception of being flawed or inadequate in the field of society, rank, power or status that will cause social rejection (Troop & Redshaw, 2012). Shame can be internal or external, but both are subjective perceptions that the individual holds about their environment of self. Shame evolves out of self-reflection, and self-perception and may be related or unrelated to guilt (Hartmann *et al.*, 2013).

Internal shame is the perception that one sees oneself as being flawed, morally deficient, worthless or unattractive (Troop & Redshaw, 2012). Morally deficient feelings include not having enough positive personality aspects, including perceptions such as “not working hard enough” and “not having enough self-discipline”. Guilt typically contributes to internal shame as it is an internal feeling of being deficient.

External shame relates to the perception that an individual holds of how others see them in the specific environment they find themselves in (Troop & Redshaw, 2012). For instance, external shame will be more severe in environments with high performance expectations than environments with lower performance expectations. Blame and specific embarrassing situations are often a cause of external shame.

One pertinent shame in eating disorders is bodily shame: patients feel that their body is deficit, ugly or in some way inadequate (Troop & Redshaw, 2012). These perceptions of ‘unattractiveness’ can either be current as feelings in the current moment, or anticipations of feelings in the future (anticipated bodily shame). This particularly explains the fear of weight gain in anorexia nervosa.

Bodily shame can either be internal or external. Internal bodily shame often stems from feelings of being unattractive, filthy, unacceptable, etc. (Troop & Redshaw, 2012). These feelings may be due to internal expectations of what the body should look like. They may

be related to beliefs that a certain body type will improve status or rank. Abuse will increase internal bodily shame.

External bodily shame can be described as the individual holding a perception that others expect a certain body shape and size to be socially acceptable (Troop & Redshaw, 2012). This shame is particularly present in industries where weight and shape are believed to play a role in success; for example, in performance or other industries that emphasise the external look excessively, such as ballet dancers and models. Comments regarding weight and shape will also increase external bodily shame. This is only true if such comments come from parents or a romantic partner (Blodgett *et al.*, 2015).

External shame (especially bodily shame) has mostly been associated with anorexia nervosa, while internal shame (including bodily shame) has mostly been associated with bulimia nervosa (Troop & Redshaw, 2012).

Shame and guilt are as a result of, and cause perfectionism (Watson *et al.*, 2011). Perfectionistic eating and exercise behaviours aim to improve the body's appearance and decrease feelings of shame. Should these perfectionistic traits not be met, they cause external shame and guilt. The individual also feels that these flaws attract negative attention from others, causing an increase drive to thinness and correction of flaws (Hartmann 2013).

2.3.2.7 Impaired decision-making and impulsivity

Several psychopathologies have been described to be associated with impaired decision-making including obsessive compulsive disorder (OCD), substance abuse, addictions (especially gambling) and eating disorders (Garrido & Subirá, 2013). In these conditions, the limbic system is impaired, and focus is placed on immediate reward or punishment rather than long-term goals and effects. This has the effect that patients will avoid the negative feelings of shame and guilt associated with eating (punishment) as well as achieve rewards associated with eating disorders (especially in anorexia nervosa) when making decisions. These rewards include the feeling of achieving self-discipline (self-confidence); feeling special; achieving mental strength, security and certainty; and fulfilling their purpose in life. These feelings initiate and motivate the behavioural symptoms of eating disorders while long-term effects are not considered.

Many patients with eating disorders suffer from secondary depression that will further decrease decision-making capacity (Gilbert, 2014; Mattar *et al.*, 2011, ; 2012). Another factor that has been hypothesised to decrease decision-making capacity is the mind being pre-occupied with food, weight and restricting behaviours (Claude-Pierre, 1999; Gilbert, 2014). This preoccupation leaves little cognitive energy for active decision-making.

Lastly, as mentioned, eating disorders are sometimes associated with perfectionism (Garrido & Subirá, 2013; Watson *et al.*, 2011). This fear of judgement in decision-making (fear of shame resulting from the decision they made) or making the ‘wrong’ decision also causes patients to avoid and delay decision-making.

2.3.2.8 *Interpersonal relationships*

Many studies have emphasised that patients suffering from eating disorders have significant difficulties in maintaining and forming interpersonal relationships (Keski-Rahkonen *et al.*, 2014). This may be related to the fear of rejection, feelings of shame and guilt, poor self-worth, and a decrease in their perceived social support. It may also be applicable to patient-therapist relationships (Maine, 2009).

There is also a high level of social stigma towards patients suffering from eating disorders, which occurs from healthcare professionals as well (Ebnetter & Latner, 2013; Roehrig & McLean, 2010). These stigmas are mainly ideas that eating disorder patients are to blame for their condition and that it is an attention-seeking condition or a manipulation method. This stigma also greatly decreases the patient’s ability to engage in interpersonal relationships.

2.3.2.9 *Cognitive inflexibility*

A person with cognitive inflexibility lacks the ability to acknowledge or recognise different options when unexpected or unplanned conditions arise. This is combined with a reluctance or difficulty to adapt to the change in situation (Arlt *et al.*, 2016; Sato *et al.*, 2013). Cognitive inflexibility, especially prevalent in anorexia nervosa, has been shown to be a specific characteristic trait that, firstly, increases the likelihood of an individual developing an eating disorder and, secondly, plays a role in the development of an eating disorder. Cognitive inflexibility is by no means a causal factor on its own, but it does increase resistance to change and treatment resistance in patients with eating disorders.

Cognitive inflexibility has been linked to an extreme overdetailed way of thinking that drives perfectionism and obsessions (Tchanturia, Lloyd & Lang, 2013). This then manifests in certain behaviours and routines, which are established as ‘rules’ to live by (Claude-Pierre, 1999). These rules cause a sense of safety when followed, a feeling that one is good enough, and reduced risk of social criticism and rejection. However, when these rules are broken, it causes an extreme sense of guilt and shame that reinforces thoughts of personal faultiness and worthlessness. Cognitive inflexibility does not only involve thoughts of food and weight, but may also include other aspects such as accessories, clothes, hairstyle, hobbies, activities and daily routine.

Cognitive inflexibility makes it more difficult for patients with eating disorders to shift their attention away from the rigorous rules regarding eating and their weight (present in

eating disorders) towards the process of healing and enjoying life (Wildes, Forbes & Marcus, 2014).

2.3.3 Co-morbid disorders and traits

There are several co-morbidities that are associated with anorexia nervosa (Gilbert, 2014; Kaye *et al.*, 2004; Sallet *et al.*, 2010; Zerwas *et al.*, 2013). The most common co-morbid disorders will be discussed below. These co-morbidities may play an integral part in causing and maintaining eating disorders.

2.3.3.1 Depression

Depression is one of the most common co-morbidities of eating disorders (Gilbert, 2014; Mattar *et al.*, 2011). It has been hypothesised that individuals who are predisposed to eating disorders are also predisposed to depression. Several studies have indicated that depression is secondary, and results from the eating disorder itself. The extreme low weight of anorexia nervosa patients, and the electrolyte imbalances in bulimia nervosa and AN-BP sufferers can result in neurotransmitter disturbances that may result in depression.

Persistent depression increases the prevalence and severity of other cognitive symptoms associated with eating disorders (Keski-Rahkonen *et al.*, 2014). Depression is associated with an increased prevalence and severity of social, interpersonal, cognitive and somatic abnormalities and difficulties.

Depression has a significant influence on the prognosis of patients suffering from anorexia nervosa (Keski-Rahkonen *et al.*, 2014; Mattar *et al.*, 2011; Zerwas *et al.*, 2013). Patients suffering from depressive symptoms prior to weight loss are more likely to develop a chronic state of anorexia nervosa. Earlier onset of depressive symptoms has been linked to a more severe form of illness, whereas the lowest point of weight has no significant correlation to the severity of illness.

2.3.3.2 Obsessive compulsive disorder

OCD, often a sub-category of anxiety disorder, has been described as a common co-morbid disorder in anorexia nervosa with up to 30% of anorexia nervosa and bulimia nervosa patients being sufferers (Gilbert, 2014; Mattar *et al.*, 2012; Sallet *et al.*, 2010). OCD comprises unwanted recurrent and repetitive thoughts that cause anxiety and stress (American Psychiatric Association, 2013).

OCD symptoms in eating disorders typically present with dieting excessively, weighing several times a day, checking food ingredients and calorie content, and exercising excessively. Some patients present with specific rituals and habits around eating and weighing, indicating obsession and compulsion (Gilbert, 2014; Sallet *et al.*, 2010). Patients also present with constant thoughts of food and weight, and extreme criticism of oneself.

2.3.3.3 *Personality disorders*

Personality disorders are disorders where individuals show “an enduring pattern of inner experiences and behaviours that deviate markedly from the expectations of the individual’s culture ...” (American Psychiatric Association, 2013). There are several types of personality disorder including paranoid personality disorder, schizoid personality disorder, antisocial personality disorder, avoidant personality disorder, dependent personality disorder, and borderline personality disorder. Personality disorders have a basis of personality and emotional difficulties, a non-understanding or underdevelopment of the self, and an unstable self-image similarly as has been described in patients with eating disorders (Gilbert, 2014).

Patients may present with difficulties in interpersonal relationships and their relationship with themselves (Federici & Wisniewski, 2013; Gilbert, 2014). They can come across as dependent, childlike, or avoidant in life, causing a general misconception that patients are manipulative and controlling. However, it has been described that this behaviour is because patients are unsure of themselves, their emotions, and how to behave (Claude-Pierre, 1999). It is, however, not clear if the eating disorder is secondary to the personality disorder or vice versa.

2.3.3.4 *Autism spectrum disorders*

Autism spectrum disorders (ASDs) have also been shown to have similarities with eating disorders, especially anorexia nervosa (Gilbert, 2014). ASDs have been described as delayed development or developmental disorders that have significant impacts on social life, behaviour and cognition (American Psychiatric Association, 2013).

The most common symptom of ASD in anorexia nervosa is a lack of cognitive flexibility (Brockmeyer *et al.*, 2014; Gilbert, 2014; Wildes, Forbes & Marcus, 2014). Patients present with rules and restrictions regarding food and eating, as well as other aspects of life and behaviour in general. Other presentations of ASD that may be presented are the inability to recognise what another person thinks or feels, repetitive behaviour, and the inability to adapt to changing rules and circumstances. Other similarities are the extreme focus on details and the difficulties in observing and considering a situation macroscopically (Gilbert, 2014).

It should be remembered that these symptoms are often only the superficial presentation that overlaps with ASD and does not share the same aetiology (Gilbert, 2014).

2.3.3.5 *General anxiety disorders*

General anxiety disorder (GAD) includes excessive amounts of anxiety, panic and worry on more days than not (American Psychiatric Association, 2013). Patients with eating

disorders may suffer from presentations similar to GAD such as fears and phobias regarding food and weight (Gilbert, 2014; Lavender *et al.*, 2013). Symptoms of anxiety then drives behavioural symptoms such as dieting, exercise and compensatory behaviours (Espetet *et al.*, 2012; Lavender *et al.*, 2013).

As patients often fear social rejection and the judgement of others, they are anxious to eat in front of others or in company (Espetet *et al.*, 2012). This relates especially to external shame, and shame has been indicated to increase anxiety. This shame is seen both in the presence of healthy others, and especially in the presence of other patients with similar eating disorders (Claude-Pierre, 1999).

GAD might be a result of the eating disorder itself. It has been hypothesised that patients with eating disorders, especially anorexia nervosa and bulimia nervosa, have an increased hunger but often denies it. This, together with refraining from eating, may result in the presentation of anxiety symptoms (Mattar *et al.*, 2011). Lavender *et al.* (2013) elaborated that that the concept of eating (thoughts of food) or the action of eating increases anxiety as it increases fear of weight gain. Hunger becomes a reminder of eating and, therefore, hunger may increase anxiety.

Anxiety may be residual after weight restoration, which may manifest as an eating disorder trajectory again (Espetet *et al.*, 2012). This implies that in order for a patient to be treated successfully for an eating disorder, focus should be placed on decreasing and managing anxiety – especially around food and eating.

2.3.3.6 *Body dysmorphic disorders*

Body dysmorphic disorder (BDD) has a great deal in common with eating disorders. BDD has been described as “an excessive preoccupation with a perceived defect or flaw of the body” (Kollei *et al.*, 2013). There are variants of BDD; eating disorders can occasionally be described as a variant of BDD as patients with eating disorders have an element of preoccupation towards weight and shape (Dalle-Grave, 2011; Kollei *et al.*, 2013).

Research suggests that up to 39% of patients suffering from anorexia nervosa can also be diagnosed with BDD unrelated to weight or shape but related to other body parts (Hartmann *et al.*, 2013; Kollei *et al.*, 2013). This suggests that eating disorder patients have a general dissatisfaction with their body that may be due to the underlying problems in social and cognitive function as well as self-acceptance.

Often a form of BDD is already present prior to the onset of an eating disorder, which supports the notion that BDD and eating disorders may share a common dissatisfaction with the self and an over evaluation of appearance as an indicator of self-worth (Kollei *et al.*, 2013). It is common for non-weight concerns to develop into weight concerns: a desire for thinness and dieting. This may be because weight is seen as an appearance aspect that

can be controlled or changed, whereas other appearance features may not be that easy to change. Patients often also hope that by losing weight it may shift attention from other perceived flaws of the self to the weight loss.

AN-R type patients have been found to have a higher rate of BDD co-morbidity than AN-BP type patients. This indicates that the development of appearance concerns is unrelated to body mass index (BMI) (Hartmann *et al.*, 2013). Therefore, patients may still have weight and shape concerns although they are underweight, supporting the above hypothesis that weight and shape concerns act as a distraction from other self-worth concerns. Research has found that should body concerns remain after therapy has ended, patients have a strong risk of relapse.

2.4 Therapy for Eating Disorders

Once the therapist has knowledge of and understands the pathology of the eating disorder, as well as the different presentations thereof, they can work to individualise a therapy strategy that will be best suited to the specific patient (Mittnacht & Bulik, 2015; Ozier & Henry, 2011; Wilson & Shafran, 2005).

Therapy strategies should be based on scientifically researched counselling models and strategies in order to be effective, but should by no means be governed thereby (Fall *et al.*, 2017; Maine, 2009; Mittnacht & Bulik, 2015). The counsellor should be flexible and adaptable as there is no set treatment model that will be appropriate to all individuals suffering from eating disorders (Gilbert, 2014). Individual resources and preferences should also be considered.

2.4.1 Treatment options

There are several treatment options available to patients suffering from eating disorders (Beumont *et al.*, 2004; Grilo & Mitchell, 2010). These options mostly include medical care, psychiatric care, psychotherapy and nutrition therapy. Treatment may also involve additional activities and support groups depending on the specific institution.

Different options may be suitable to different patients depending on the severity of the condition, home or family circumstances, and proximity of their home to the treatment centre, to name a few. The treating psychiatrist is mainly responsible for recommending the best treatment option for the patient (Beumont *et al.*, 2004). The mainline options of eating disorder therapy include intensive inpatient care, partial hospitalisation, residency and outpatient care (Grilo & Mitchell, 2010). Patients may also receive a combination of the above or other tailored options.

Intensive inpatient care comprises hospitalisation with night and day supervision and care. This is especially important for patients who fail to comply with other treatment options, who are a suicide risk, or who are medically unstable.

Partial hospitalisation is a cheaper option than inpatient care (especially if the patient is medically stable). It comprises daily intensive therapy and a structured environment, but the patient stays home at night. Partial hospitalisation includes therapy sessions, supervised and controlled meals, as well as other scheduled activities.

Residential therapy is similar to partial hospitalisation but provides overnight housing to patients as well. The housing often does not include night care, but offers patients the opportunity to take responsibility for their own housekeeping and independence with the additional benefit that help is nearby should it be needed. Residential therapy is often most suited to patients who travel from far, who are not medically unstable, and who will benefit most from partial hospitalisation (Grilo & Mitchell, 2010).

Outpatient treatment comprises patients staying at home, and attending doctor visits, support groups and counselling as needed (Grilo & Mitchell, 2010). The patient only goes to the doctor's office for an appointment and then leaves to go home again.

2.4.2 Monitoring progress of therapy

Medical safety or stability should be the first priority when treating a patient suffering from an eating disorder (Hay, Touyz & Sud, 2012; Ozier & Henry, 2011; Wilson & Shafran, 2005). However, research and guidelines still have very controversial ideas regarding what focus therapy should have in the treatment of eating disorders. In the past, many treatment programmes primarily focused on recovering weight and normalising eating behaviours even though the patient might have been medically stable (Accurso *et al.*, 2014; Robb *et al.*, 2002; Sylvester & Forman, 2008; Wilson & Shafran, 2005; Yager & Andersen, 2005). Experts in the field of treating eating disorders identified that focus should shift towards dealing with the psychological symptoms underlying the cause of an eating disorder in order to improve symptoms and quality of life permanently (Hay, Touyz & Sud, 2012; Maine, 2009; Ozier & Henry, 2011).

According to the National Institute of Treatment Excellence (NICE) in 2005, focus should be placed on providing good information and support regarding the condition, reducing the risk of medical complications, gaining weight, eating healthy, and reducing eating disorder symptomology (Wilson & Shafran, 2005).

This was followed by a guideline published by the American Dietetic Association in 2011, which still placed gaining weight and normalising eating patterns at the top of the list, but acknowledged that attention should also be paid to psychological and cognitive factors in order for therapy to be successful (Ozier & Henry, 2011).

This was supported later as the logical way of dealing with eating disorders as studies show that eating disorder symptomology is a mere product of underlying psychological difficulties (Claude-Pierre, 1999; Nordbø *et al.*, 2012; Williams & Reid, 2012). Together with the previous discussion about patients often fluctuating between eating disorder diagnoses (including AN-R, AN-BP, bulimia nervosa, and OSFEDs), authors concluded that weight is a poor indicator of the severity of the illness and additional measurements should be developed to identify change (Accurso *et al.*, 2014; Dalle-Grave, 2011).

Researchers turned their focus to the factors that may predict a good prognostic outcome in patients suffering from eating disorders. Monitoring these prognostic factors may be a more accurate way of evaluating progress in patients (Carter *et al.*, 2012; Gilbert, 2014; Zerwas *et al.*, 2013). Positive prognostic factors include the following:

- Improvement in co-morbid disorders and symptoms is associated with better prognosis (MacGregor & Lamborn, 2014).
- Reduction in mood intolerance, anxiety, feelings of guilt, shame and worthlessness (Carter *et al.*, 2012; Kelly, Carter & Borairi., 2014; MacGregor & Lamborn, 2014).
- Reduction in body-checking behaviour and weighing (Carter *et al.*, 2012; Zerwas *et al.*, 2013).
- Decreased impulsivity (Zerwas *et al.*, 2013).
- Increase of maintaining motivation to change as treatment progresses (Hay, Touyz & Sud, 2012; Keski-Rahkonen *et al.*, 2014; Nordbø *et al.*, 2012). (Negative treatment experiences may decrease motivation to change.)
- Improvement in interpersonal relationships (Hay, Touyz & Sud, 2012).
- Decreased pathological perfectionism and acceptance of imperfections (Hay, Touyz & Sud, 2012).
- Improved self-esteem and a reduction in self-critique (Hay, Touyz & Sud, 2012).

2.4.3 Counselling models and strategies

Counselling models are written guidelines or frameworks that explain a specific approach to counselling (Fall *et al.*, 2017). They explain the psychological and philosophical foundations upon which actions and decisions (taken during the course of counselling or psychotherapy) are based. They help the therapist to understand the psychodynamics (including cognitive aspects, personality contribution, psychopathology and causes) of the condition better. Counselling models further help the therapist to better navigate, sort through, analyse and understand information received during a counselling session. They may help the therapist give the best response in order to make therapy more successful.

It is, however, important to remember that these approaches form a basis of therapy but should be flexible enough to accommodate individualism of patients and varieties of conditions. Effective use of counselling models is subjective to the experience of the

therapist as well as the ability of the therapist to adapt the guidelines of a model or strategy to fit a patient better, while still staying within the main philosophical foundations of the model.

Because counselling models are based on research of the mind and psyche of people (both normal and pathological), they work to standardise therapy approaches in order to improve standards and the effectiveness of service (Fall *et al.*, 2017). Once counselling and psychotherapy are standardised, these specific approaches can be evaluated scientifically for effectiveness in treating specific conditions or disorders.

Because treatment goals and measurements are inconsistent in eating disorder research and many therapists do not adhere to a specific counselling model, it is severely difficult for researchers to evaluate the effectiveness of different counselling approaches in the treatment of eating disorders (Haas & Clopton, 2003; Hay, Touyz & Sud, 2012; Herpetz *et al.*, 2011).

Some of the most used counselling approaches in eating disorders will be discussed briefly below.

2.4.3.1 *Family therapy*

Family therapy is endorsed by most practice guidelines as an important aspect of treating eating disorders in children, adolescents and young adults still staying at home (Herpetz *et al.*, 2011; Maier, 2015; Ozier & Henry, 2011; Wilson & Shafran, 2005). Adult patients do not necessarily benefit from family therapy as they are more independent or no longer stay in a family environment.

The family therapy model was first developed from the perspective that an eating disorder is often caused by a malfunction in the family, leading to the patient feeling unsupported, unloved and misunderstood in the family set-up (Maier, 2015). The condition escalates as family members try to help, but do not know how. Family members start to blame one another and distance themselves emotionally.

Family therapy involves the parents, siblings and/or spouses in the treatment of the eating disorder (Maier, 2015). The therapist helps the family to understand the eating disorder, and helps them deal with any anger, guilt, shame and anxiety that may have been caused by the eating disorder. The therapist helps to improve communication between family members, clears misconceptions and misunderstandings, and normalises family dynamics. This creates an environment where the patient feels safe, supported, understood, unconditionally loved, and where they can develop their selves.

A recent review suggests that family therapy can be one of the most effective therapy models to use, in conjunction to individual therapy, to treat eating disorders if the therapist uses it correctly and adapts it to the specific patient situation (Jewell *et al.*, 2016).

2.4.3.2 *The Maudsley method*

The Maudsley method is a derivative of family therapy developed by practitioners as an alternative to intensive hospitalisation (Maier, 2015). The model forms the idea that the patient is in a sick role and that the family members are obligated to take care of them as if they are the doctors (Maier, 2015). They are responsible for feeding the patient sufficiently as food is seen as the medicine to be given to the sick patient. Later, the control of eating is returned to the patient and the patient is encouraged to develop an identity. As with family therapy, this model cannot stand by itself and needs to be applied in conjunction with individual psychotherapy.

Previous research shows that the model is effective in treating younger adolescents and children, but patients above 18 years of age often show significant resistance to this therapy strategy (Maier, 2015; Ozier & Henry, 2011). It may also not be effective in patients presenting with binge-purge behaviours. Should parents/caregivers be highly criticising and controlling, the patient may perceive this therapy as punishment and enforcement, which leaves them with a sense of lack of control, guilt and worthlessness, which in turn may drive eating disorder behaviours.

2.4.3.3 *Maudsley Model of Treatment for Adults with Anorexia Nervosa (MANTRA)*

From research done on the four cognitive pillars that drive anorexia nervosa (namely, cognitive inflexibility, extreme attention to detail, social-emotional deficits, and pro-anorectic beliefs), as well as unhelpful responses from close significant family members, the Maudsley model was later adapted to MANTRA, which applies to adults (Schmidt *et al.*, 2013).

Counselling should include motivational interviewing that is reflective, responsive and collaborative. MANTRA focuses on the patient's strengths and uniqueness to build self-esteem, self-understanding, and to develop a self-concept. The counselling sessions are specifically adapted to the patient's personality and clinical profile and use the resources available to the patient.

Small studies have shown that this may be useful and less expensive than conventional individual therapy. However, a large study completed in 2015 did not show a remarkable difference between MANTRA and conventional specialist supportive clinical management (Schmidt *et al.*, 2015). Research is still limited, and further refinement of MANTRA and studies are recommended.

2.4.3.4 Cognitive behavioural therapy

CBT and enhanced cognitive behavioural therapy (e-CBT) have long been used in the therapy of patients with eating disorders (Agras, Fitzsimmons-Craft & Wilfley, 2017). CBT focuses on treating psychopathological thoughts of patients and less focus is placed on superficial symptoms (Dalle-Grave, 2011).

CBT and e-CBT both stem from the basic design that thoughts influence behaviour, which influences thoughts again (Whitfield & Davidson, 2007). CBT focuses on the present situation, present feelings, anxieties, beliefs and thoughts. CBT and e-CBT becomes a filter between thoughts and actions. Thought patterns are analysed, understood and rationalised before action (behaviour) is taken. Behaviours associated with that specific thought. CBT and e-CBT are often the basis upon which self-help programmes and home programmes are built, but they also play an important role in individual psychotherapy and inpatient care as CBT and e-CBT target most of the underlying psychological symptoms of eating disorders (Wilson & Shafran, 2005).

Today, e-CBT (which evolved by refining traditional CBT) is still the method of choice and the recommended treatment approach for treating BED and bulimia nervosa (Agras, Fitzsimmons-Craft & Wilfley., 2017; Haas & Clopton, 2003; Hay, 2013; Herpetz *et al.*, 2011; Kass *et al.*, 2013; Wilson & Shafran, 2005; Yager *et al.*, 2010 ; 2012). The implementation of e-CBT has been refined during the years to include specific modules that may address anxiety regarding food and eating in order to become more effective (Agras, Fitzsimmons-Craft & Wilfley, 2017).

In the contrary, e-CBT has not been found useful for treating anorexia nervosa where patients present with a low weight and weight loss (Hay, 2013; Wilson & Shafran, 2005). Although e-CBT is helpful in reducing symptoms of low self-esteem, overdetailed thinking, clinical perfectionism, mood intolerance and interpersonal difficulties, the feeling of reward that anorexia nervosa patients experience is greater than the motivation to see weight loss as harmful and initiate change (Hay, 2013). (CBT requires patients to see behaviours as harmful or negative in order to initiate change.) e-CBT may be effective in anorexia nervosa treatment, but only after weight restoration has taken place (Yager *et al.*, 2010 ; 2012).

2.4.3.5 Psychodynamic psychotherapy

Psychodynamic psychotherapy, developed from the psychoanalytical theories as published by Freud, is a therapeutic approach based on the principle that past experiences shape the current adult (Gabbard, 2017). Memories of past experiences are often subconscious and subjective thoughts that drive anxiety, distress and behaviours with seemingly unknown causes.

In psychodynamic psychotherapy, the therapist plays a very neutral passive role by asking leading questions, listening to the patient, and reacting as a normal human being would act towards the patient (Gabbard, 2017). The therapist recognises behavioural and cognitive patterns that may be indicative of a significant past experience and encourages the patient to 'revisit' these experiences. The patient is counselled to understand the experience and how they affect their current thoughts and behaviours. By focusing on past experiences, the patient's uniqueness and authenticity are highlighted, leading to the patient feeling worthier.

One of the main criticisms of psychodynamic psychotherapy is that it is an expensive, labour-intensive task with daunting intensive therapy lasting several years, which leads to high drop-out rates (Gabbard, 2017). Despite the drawbacks, studies have shown a better long-term outcome in anorexia nervosa with this line of therapy than with conventional specialised treatment and e-CBT. Psychodynamic psychotherapy is endorsed by the NICE clinical guidelines in the therapy of eating disorders (Abbate-Daga *et al.*, 2016; Wilson & Shafran, 2005; Zipfel *et al.*, 2013). Psychodynamic psychotherapy may be useful in treating bulimia nervosa and BED, but studies have shown better results with behavioural therapies (Abbate-Daga *et al.*, 2016).

2.4.3.6 *Interpersonal psychotherapy (IPT)*

Interpersonal psychotherapy (IPT) was developed to address the poor interpersonal relations often present in patients with eating disorders (Ivanova *et al.*, 2015). The idea is that poor interpersonal relations cause internal distress and, consequently, eating disorder pathology. IPT typically has a short duration (12–16 weeks of therapy) and focuses on understanding other's perspectives, conflict management, and end expression of emotions in society. This decreases social anxiety, which is thought to be the cause of binge-eating.

Studies have found that IPT may be a useful in treating BED and bulimia nervosa, but that it has no effect on treating anorexia nervosa (Herpetz *et al.*, 2011; Ivanova *et al.*, 2015). However, IPT has not been shown to yield better results than e-CBT and it is not recommended as the preferred treatment method in eating disorders (Fairburn *et al.*, 2015; Wilson & Shafran, 2005).

2.4.3.7 *Dialectical behavioural therapy*

Dialectical behavioural therapy (DBT) was developed to be a form of CBT. Focus is placed on current thoughts and behaviours – specifically addressed to treat emotional deregulation (Robins & Rosenthal, 2011; Valentine *et al.*, 2015). Patients are encouraged to understand emotions and critically evaluate the validity of thoughts and thinking patterns arising from their emotions. Patients must then redirect inappropriate or untrue ideas in order to interrupt the cascade of feelings and thinking that leads to adverse events such

as self-harm and bingeing (Robins & Rosenthal, 2011). DBT aims to teach the patient skills that they use to interpret events (especially interpersonal confrontations) in a way that preserves self-esteem and self-worth. This is done by interpersonal and intrapersonal dialogues where self-acceptance and self-compassion play a big role.

Research regarding the use of DBT in eating disorders is still limited (Hay, 2013; Herpetz *et al.*, 2011), but a systematic review that was done to evaluate the effectiveness of DBT in several psychiatric conditions shows that DBT can reduce binge-eating behaviours in BED and bulimia nervosa as well as decrease drop-out rates (Valentine *et al.*, 2015). Another meta-analysis done in 2014 supported these notions with findings that DBT can decrease binge-eating episodes and depression, and improve social phobia (Lenz *et al.*, 2014).

2.4.3.8 *Motivational interviewing*

Motivational interviewing aims to explore the source of a patient's reluctance to change, and addresses the ambivalence to change a patient may experience (Romano & Peters, 2015). Motivational interviews have been shown to increase attendance, promote better engagement during therapy, decrease anxiety related to therapy, and improve feelings of autonomy all leading to better compliance and collaboration (Romano & Peters, 2015). In general, motivational interviewing has shown to improve outcome of patients suffering from eating disorders, but little research exists in the specific conditions individually (Romano & Peters, 2015).

Despite the lack of research for motivational interviewing in anorexia nervosa, bulimia nervosa and BED, the American Psychiatric Association (APA) identified that motivational interviewing has promising effects and that therapists should consider including it in their therapy protocol (Yager *et al.*, 2012). Motivational interviewing should not be used as a standalone treatment for eating disorders, but should be added to other treatment modalities to improve long-term internal motivation to change and thus improve outcome (Romano & Peters, 2015; Yager *et al.*, 2012).

2.4.3.9 *Cognitive remediation therapy*

Cognitive remediation therapy is a newer psychological treatment approach applied in the treatment of eating disorders (Tchanturia, Lounes & Holtum, 2014). This approach was developed from CBT, but adjusted to target the factors maintaining an eating disorder, especially cognitive inflexibility, all-or-nothing thinking and problems in attentional set-shifting. A key component in cognitive remediation therapy is to help the patient alter their thought processes (instead of the content thereof) to see the bigger picture. This is done by a combination of brain exercises and cognitive reflection under the guidance of a trained therapist (Danner, Dingerms & Steinglass, 2015).

Research is still limited regarding the use of cognitive remediation therapy in eating disorders, but shows promising results (Danner, Dingermans & Steinglass, 2015; Tchanturia *et al.*, 2014). It is most used (and should be considered) in patients suffering from severe anorexia nervosa who do not seem to benefit from other psychotherapies (Danner, Dingermans & Steinglass, 2015; Lindvall-Dahgren & Ro, 2014; Tchanturia *et al.*, 2014).

2.4.4 Therapeutic relation and attitudes

Because research outcomes in specific psychotherapies are often inconsistent (as seen above), a new modality was built, insinuating that it is the treatment experience and the patient's response to these experiences that make treatment successful or unsuccessful within a certain approach to treatment (Maine, 2009; Surgenor & Maguire, 2013; Uher & Rutter, 2012; Zerwas *et al.*, 2013).

Treatment experience is largely influenced by the therapeutic relationship between the therapist and patient (Cairns & Milne, 2006; DeJong, Broadbent & Schmidt, 2012; Maine, 2009; Smith *et al.*, 2014). In order to facilitate a positive relationship between the therapist and patient, it may be beneficial to build this relationship on the feminist model rather than the medical model within the healthcare system (Maine, 2009). The main principle of the feminist model is that the therapist and the patient are equal in the relationship. The feminist model argues that healing comes from the quality of the relationship rather than the content of information exchanged between the therapist and the patient.

In order for the therapist and the patient to be equal in their relationship, it is of utter importance that the therapist adopts a genuine unconditional care for the patient (Claude-Pierre, 1999; Maine, 2009). Unconditional care means that the therapist acknowledges that the patient knows their condition and all aspects related to it the best. The therapist needs to learn from the patient in order to form a team who addresses problems coherently.

If it is the therapeutic relationship that brings healing to the patient, it is important for the therapist to understand what may affect this relationship negatively and hinder growth and healing (Claude-Pierre, 1999; Maine, 2009). Firstly, the main role of the therapeutic relationship is to provide support to the patient throughout the process. This includes that the patient wants to feel heard and understood by the therapist rather than just being told (Maine, 2009; Sly *et al.*, 2014). Should the therapist focus on weight gain alone, the patient may feel unheard – as if the real problem is not addressed and focus is placed on aspects that benefit the therapist rather than the patient. Focus on weight gain furthermore gives the patient the perception that their 'performance' in the institution is being judged (Sly *et al.*, 2014). Naturally, such feelings are damaging to the trust and equality of the relationship, and may lead to early termination of treatment; that in itself decreases prognosis.

The therapeutic relationship is one based on mutual trust and respect (Sly *et al.*, 2014). Honesty from both parties is a prerequisite for the relationship to be therapeutic. The concept of ambivalence is one of the main phenomena seen in eating disorders that affect trust and respect (Carter *et al.*, 2012; Gilbert, 2014). This ambivalence can be explained better by the idea that patients have a degree of motivation to recover, but this motivation is daunted by several fears of guilt, shame and loss of security, as well as anxiety that presents in behaviours reluctant to comply with treatment requirements. This reluctance to comply with treatment may appear to the healthcare professional as being disrespectful and manipulative.

In order to enlighten the essence of the problem, Claude-Pierre (1999) based her research on case studies seen in her practice. She found that many therapists and supporting individuals may see this presented ambivalence as an aim to manipulate the treatment team. She contradicted the statement by explaining that the marked ambivalence is an insecurity of the self as well as an insecurity in their perceived ability to complete treatment (Claude-Pierre, 1999). It is therefore crucial for the therapist to understand these thought processes behind behaviours in order to savour a therapeutic relationship.

Forced weight gain may undermine the principle that the patient knows their condition best, as it does not recognise that there are other more important underlying psychological symptoms underpinning the disease (Claude-Pierre, 1999; Maine, 2009). When focus is solely or mainly placed on weight restoration, patients may feel as if their complaints (of other psychological difficulties) are overlooked. This decreases trust between the patient and the therapist and, consequently, deteriorates the quality of the therapeutic relationship (Maine, 2009). As the therapeutic relationship is built on the principle of unconditional care, any form of rejection will damage the relationship (Sly *et al.*, 2014).

Feelings of rejection may arise from staff-initiated termination of treatment, specific words and phrases used, or threats. The patient perceives rejection by the specific healthcare provider as a negative experience, but it may stretch further to the patient perceiving rejection by the medical world. This is detrimental to the patient's prognosis for recovering from an eating disorder.

In conclusion, successful therapy is based on the use of scientific models of treatment approaches, but the relationship between therapist and patient is deemed as important. Providers of therapy therefore should have sound knowledge of the condition and science-based approaches to therapy combined with an attitude of genuine and unconditional care for the patient.

2.5 Nutrition Therapy for Eating Disorders

Despite the fact that eating disorders are of most a psychiatric condition caused by deep underlying dysfunctional core beliefs, it is generally recognised that nutrition therapy forms an integrated part of therapy and recovery (Beumont *et al.*, 2004; Ozier & Henry, 2011; Sylvester & Forman, 2008; Wilson & Shafran, 2005; Yager *et al.*, 2006). Nutrition therapy should be based on similar models as psychotherapy, but be adapted to deal with beliefs of food, metabolism and weight (Cairns & Milne, 2006). Therapy should be consistent throughout the different disciplines involved to minimise manipulative and ambiguous behaviours.

In this chapter, the roles of the dietitian will be explained and recommended practices be explored.

2.5.1 Goals of nutrition therapy

The first and foremost goal of nutrition therapy is to stabilise the patient in a critical setting and preserve life (Wilson & Shafran, 2005; Yager *et al.*, 2006). However, this is considered a short-term goal that often has little effect on the quality of life, relapse prevention and improvement in eating disorder symptoms.

For patients to recover from an eating disorder and not relapse to old behaviours once discharged from therapy, patients need to learn normal eating behaviours, routines and portion sizes based on internal cues of hunger and satiety, as well as acceptable social eating and enjoyment of food (Ozier & Henry, 2011). This means that patients need to develop a healthy attitude towards food and weight as the most important goal of nutrition therapy (Mittnacht & Bulik, 2015).

Nutrition counselling and education has little effect as a standalone treatment but should be paired with psychotherapy and vice versa (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011; Marzola *et al.*, 2013; Wilson & Shafran, 2005). Psychotherapy and nutrition therapy are interdependent; they should happen simultaneously in order to be effective. Normalising weight and eating enhances the effectiveness of psychotherapy as psychotherapy enhances the patient's ability not to use eating behaviour as a coping mechanism for psychological difficulties.

2.5.2 The role of the dietitian

There are still limited official guidelines that may help the treating dietitian to achieve above-mentioned goals. The clinical practice guidelines as written by NICE do aim to do this, but lack specific examples and relevance to dietitians (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Wilson & Shafran, 2005). Despite the vague guidelines, several authors have come up with suggestions to implement the guidelines practically (in nutrition

practice) and achieve nutrition therapy goals (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Reiter & Graves, 2010).

All these guidelines do agree that dietitians working in the field of eating disorders should have specialised training and skills beyond their basic education in order to treat patients with eating disorders successfully (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Reiter & Graves, 2010). The specialised dietitian has many roles to fulfil in order to restore a healthy relationship between the patient and food. These roles start with a trusting collaborative therapeutic relationship that is unconditionally accepting and non-judgemental; that elicits genuine care and concern; and that shows support, empathy, collaboration, respect and motivation in a relaxed confidential setting (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011).

Humour may play a big role in creating an open environment where patients feel confident, relaxed and open to receive therapy (Hart, Russell & Abraham, 2011). Within this environment, it is the dietitian's responsibility to attend to the patient needs (listen to the patient), respond to these needs by giving suitable feedback, and then influence the patient by challenging ideas, behaviours and beliefs (Reiter & Graves, 2010).

Once the therapeutic alliance has been created, the dietitian can start working to address issues regarding food and weight. Addressing the issues and challenges pertaining to food and weight starts with a thorough assessment as to what these issues are in the individual's unique condition (Cairns & Milne, 2006; Ozier & Henry, 2011). There are 10 facets of dietetic practice that may be used together or interchangeably when eliciting nutrition therapy to the patient (Hart, Russell & Abraham, 2011). These facets include but are not limited to the following:

Inpatient meal planning and supervision

- Do meal planning: mostly used in hospital settings to provide adequate meals to patients and encourage them to consume food in an appropriate manner (Hart, Russell & Abraham, 2011).
- Administer life-preserving nutrition in the severely critical ill patient when the patient is not able to consume oral foods. Enteral nutrition is preferred to parenteral nutrition (Hart *et al.*, 2013).
- Supervise patients who may perform compensating behaviours such as purging and using laxatives or forced exercise after meals (Hart, Russell & Abraham, 2011).

Prevention of refeeding syndrome

- Follow prevention of refeeding guidelines when initiating feeds in patients with severely low weights. These guidelines include slow commencement of feeds, which

are spread out through the day (Born *et al.*, 2015; Hart, Russell & Abraham, 2011; Mehler *et al.*, 2010).

- Monitor electrolyte levels of patients at risk of electrolyte imbalances (Hart, Russell & Abraham, 2011; Mehler *et al.*, 2010).

Appetite regulation

- Encourage the patient to trust the body's metabolism, and recognise and act upon cues of hunger and satiety to guide them as to when and what to eat (Hart, Russell & Abraham, 2011).
- Encourage the patient to develop a routine of eating, focus on when to eat rather than what they are eating in order for them to learn to respond to quest of hunger (Hart, Russell & Abraham, 2011).

Practical and social eating skills

- Teach the patient and let them practise making food choices when going to a function, restaurant and coffee shop (Hart, Russell & Abraham, 2011).
- Give practical exercises for shopping (Hart, Russell & Abraham, 2011).
- Give practical exercises to learn to eat food as part of a social setting, and to learn that eating forms an important part of social connections (Hart, Russell & Abraham, 2011).
- Help the patient to be able to follow social leads of eating in terms of time, event, and social situation (Hart, Russell & Abraham, 2011).

Behaviour regarding food and weight

- Develop strategies that may help a patient cope with the anxiety associated with eating, and adjust them to different settings (Hart, Russell & Abraham, 2011).
- Help the patient recognise the role food and eating behaviour play in their life and emotional regulations (Hart, Russell & Abraham, 2011).
- Help patients develop behavioural strategies to reduce bingeing.

Nutrition counselling

- Involve the patient in meal planning and setting nutritional goals (Hart, Russell, & Abraham, 2011).
- Encourage patients to make their own decisions (Hart, Russell & Abraham, 2011).
- Declassify foods as 'good' or 'bad' and encourage the patient to decrease the list of forbidden foods, and increase the variety of foods consumed (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011; Marzola *et al.*, 2013).
- Give 'homework' for patients to practise what they have learned (Hart, Russell & Abraham, 2011).

- Stay calm and remain patient with the patient, and share wisdom and philosophical ideas to encourage different thinking (Hart, Russell & Abraham, 2011).
- Be curious and encourage the patient to be curious (Hart, Russell & Abraham, 2011).
- Help patients to deal with guilt, anxiety and shame associated with eating (Hart, Russell & Abraham, 2011).

Establishment of a healthy weight

- Help the patient to accept a healthy weight (Hart, Russell & Abraham, 2011).
- Help the patient to see that weight cannot be used as a tool to evaluate self-worth (Hart, Russell & Abraham, 2011).
- Work within the trust of the patient to slowly restore weight while keeping the patient's readiness to accept a new weight in mind (Hart, Russell & Abraham, 2011).
- Help the patient to establish a normal exercise routine (as clinically safe) that is not focused on weight loss but on enjoyment and other benefits of exercise (Hart, Russell & Abraham, 2011).
- Give psycho-education. (Information regarding their condition)
- Clarify misconceptions and beliefs regarding food and weight the patient may have (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011).
- Challenge irrational beliefs regarding food and weight (Hart, Russell & Abraham, 2011).
- Explain the consequences of binge-eating, starvation and imbalanced glucose and electrolyte levels, and how correcting these may improve psychological symptoms (Hart, Russell & Abraham, 2011).

Help the patient establish normal eating

- Teach the patient normal portion sizes, and how to dish up appropriate portions without weighing and measuring foods (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011).
- Encourage patients to be flexible in eating habits and allow themselves to eat what other people eat (Hart, Russell & Abraham, 2011).
- Encourage patients to observe what others are eating and explain to them that there is no 'perfect diet' to follow (Hart, Russell & Abraham, 2011).
- Discourage patients to 'compete' with others and rather set their own goals, ideas and targets to follow (Hart, Russell & Abraham, 2011).
- Explain to the patient that they do not have to 'diet' constantly to maintain a healthy weight (Hart, Russell & Abraham, 2011).
- Discourage the patient from counting calories (Hart, Russell & Abraham, 2011).

Provide scientific nutritional information

- Teach the patient the importance of the different food groups (Hart, Russell & Abraham, 2011).
- Establish the normal amount of foods for individual needs (Hart, Russell & Abraham, 2011).
- Refrain from engaging in arguments regarding calories and food analysis (Hart, Russell & Abraham, 2011).

Outpatient meal planning

- Help the family/caregiver to support the patient in eating a normal meal (Hart, Russell & Abraham, 2011).
- Help the family to plan meals that are suitable for the patient to eat, and within the patient's level of recovery (Hart, Russell & Abraham, 2011).
- Encourage the patient to gradually include foods previously seen as forbidden into their diet, such as fats (Hart, Russell & Abraham, 2011).
- Help the patient and family/caregiver to create a positive structured meal environment in order to help the patient build confidence in eating (Hart, Russell & Abraham, 2011).

As seen above, nutrition intervention in eating disorders extends far beyond providing nutrition education and information (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011). Dietitians are required to be nutrition therapists who challenges and rearranges the way patients think about food and weight, which is crucial in the field of eating disorders. It is also important that dietitians performs their duties in conjunction and collaboration with a therapist team in order to achieve the most positive outcome possible (Cairns & Milne, 2006; Ozier & Henry, 2011; Saloff-Coste, Hamburg & Herzog, 2009; Wilson & Shafran, 2005; Yager *et al.*, 2010).

As part of nutrition therapy, dietitians should base their interventions on the psychological model used by the attending psychologist in order to create unison and supportive care, for instance, if CBT is currently the therapy of choice, it would be best if the attending dietitian also implements CBT in their therapy sessions (Ozier & Henry, 2011). When addressing issues regarding weight, it is important that the patient clearly understands that therapy is not a power struggle and punishment but rather a collaboration, support and alliance against the illness.

Nutritional education is brief whereas nutrition therapy may continue for several months or even years (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011). Nutrition therapy should continue even after weight restoration as pathological behaviours may persist or return if the patient is not secure and confident in their new relationship with food (Ozier & Henry, 2011; Wilson & Shafran, 2005).

2.5.3 Weight gain in anorexia nervosa

A low BMI is one of the prerequisite requirements for diagnosing anorexia nervosa, but several studies have shown that a low BMI is often the result of other underlying psychological difficulties (Claude-Pierre, 1999; Nordbø *et al.*, 2012; Williams & Reid, 2012). This is supported by the previous discussion that patients may often fluctuate between eating disorder diagnoses – including AN-R, AN-BP, bulimia nervosa, and OSFED – meaning that weight is a poor indicator of the severity of the illness (Accurso *et al.*, 2014; Dalle-Grave, 2011). This furthermore means that pathological behaviours and eating disorder symptoms may persist after weight restoration in anorexia nervosa, which will once again lead to weight loss and relapse (Ozier & Henry, 2011; Wilson & Shafran, 2005).

Despite the fact that weight loss, and the behaviours leading to weight loss, is a coping mechanism in anorexia nervosa developed to deal with anxiety resulting from feelings of worthlessness, shame and guilt, most practice guidelines do place emphasis on weight gain as part of therapy (Gilbert, 2014; Ozier & Henry, 2011; Wilson & Shafran, 2005; Yager *et al.*, 2006). These practice guidelines often specify weight gain targets that may be expected from patients. Table 2-1 shows the different weight gain recommendations for patients suffering from anorexia nervosa.

Table 2-1: Weight gain targets for anorexia nervosa

Author	Year published	Weight gain recommendations (kg per week)
Wilson and Shafran (NICE guidelines)	2005	0.5–1.0 for inpatients 0.5 as outpatient
Born <i>et al.</i>	2015	0.7–1
Yager and Andersen	2005	0.9–1.4
Sylvester and Forman	2008	1.4
Marzola <i>et al.</i>	2013	1–1.5
Robb <i>et al.</i>	2002	1–2
Golden <i>et al.</i>	2015	1–2
Hart <i>et al.</i>	2013	Up to 2

Because these guidelines and the specific illness profile of each individual patient differ substantially, these are deemed guidelines only and the dietitian should (in collaboration with the patient) set targets for each patient individually in the context of the patient's psychological progress (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Wilson & Shafran, 2005).

2.5.4 Alternative feeding methods

In order to reach the goals of up to 2 kg/week weight gain for patients suffering from anorexia nervosa, practitioners may resort to alternative feeding methods including nasogastric feeding, parenteral nutrition, high-energy supplements or percutaneous enteral feeding (Born *et al.*, 2015; Hart *et al.*, 2013; Robb *et al.*, 2002).

There is still great controversy regarding the use of alternative feeding methods as each method has its benefits and adverse effects (Hart *et al.*, 2013). Parenteral nutrition, percutaneous enteral feeding and nasogastric feeding all have the benefit of meeting macronutrient requirements more easily than oral feeding, but these methods are more invasive and expensive (Born *et al.*, 2015; Hart *et al.*, 2013; Robb *et al.*, 2002).

Another great drawback from using alternative feeding methods is that these feeding methods do not treat the underlying psychopathology (Hart *et al.*, 2013; Ozier & Henry, 2011). By using these methods, patients never learn to deal with the experience of food, or the anxiety related to eating or restricting food intake patterns, behaviours and rituals. Nasogastric feeding has also been described to mimic traumatic experiences, which diminishes trust and the quality of the therapeutic relation between the therapist and patient (Hart *et al.*, 2013).

The use of high-energy supplements became popular in the treatment of anorexia nervosa because of the drawbacks of other feeding methods and because food on its own often does not meet the patient's requirements (Hart *et al.*, 2013). Care should be taken when using these supplements so that patients do not become dependent. Furthermore, enough focus must still be placed during therapy on restoring normal eating habits and patterns.

2.6 Summary

In conclusion, it is clear that eating disorders, including anorexia nervosa, bulimia nervosa, BEDs and OSFEDs, are complex conditions. Most healthcare practitioners consider them of the most difficult conditions to treat effectively (Carter *et al.*, 2012; Dalle-Grave, 2011; Hay, 2013; Hay, Touyz & Sud, 2012; Tchanturia *et al.*, 2014; Wonderlich *et al.*, 2012). Symptomatic profiles differ significantly between patients suffering from eating disorders, but the transdiagnostic model suggests that eating disorders have a common underground of psychopathology.

Research regarding effective approaches for treating eating disorders is still limited with several challenges making it hard to determine exact guidelines for treatment (Hay, 2013; Kass *et al.*, 2013). These challenges include a poor definition of improvement, small sample sizes as well as poor therapist adherence to psychological models. However, despite limited research, there are some guidelines available to guide practitioners as to the psychological model that will most likely yield positive results (considering current knowledge). These guidelines state that CBT can be used in bulimia nervosa and BED, but may not be as effective in the treatment of anorexia nervosa (Wilson & Shafran, 2005). Psychodynamic psychotherapy is useful in anorexia nervosa with DBT, and cognitive remediation therapy shows promising results in some studies (Abbate-Daga *et al.*, 2016; Danner, Dingermans & Steinglass, 2015; Hay, 2013; Lenz *et al.*, 2014; Lindvall-Dahgren & Ro, 2014; Tchanturia *et al.*, 2014; Valentine *et al.*, 2014; Zipfel *et al.*, 2013). There is also strong evidence suggesting that family-based therapy should be included when treating children and adolescents suffering from eating disorders.

One of the most important aspects of providing therapy to patients with eating disorders is a positive therapeutic relationship between the therapist and the patient (Hart, Russell & Abraham, 2011; Maine, 2009; Ozier & Henry, 2011; Wilson & Shafran, 2005; Yager *et al.*, 2012). In order to provide patients with this type of care, dietitians need to move beyond nutrition education and giving of information to providing nutrition therapy, based on psychological methods, in order to restore a healthy relationship between food and the patient (Cairns & Milne, 2006). This relationship between the patient and food is based on accepting a healthy weight, understanding the role of food in social and biological life, as well as being able to eat normally and enjoy food socially (Hart, Russell & Abraham, 2011).

Dietitians lack the training in the above-mentioned skills and should receive further specialised education and training before practising in the field of eating disorders (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Trammell, Reed & Boylan, 2016). These skills should include, but not be limited to the following:

- Understanding the psychopathology and drive behind eating disorder symptoms in order to be able to show empathy and target the source of the problem.
- Understanding the role that weight plays as a coping mechanism to these patients.
- Developing the ability to recognise an eating disorder as well as being able to monitor symptoms and progress accurately.
- Developing the skills to apply psychotherapy in nutrition counselling.
- Challenging misconceptions and inaccurate knowledge.
- Providing strategies and accurate information for behavioural change.
- Knowing the boundaries and scope of nutrition therapy clearly and not engaging in psychotherapy.

CHAPTER 3: STUDY METHODOLOGY

3.1 Study Design

The study was a cross-sectional descriptive study. (This study was an observational study [without intervention] aiming to describe data from a specific population group [registered dietitians] at a specific point in time [not over a duration of time].)

3.2 Study Population and Sampling

The study population consisted of dietitians (in private, academic and government settings) with active registration at the HPCSA and who were members of a dietetic association in South Africa (either Dietetics Nutrition as a profession [DIP] or the Association for Dietetics in South Africa [ADSA]). There were 4100 registered dietitians in South Africa at the time (Health Professions Council of South Africa (HPCSA), 2017a).

Convenience sampling was used. Dietitians who were members of a dietetic association in South Africa at the time (either DIP or ADSA) were invited to participate in the study. Participation in the study was voluntary.

3.2.1 Inclusion criteria

In order to be included in the study, the participant had to:

- Be a qualified dietitian registered with the HPCSA;
- Practise in the private, academic or government sector at the time; and
- Have access to the internet.

3.2.2 Exclusion criteria

The following dietitians were excluded from the study:

- Retired dietitians;
- Dietitians who no longer worked in the field; and
- Dietitians/practitioners without access to the internet.

3.3 Measuring Techniques

The researcher designed a questionnaire (Appendix E) using the available literature on eating disorders as pertained in the literature review. Questions were designed to determine participants' demographics and to test their KAP regarding eating disorders. The questionnaire also established whether they were confident in treating patients suffering from eating disorders.

The questionnaire was divided into different sections, namely: demographic information, attitudes, knowledge of diagnosis, and knowledge of scientifically proven treatment practices.

In this study, ‘attitudes’ referred to how an individual feel or thinks about something (eating disorders and the treatment thereof) (*Pocket Oxford English Dictionary*, 2013). Attitudes were described as positive (where individuals show a sense of favour towards the attitude object) or negative (where the individual shows dislike or aversion towards the attitude object) (Bohner & Dickel, 2011). The researcher also tested whether the study sample held some of the common misconceptions regarding the topic. Misconceptions were defined in this study as “views or opinions that are incorrect because it is based on faulty thinking or understanding” (*Pocket Oxford English Dictionary*, 2013)

In order to evaluate the attitudes and misconceptions of dietitians regarding eating disorders, the researcher reviewed studies exploring common attitudes and misconceptions of healthcare professionals regarding eating disorders (Currin, Waller & Schmidt, 2009; Jones, Saeidi & Morgan, 2013; McNicholas *et al.*, 2015; Thompson-Brenner *et al.*, 2012). These studies were selected because of their relevance to medical practitioners, both specialised as well as primary healthcare, and clarity of the specific attitudes tested. Participants were shown statements (from the literature) depicting attitudes and misconceptions regarding eating disorders and were asked to indicate whether they agreed or disagreed with the statement. A two-point nominal scale was used for the participants’ responses in order to encourage the participant to give their honest opinion and not avoid answering the question (Creswell *et al.*, 2014). Answers were coded as being positive or negative except for questions pertaining to an individual’s perceived confidence in treating patients with eating disorders and training opportunities available in the field.

In order to develop questions testing knowledge in this questionnaire, the researcher performed a thorough literature review of the available literature on the theory of eating disorders including: diagnosis, pathology, symptomology, goals of nutrition therapy (including weight gain goals in anorexia nervosa), as well as scientifically recommended counselling models and feeding practices to reach these goals.

Knowledge was defined as facts, information and understanding of a specified topic that may be acquired via education or experiences, theory or practice (*Pocket Oxford English Dictionary*, 2013). Knowledge can normally be divided into practical knowledge, foundational knowledge and reflexive knowledge (The South African Qualifications Authority, 2005). A person with practical knowledge knows how to perform a set of tasks or name certain facts when asked to. A person with foundational knowledge can demonstrate that they understand what is happening, why it is happening, and what the goal of performing a certain task is. A person with reflexive knowledge can integrate

practical and foundational knowledge so that they are able to adapt their actions in different situations and explain the logical reasoning behind the changes they have made (The South African Qualifications Authority, 2005). This study only focused on practical and foundational knowledge.

Questions were selected from the literature review based on their relevance to dietetics and nutrition. Guidelines included were obtained from practice papers published by the NICE, APA, American Dietetic Association and the Royal Australian and New Zealand College of Psychiatrists. Guidelines published by Hart *et al.* (2011) were also included because of their specific and elaborate recommendations for dietetic practices in eating disorders.

The researcher designed multiple choice questions (MCQs) to test knowledge attributes. MCQs were chosen for their simplicity to administer, time-effectiveness and ability to test participants' theoretical knowledge base effectively (McCoubrie, 2004). These tests also allow the researcher to test broad knowledge of a topic and ask in-depth questions, but MCQs cannot be used to test reflexive knowledge. The questions varied in difficulty in order to improve fairness of the questionnaire. Participants needed to tick all the correct answers and none of the incorrect answers in order to receive a mark for questions where more than one correct answer were displayed. Instructions stated this clearly.

In order to discourage guessing, participants did not receive their marks. The instructions stated clearly that participants could choose to remain anonymous. Participants who answered equal to or more than 70% of the knowledge-based questions correctly were considered as having a good knowledge. Those who answered less than 70% of the questions correctly were considered as having insufficient knowledge. The 70% cut-off line was chosen as this is the minimum required mark set by the HPCSA for the allocation of MCQ-based points (Health Professions Council of South Africa (HPCSA), 2017b).

In this study, practices referred to how dietitians apply knowledge skills and methods in order to reach nutrition therapy goals. These methods include using counselling models and strategies. Counselling models and strategies are the various organised and consistent approaches a counsellor uses when interacting with clients (Fall *et al.*, 2017). These approaches are based on philosophical models of the human mind, which are conscious and social structures that are researched scientifically in the field of psychology and social sciences.

The goal of counselling models and strategies is to help the counsellor bring structure to the counselling session and to organise data into themes so that they are analysed easily and addressed meaningfully. Counselling models and strategies also help the counsellor to plan the route to recovery and steer the patient towards it. This includes knowing when to assess the patient, when to address the counselling relationship, and when to motivate

for change. Examples of counselling models and strategies include gestalt therapy, CBT and psychoanalytical theories (Fall *et al.*, 2017).

Finally, the researcher listed the most commonly used counselling models in nutrition counselling. Participants were asked to indicate how often they would use each model when treating eating disorder patients in order to evaluate practices.

An online survey automation system (EvaSys) was used to collect participants' responses regarding their KAP of eating disorder diagnosis and treatment. Participants followed a link to the online questionnaire and completed the questions online.

3.4 Study Procedure

The Health Sciences Research Ethics Committee (HSREC) of the University of the Free State approved the research study (approval number: UFS-HSD2018/0245/2905).

The researcher contacted ADSA and requested to place an invitation in their weekly newsletter. The invitation was for registered dietitians to participate in the study, and included a link to the online survey (Appendix B). Their weekly newsletter was sent by email to members of the association.

The researcher also contacted DIP and requested to place an invitation to participate in the study on their social media platform (Appendix B). The link to the online questionnaire was available in the invitation letter to the study (Appendix C). After two weeks, the invitation to participate was repeated on the social media pages. The links were available for four weeks after the initiation of data collection.

A statement of consent to participate was displayed on the first page and at the top of each of the following pages of the survey, indicating that by completing the questionnaire, the participant automatically give consent (Appendix D). Sections from the questionnaire (Appendix E) appeared one by one; meaning that a section had to be completed first before participants could continue to the next section. The questionnaire took approximately 20–30 minutes to complete.

Participants were only able to complete and submit the questionnaire once. Once they have submitted their answers, they were not able to log in again to repeat it from the same IP address.

Demographic information was asked using nominal data as well as ordinal data questions.

Questions regarding knowledge of the diagnosis and treatment of patients were MCQs. Some MCQs (regarding the diagnosis and pathology of eating disorders) had more than one correct answer. The participants were required to select all the correct answers from the list and none of the incorrect answers in order for the question to be marked correctly.

The percentage of questions answered correctly for the knowledge sections (diagnosis and treatment) was calculated and reported. For the purpose of this study, good knowledge was regarded as having answered 70% of the questions correctly.

Attitudes were measured by giving participants common statements and misconceptions regarding eating disorders. Participants had to indicate whether they agreed or disagreed with each statement. Results were described for each statement as having a positive or negative attitude in a narrative way.

In order to research practices of dietitians when treating patients with eating disorders, participants were asked to indicate how often they use a specific counselling model or strategy when practising nutrition counselling. After completing all sections of the survey, participants were given the opportunity to voluntarily enter their email address in order to be entered into the lucky draw competition.

The researcher requested a reminder notice to be placed in ADSA's newsletter and DIP's social media platform two weeks from the first email reminding dietitians to complete the online survey if they have not yet done so. This email was sent to all dietitians on the contact list as it was not possible to trace who has done the survey already.

Data collection continued until the cut-off time for participation, which was two weeks after the reminder email was sent and four weeks after the initiation of the study.

After the allocated time period of data collection, the researcher randomly selected three participants (who entered their email addresses) who each won a R250 shopping voucher. The selection was done using a computerised program to ensure that the draw was random and fair. The winners were contacted via email to hand them their prize.

The researcher extracted recorded data from the online survey automation system in the form of a Microsoft Excel file. Data was analysed with the help of a biostatistician (from the Department of Biostatistics at the University of the Free State) and the findings are included in the dissertation.

3.5 Pilot Study

A pilot study was conducted on five participants after ethical clearance was obtained but before data collection began. The five participants included in the pilot study were chosen by using a convenience method that included practising dietitians working in close proximity to the researcher. The goal of the pilot study was to test the online survey automation system that was used during the study and to determine the time it takes to complete the questionnaire. The pilot study also helped to determine whether the questions were clear and according to standards.

After the pilot study, feedback from the participants was implemented. The participants only suggested minor word changes and spelling corrections. The minor word changes included that dietitians in the ‘public sector’ was rather to be named ‘government setting’ so that it was not to be confused with community nutrition or community service dietitians. The participants included in the pilot study formed part of the final sample as no major changes were made to the questionnaire.

3.6 Avoiding Measurement and Methodology Errors

In order to ensure the quality of the study, the researcher compiled the questionnaire from various sources including:

- Literature and guidelines regarding the appropriate treatment for eating disorders (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011; Wilson & Shafran, 2005; Yager *et al.*, 2010); and
- Previous questionnaires in other research projects that tested the attitudes of health-care professionals pertaining to eating disorders (Currin, Waller & Schmidt, 2009; Jones, Saeidi & Morgan, 2013; McNicholas *et al.*, 2015; Reas *et al.*, 2017; Thompson-Brenner *et al.*, 2012).

In order to promote fairness of the questionnaire, the researcher focused on sourcing questions from a variety of topics (as presented in the literature). Questions were both sourced from basic knowledge (such as diagnostic criteria) as well as more intermediate knowledge pertaining to the pathology of eating disorders and specific guidelines for the treatment of eating disorders. Difficulty of questions further varied in that some were true/false questions (which are easier as they provide clues by their nature) and others had more than one correct answer that needed to be selected (requirement for detailed knowledge) (McCoubrie, 2004). The questions were formulated to be understood clearly and were double-checked for ambiguity.

A pilot study was conducted to ensure that the questions asked were clear and understandable. Participants did not receive their scores, meaning that they were not pressured to achieve a certain percentage, which made the study more reliable as they were less likely to ask for help in completing the questionnaire.

There were no headings in the questionnaire so that participants did not know when and which knowledge was tested; this also reduced the odds that participants could feel pressured to perform.

The researcher limited participants in that they were not able to complete the questionnaire more than once (from the same IP address), which ensured that the data collected was a true representation of all participants. Participants were also able to only

receive one entry to the lucky draw, which would discourage them from wanting to complete the questionnaire more than once.

3.7 Statistical Analysis

Descriptive statistics, namely, frequencies and percentages for categorical data, and means and standard deviations or medians and percentiles for continuous data were calculated per group. The groups were compared by means of 95% confidence intervals for the mean/medial percentage difference. The analysis was done by the Department of Biostatistics at the Faculty of Health Sciences at the University of the Free State.

3.8 Budget

Table 3-1: Study budget

Expenditure	Cost per unit	Total units	Total amount
Shopping vouchers for lucky draw	R250	3	R750
Professional editing	R0.24/word	35 000 words	R8400
Printing costs	R0.50/page	437 pages	R218.50
Binding costs	R850	3	R2550
Courier Costs	R 175	2	R330
Total			R11 968,50

The researcher funded the study herself.

3.9 Ethical Considerations

Ethical approval for the study was obtained from HSREC. Participant consent was implied by completing the questionnaire and participants were made aware of this. Participants were not forced by any means to participate and were able to withdraw from the study at any time.

There were no invasive questions regarding personal experiences or feelings. Participants participated anonymously unless they opted to be entered into the lucky draw at the end of the questionnaire in which case they provided a contact detail, which remained confidential.

CHAPTER 4: RESULTS

4.1 Introduction

In this chapter, the researcher will present the results of the study. First, demographic information of the sample will be presented including gender distribution, age distribution, qualifications and work experience. This will be followed by the results of the attitude tests and then the results of the knowledge section of the questionnaire.

4.2 Demographic Information of the Sample

The sample consisted of 85 participants (N = 85) who completed the questionnaire. Because the distribution of the sample was skewed, the median (rather than the mean) was calculated for all variables. The median age of the participants was 26.5 years old (n = 78) and the ages ranged from 21 to 48 years of age. Most participants were female (76%). The majority of participants had only a bachelor's degree (68 %); a few had a master's degree (14 %).

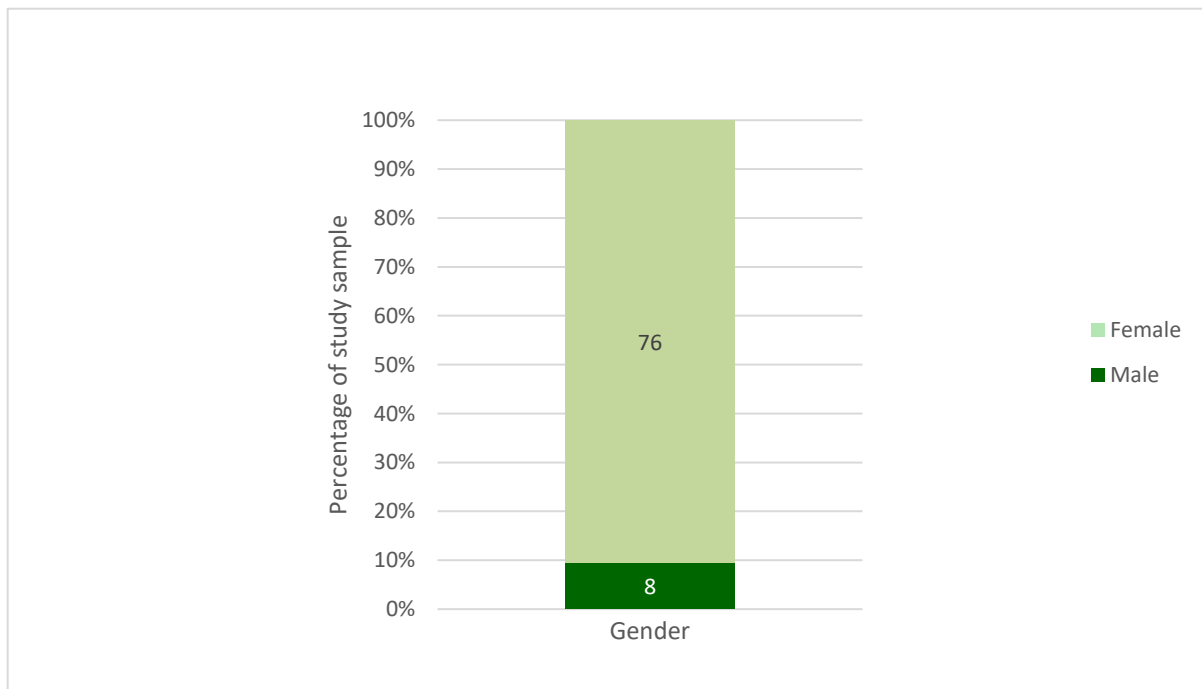


Figure 4-1: Gender distribution of participating dietitians

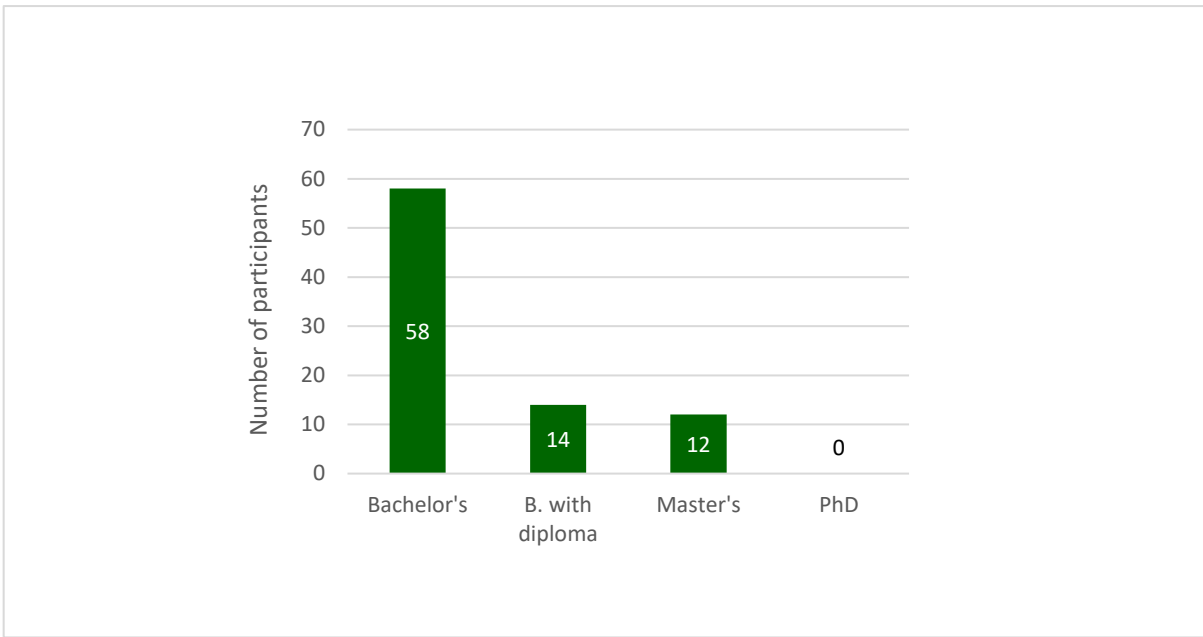


Figure 4-2: Education level of participating dietitians

Table 4-1: Work experience of participating dietitians

Details of work experience	Minimum	Maximum	Median
Work experience	6 months	20 years	5.25 years
Age at the onset of career (n = 79)	21	36	23
	Yes n (%)	No n (%)	
Experience practising as a dietitian outside RSA (n = 85)	4 (4.7%)	81 (95.3%)	
Previous experience in treating patients with eating disorders (n = 85)	26 (30.6%)	59 (69.4%)	
Training in the treatment of patients with eating disorders (n = 85)	0	85 (100%)	

Figure 4-3 shows the participants' line of work as well as the demographic area where they work.

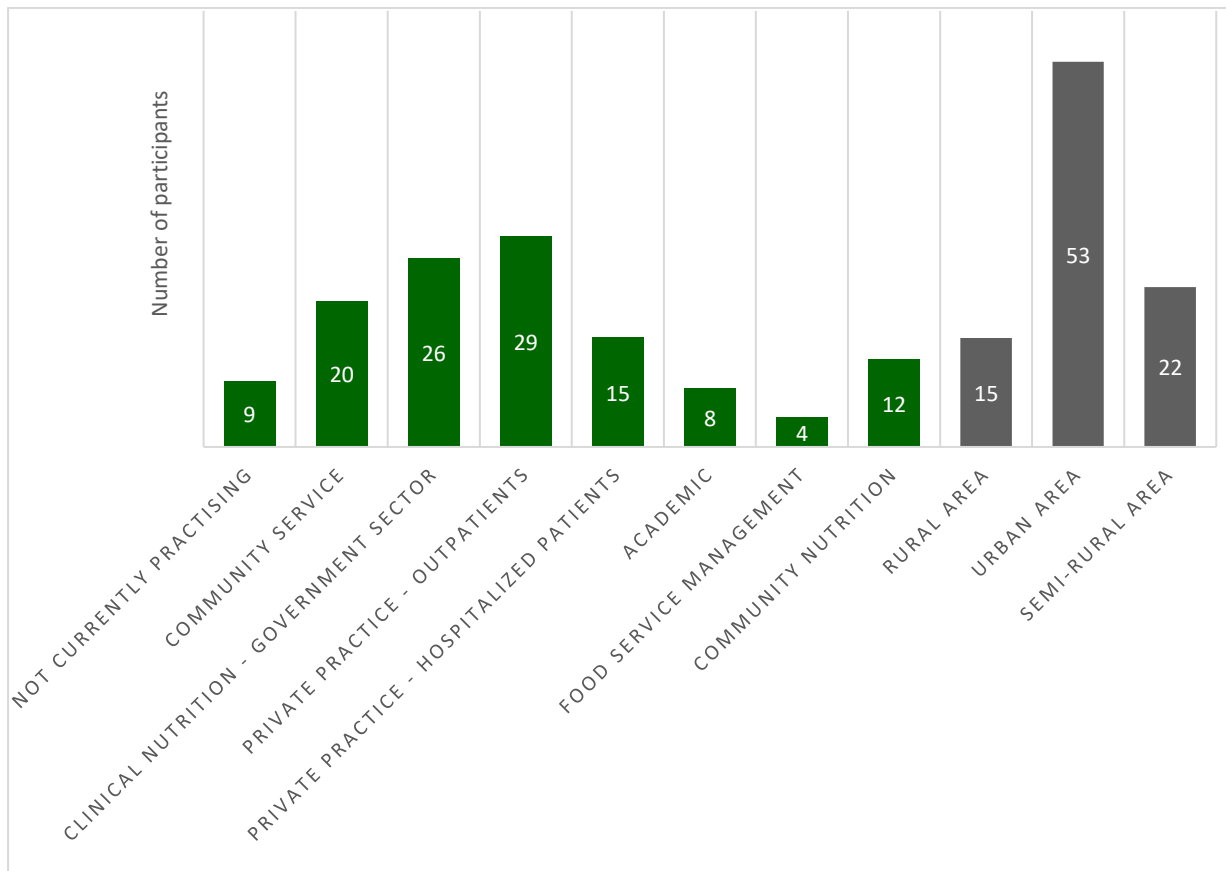


Figure 4-3: Line of work and demographic area of work of the participating dietitians

4.3 Knowledge of South African Dietitians in the Field of Eating Disorders

None of the participants scored the minimum of 70% required to be considered as having good knowledge in the field of eating disorders (Figure 4-4). The majority (58.8%) of participants scored below 50%. The median knowledge score was 47.8%, the lowest score 17.4%, and the highest score 65.2% (Figure 4-4).

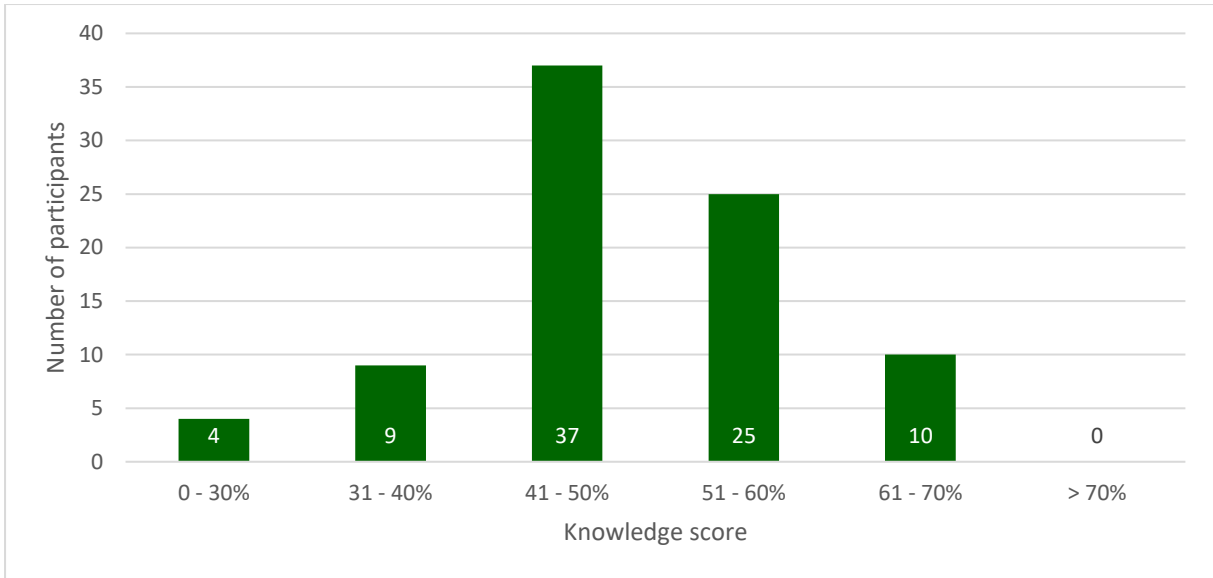


Figure 4-4: Distribution of scores from the knowledge section of the questionnaire

There were four questions pertaining to the diagnosis of eating disorders (Figure 4-5). Only 12 (14.1%) participants answered two questions correctly; the rest answered one or none of the four questions correctly. None of the participants could answer three to four questions correctly.

Participants could not identify the diagnostic criteria for anorexia and bulimia nervosa in particular; however, 41.2% of participants could correctly identify the weight criteria for anorexia nervosa.

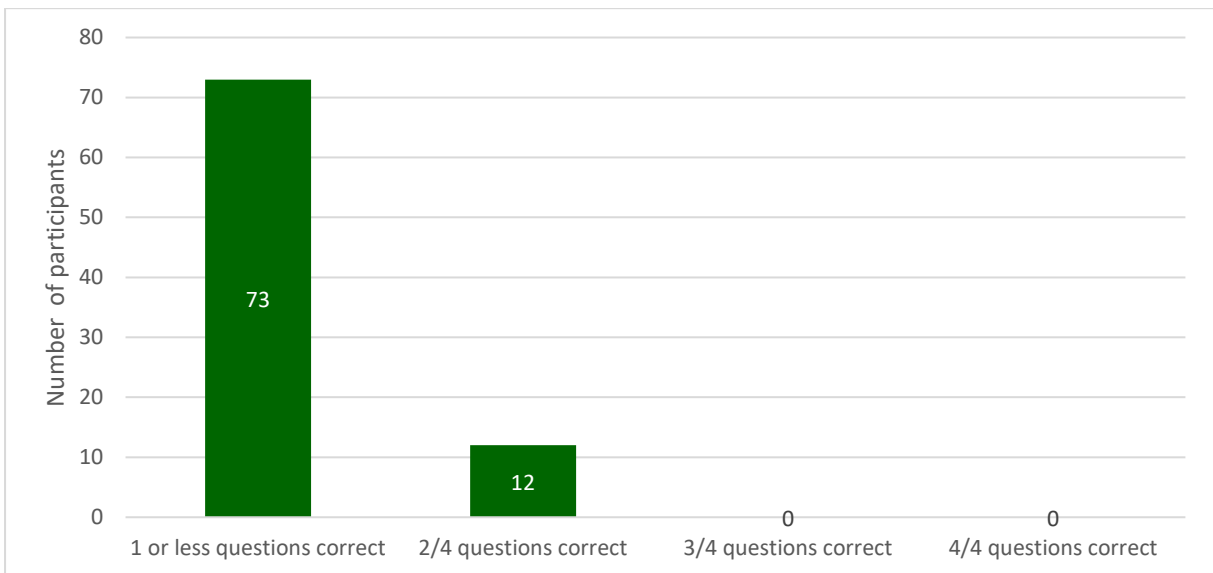


Figure 4-5: Knowledge of dietitians regarding the diagnosis of eating disorders

Table 4-2: Knowledge of dietitians regarding the diagnosis of eating disorders

Question	Correct n (%)
The diagnostic criteria for eating disorders are explained in the following manual: <i>DSM-V (APA)</i> .	32 (37.6%)
Diagnostic criteria for anorexia nervosa. (All correct answers identified)	0 (0%)
Diagnostic criteria for bulimia nervosa. (All correct answers identified)	1 (1.2%)
In order to be diagnosed with anorexia nervosa, a patient's BMI needs to be: Significantly lower than the expected minimum considering height, age, sex, physical health and development.	35 (41.2%)

Five questions tested the participants' knowledge of the pathology and symptomology of eating disorders. None of the participants could answer all five questions correctly. Figure 4-6 shows the distribution of scores for this section.

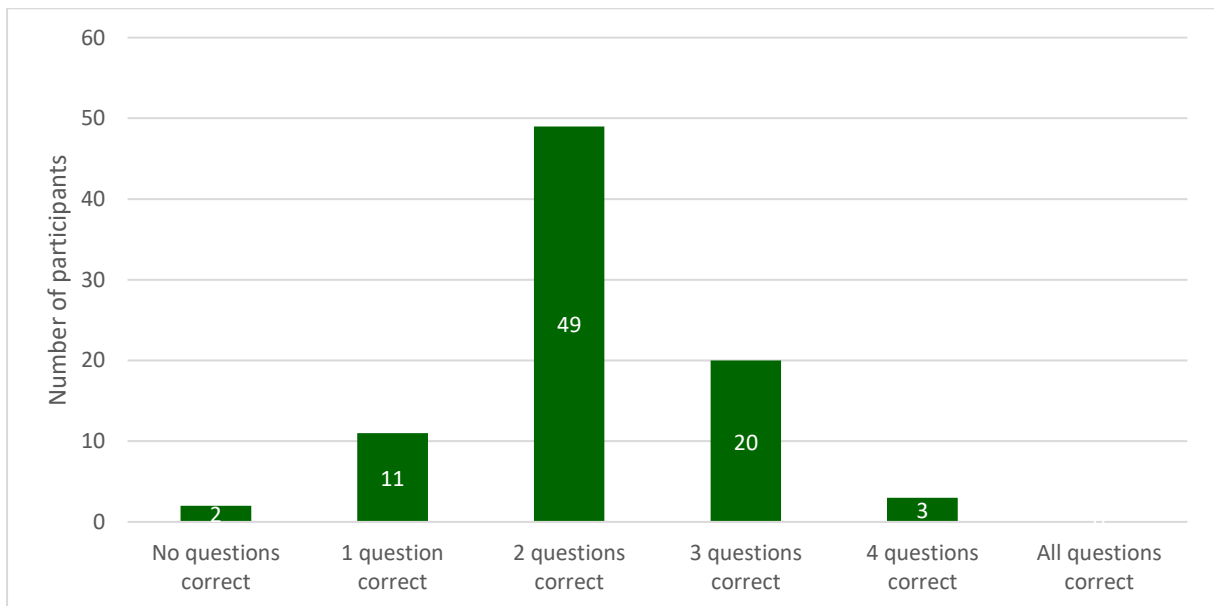


Figure 4-6: Knowledge of dietitians regarding pathology and symptomology of eating disorders

Knowledge regarding the pathology, aetiology and symptomology was lacking and most participants could not identify all the correct answers, and none of the incorrect answers (Table 4-3). However, the majority of participants (93 %) could identify some of the psychological symptoms a patient may present with correctly. Nineteen participants ticked all the given option possible. Table 4-4 shows the number of participants who could correctly answer whether a specific trait as part of an eating disorder pathology.

Table 4-3: Knowledge of dietitians regarding the pathology and symptomology of eating disorders

Question	Correct n (%)
Patients suffering from OSFED have a less severe condition than those with anorexia or bulimia nervosa.	70 (82.4%)
True or false: Only female patients suffer from eating disorders.	82 (86.5%)
Key components in the aetiology and symptomology of eating disorders. (All correct answers and none of the incorrect answers were identified.)	0 (0%)
Patients may shift between eating disorders and symptoms are constantly changing.	22 (25.9%)
Components of pathology of eating disorders. (All correct answers identified.)	7 (8.2%)

Table 4-4: Knowledge of dietitians regarding psychological symptoms of patients with eating disorders

Trait/Attribute	Correct n (%)
Patients with eating disorders are known for being ambiguous and do not really want treatment for their condition.	48 (57%)
Patients suffering from eating disorders use their condition to deliberately manipulate those around them.	49 (58%)
Patients suffering from an eating disorder have a poor sense of identity and a poor sense of who they are.	54 (64%)
Patients suffering from eating disorders seek attention from friends and family.	62 (73%)
Patients suffering from eating disorders use their condition as a means to build self-confidence.	35 (41%)
Patients suffering from eating disorders often suffer from feelings of severe shame and guilt.	72 (85%)

Figure 4-7 shows how many of the sample participants knew the components that play a key role in the symptomology and aetiology of eating disorders. Factors that were identified incorrectly were (Figure 4-8):

- Depression and anxiety (70 [82%]);
- OCD (55 [65%]);
- Critique from others (52 [61%]);
- Self-critique or self-hate (74 [87%]); and
- A desire to look like a model (39 [46%]).

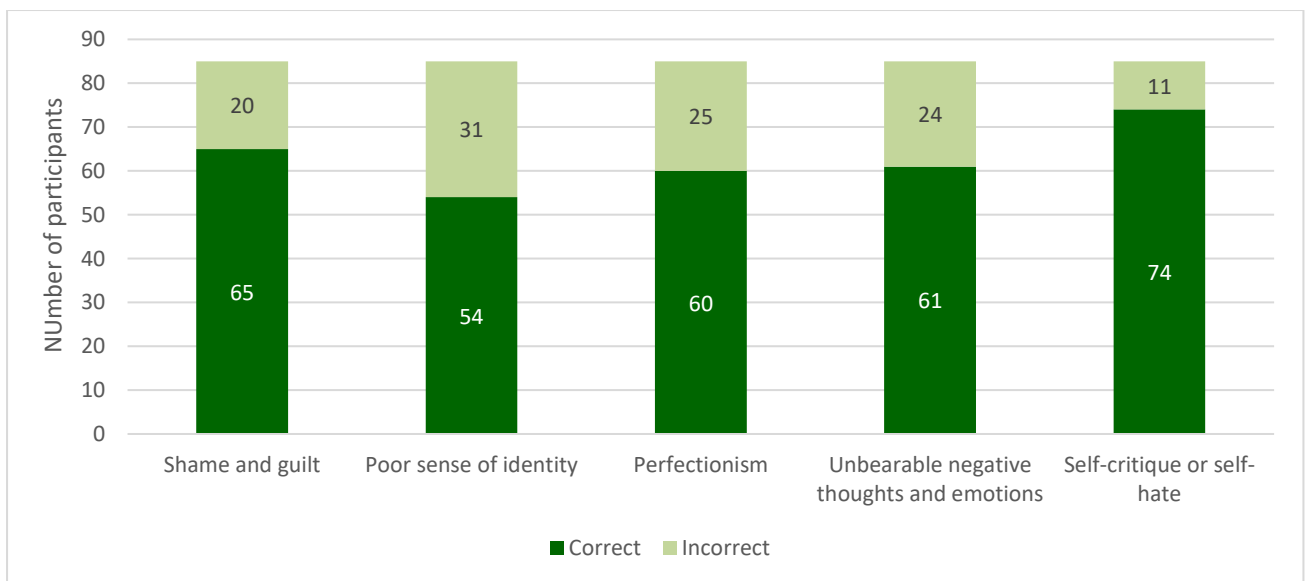


Figure 4-7: Knowledge regarding correct components of aetiology and symptomology

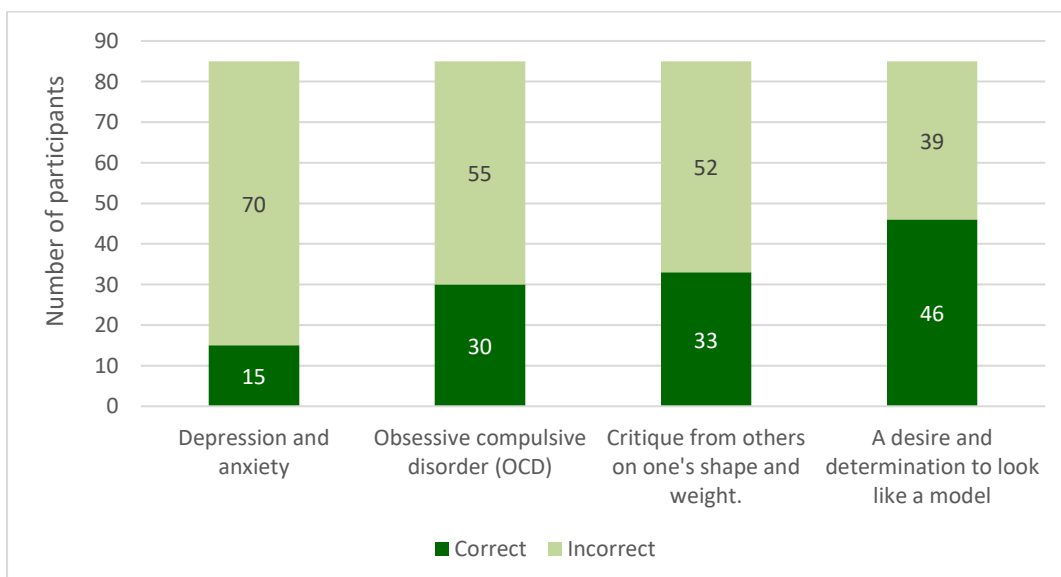


Figure 4-8: Knowledge regarding incorrect components of aetiology and symptomology

There were 14 questions testing knowledge regarding the treatment and nutritional management of eating disorders. Only 15 of the participants were able to answer 70% of the questions correctly in this section. The majority (78.8%), however, had a score of 69% or less. The median score for this section was 40.0% (Figure 4-9).

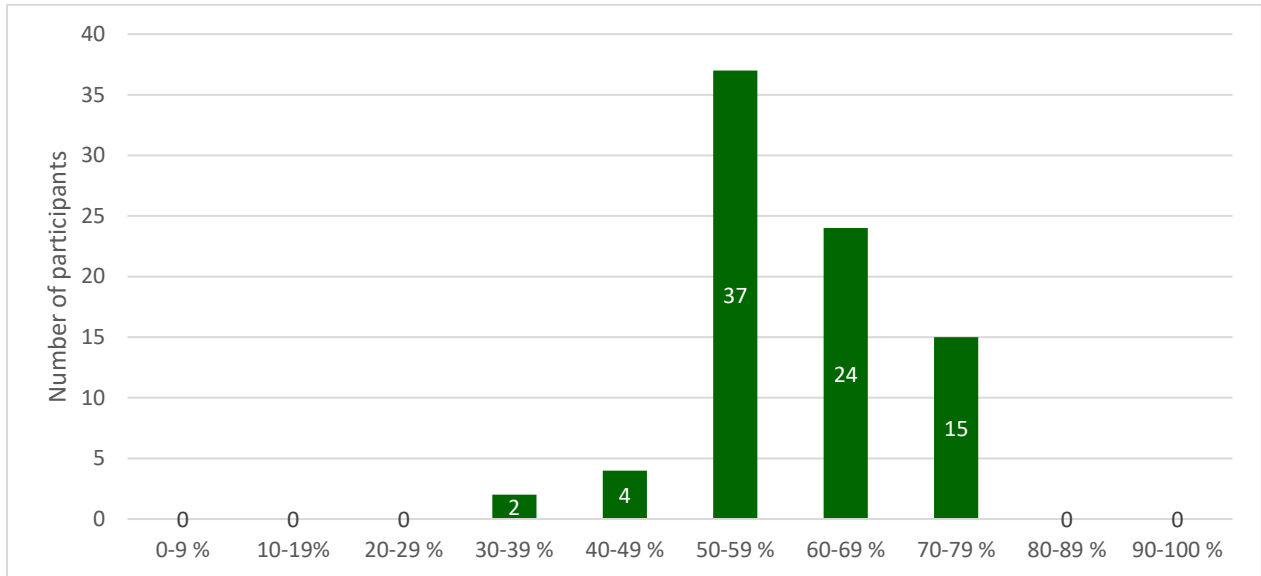


Figure 4-9: Knowledge of dietitians regarding the treatment of eating disorders

Table 4-5 shows the results from each individual question. Participants especially lacked knowledge regarding the recommended counselling models to be used when treating a patient suffering from an eating disorder (0 [0%]).

Table 4-5: Knowledge of dietitians regarding treatment of eating disorders

Trait/Attribute	Correct n (%)
Normalisation of weight and BMI is the most important factor in the treatment of eating disorders.	66 (77.6%)
The recommended weight gain for patients suffering from anorexia nervosa is according to NICE:	18 (21.2%)
What has been found to be the most beneficial when providing dietetic services to a patient suffering from an eating disorder?	17 (20.0%)
When should dietitians be aware of refeeding syndrome when eliciting nutritional therapy?	9 (10.6%)
Patients need to receive nutritional therapy in parallel with psychotherapy, but the progress of nutritional therapy is dependent on the pace of psychotherapy.	63 (74.1%)

Trait/Attribute	Correct n (%)
As part of the treatment for anorexia nervosa, which counselling models have been found useful?	0 (0.0%)
As part of the treatment for bulimia nervosa, which counselling models have been found useful?	3 (3.5%)
Weight gain in anorexia nervosa should be slow and determined by the patient.	68 (80.0%)
Nutritional therapy should be health orientated and focus on the importance of a variety of food rather than weight gain.	77 (90.6%)
Education given to patients should include information regarding the importance of different food groups in terms of micronutrients.	72 (84.7%)
Nutritional therapy should focus on regular meals and a consistent eating pattern.	69 (81.2%)
Nutritional therapy should encourage patients to follow an example of a flexible spontaneous diet including social eating.	78 (91.8%)
Advice regarding exercise to patients suffering from an eating disorders should encourage exercise for mental and physical fitness.	72 (84.7%)
The patient-therapist relationship between a dietitian and patients should be focused on trust and teamwork to develop a normal eating attitude.	80 (94.1%)

4.4 Attitudes Pertaining to Eating Disorders

Results of the attitude section of the questionnaire showed that most participants (98.8%) agreed that dietitians should play an integral role in the management of eating disorders by providing nutrition education and helping patients understand their condition (Table 4-6).

Table 4-6: Attitudes of dietitians towards dietitian’s role in the treatment of eating disorders

Attitude statement	Agree n (%)
Eating disorders are not part of clinical nutrition therapy and should only be treated by a psychiatric team.	84 (98.8%)
Nutrition education guiding a patient with an eating disorder to make healthy nutrition choices is one of the most important factors of the road to recovery.	74 (87.1%)
The role of the dietitian (as part of a multi-disciplinary team) is to provide a diet plan to patients in order to achieve a normal weight only.	10 (11.8%)
Dietitians should go beyond nutrition education to help patients understand the meaning of their subjective feelings regarding food and weight.	77 (90.6%)
Patients suffering from eating disorders have difficulty understanding their own condition and therefore it is up to the healthcare provider to decide on the best route of treatment.	45 (52.9%)

A large number of participants (76.5%) indicated that they found it frustrating to work with patients suffering from eating disorders and that patients are often reluctant to make changes (Table 4-7).

Although most of the participants (84.7%) agreed that weight is not the most important treatment goal when treating a patient with anorexia nervosa, many still incorrectly indicated that they thought that it is a good indicator of treatment progress (Table 4-8).

Table 4-7: Dietitians’ attitudes relating to working with patients with eating disorders

Attitude statement	Agree n (%)
I find it difficult to treat patients with an eating disorder as they are often reluctant to make changes.	65 (76.5%)
It is frustrating to work with patients suffering from an eating disorder.	55 (64.7%)
Eating disorders are chronic conditions and patients are unlikely to improve even with specialised care.	65 (76.5%)

Table 4-8: Attitudes of dietitians towards weight gain in patients with anorexia nervosa

Attitude statement	Agree n (%)
Weight gain in patients with anorexia nervosa is a good indicator of treatment progress.	58 (68.2%)
Weight gain is the most important goal in treating anorexia nervosa.	13 (15.3%)

Although the study did not test whether dietitians hold misconceptions regarding eating disorders, some of the questions in the questionnaire did allude to general misconceptions commonly held regarding eating disorders (Ebnetter & Latner, 2013; Jones, Saedi & Morgan, 2013; Roehrig & McLean, 2010). These questions are shown in Table 4-9.

Table 4-9: Misconceptions held by dietitians regarding eating disorders

Misconception statement	Agree n (%)
Eating disorders are Western conditions with black ethnic groups having an extremely low risk of developing an eating disorder.	20 (23.5%)
Patients suffering from eating disorders caused their own condition making them responsible to deal with symptoms themselves.	7 (8.2%)
Eating disorders are chronic conditions and patients are unlikely to improve even with specialised care.	20 (23.5%)
An eating disorder is a sign of manipulation.	24 (28.2%)

Table 4.10 shows that only a small group of participants felt confident treating a patient suffering from an eating disorder (27.1%) and most of the respondents would like to have formal training opportunities available (92.9%).

Table 4-10: Dietitians’ attitude towards their perceived knowledge and training with regards to eating disorder

Attitude statement	Agree n (%)
I am confident to treat a patient suffering from an eating disorder.	23 (27.1%)
There are sufficient training opportunities available in South Africa in order for me to develop the necessary skills in order to effectively treat a patient suffering from an eating disorder.	6 (7.1%)
I would like to receive formal training in the management of eating disorders.	79 (92.9%)

Frustration, helplessness, incompetence and feelings of worry are the main drivers for negative attitudes towards treating patients with eating disorders, and this negative attitude in turn negatively influences the rapport between the healthcare provider and patient (Thompson-Brenner *et al.*, 2012). Questions testing the respondents’ feelings of competence, presence of frustration, and feelings of helplessness (or inability for the patient to improve) were classified as being either positive or negative. These questions combined give an overall indication whether the participants hold negativity towards treating patients with eating disorders.

An ‘agree’ answer to the question “I am confident to treat a patient suffering from an eating disorder” was deemed positive. A ‘disagree’ answer to the following questions was considered as a positive answer:

- “Eating disorders are chronic conditions and patients are unlikely to improve even with specialised care.”
- “I find it difficult to treat patients with an eating disorder as they are often reluctant to make changes.”
- “It is frustrating to work with patients suffering from an eating disorder.”.

Figure 4-10 shows how many participants held one or more positive attitudes towards the treatment of eating disorders.

Most dietitians felt that they have received insufficient training to deal with patients with eating disorders confidently and would like to receive more formal education.

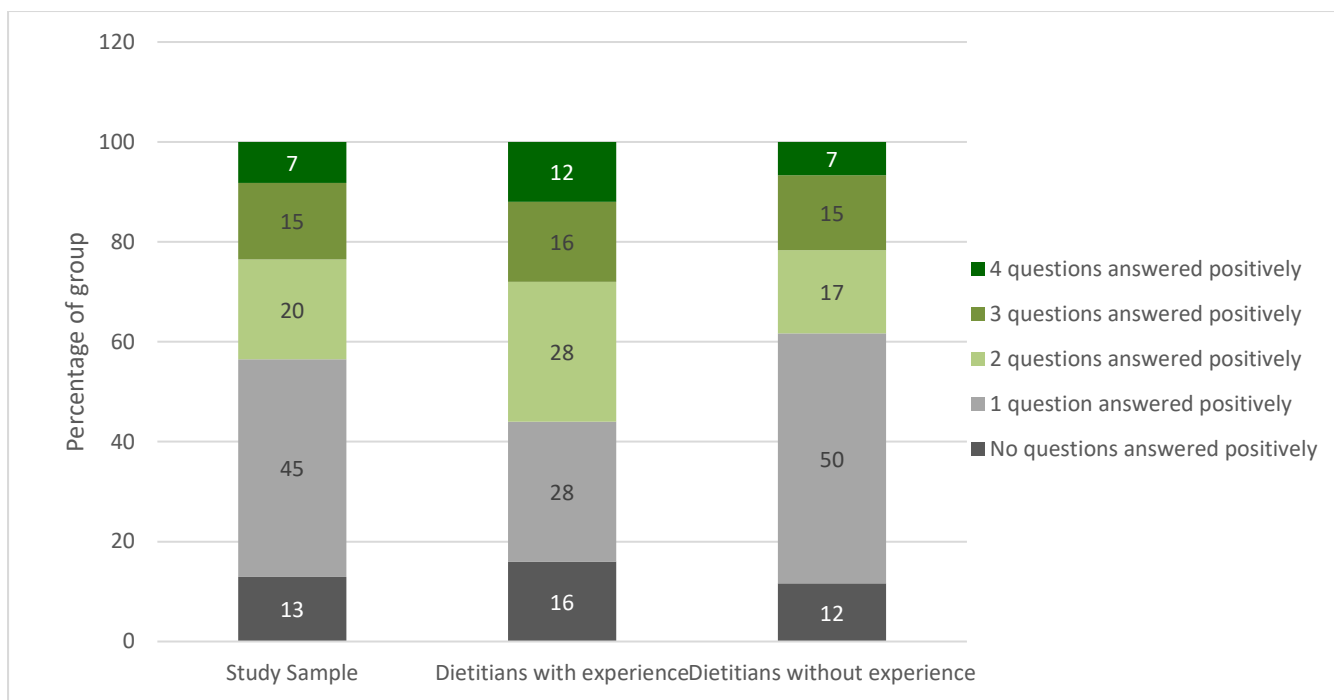


Figure 4-10: Attitudes of dietitians regarding the treatment of eating disorders

From the whole study sample, most participants answered none or one of the questions with a positive notion, and only 19 (22.4%) of the participants answered three or four questions positively. Most (48 [56.5%]) participants held a negative view towards treating a patient suffering from an eating disorder. The median of questions answered positively was one out of four questions (25.0%). Dietitians who indicated that they have had experience working with patients with eating disorders (n=25) tended to answer more questions positively than dietitians who said they had no experience.

4.5 Dietitians' Use of Recommended Counselling Models and Strategies in the Treatment of Eating Disorders

Participants who indicated that they have experience in treating patients with eating disorders (n=25) were asked how often they would use a specific counselling model or strategy when counselling such a patient. However, none of the participants completed this section and no data could be documented.

4.6 Association Between South African Dietitians' Knowledge and Their Attitude Towards Patients With Eating Disorders

No associations were found between knowledge of eating disorders and the attitude a participant holds towards the condition.

4.7 Summary

In this chapter, the results of the questionnaire were described in detail. In summary, the majority of the study sample were females with a bachelor's degree as their highest qualification. Most participants worked in private practice and consulting non-hospitalised patients, followed by dieticians working in therapeutic nutrition in the government sector.

None of the participants scored the minimum of 70% required for them to be considered as having good knowledge in the field of eating disorders. Participants performed poorest in the questions relating to the diagnosis of eating disorders, followed by questions pertaining to the symptomology, aetiology and pathology of eating disorders. Some participants (n = 15) scored more than 70% in the questions regarding treatment of eating disorders even though none could correctly identify the counselling models and strategies recommended for anorexia nervosa, bulimia nervosa and BED.

Most participants answered the majority of questions pertaining to attitudes more positively than negatively with the majority responding positively towards 50–80% of the statements asked. Although it was not one of the objectives of the study, the majority of the sample population held misconceptions regarding eating disorders including that eating disorders are exclusive to the white population, that eating disorders are chronic, and that improvement is unlikely.

Most participants were frustrated when working with patients suffering from an eating disorder and with patients who are reluctant to make changes while only 30% of the sample felt confident in their ability to treat patients with an eating disorders. This led to an overall negative attitude towards treating patients with eating disorders.

No association was found between knowledge of eating disorders and the attitude a participant holds towards the condition.

CHAPTER 5: DISCUSSION

5.1 Introduction

In this study, the researcher aimed to determine the KAP of South African dietitians regarding diagnosis and scientifically proven treatment approaches in the field of eating disorders.

5.2 Objective 1: Dietitians' Knowledge Related to the Diagnosis and Pathology of Patients with Eating Disorders

As previously indicated, the DSM-V serves as aids in the diagnosis of patients with eating disorders. From this study's results it is evident that South African dietitians are not familiar with the DSM-V and the criteria used for diagnosis. This is evidenced by the poor scores obtained by this study's participants. None of the participants could answer more than the 70% of questions correctly, which needed to be considered as having good knowledge in the diagnosis, pathology, symptomology and treatment of eating disorders.

Only a third of participants knew that the DSM-V was the internationally recognised manual containing the diagnostic criteria. One participant could correctly identify the diagnostic criteria for bulimia nervosa and none of the participants could identify the correct criteria for anorexia nervosa.

When asked about the diagnostic criteria for anorexia nervosa, most participants could correctly identify fear of fatness, low body weight and delusions in how weight and shape are experienced. Less participants knew that “disturbances in the way one's body shape and weight is experienced” and “a persistent lack of acknowledgement of the seriousness of one's current low body weight” also formed part of the diagnostic criteria (American Psychiatric Association, 2013; Gitau, 2014). A portion of the sample incorrectly thought that obsessions with food and weight, and amenorrhoea are part of the diagnosis.

These results are similar to studies done in Britain using a sample of GPs and psychiatrists. These studies also reported the knowledge of the sample regarding eating disorder diagnosis to be limited and “fear of fatness” being the most recognised diagnostic criteria (Currin, Waller & Schmidt, 2009; Jones, Saeidi & Morgan, 2013).

Similar to results of the study done in a sample of general practitioners (GP's) where 53% of the sample could not identify the correct BMI criteria for anorexia nervosa (Currin, Waller & Schmidt, 2009), most participants in this study (41.2%) also did not know the weight criteria for diagnosing anorexia nervosa.

Questions testing the diagnostic criteria for bulimia nervosa showed similar poor results. Only one participant could correctly identify the DSM-V criteria for bulimia nervosa. Most

participants could correctly identify “presence of binge-eating followed by inappropriate compensatory behaviours such as laxative use, purging, excessive exercise, diuretic use, or the use of slimming medications” as the main diagnostic criteria, while less than half (48%) of participants could acknowledge that “self-evaluation and self-image is largely influenced by body shape and weight” is an important part of bulimia nervosa.

South African dietitians scored similarly to 52% of British psychiatrists who knew that the self-image of bulimia nervosa patients is largely dependent on their weight (Jones, Saeidi & Morgan, 2013). GPs were not asked about the diagnostic criteria of bulimia nervosa (Currin, Waller & Schmidt, 2009). The majority (68%) of participants, in this study, incorrectly thought that compensatory behaviours occur after most meals and not only after bingeing.

Results from questions pertaining to the aetiology and symptomology were inconsistent. Although only a small portion (26%) of this study’s participants knew that patients may shift between diagnoses. Most South African dietitians could correctly identify most psychological symptoms; however, only seven of the participants could identify all of the correct psychological symptoms. Shame and guilt as well as the fact that people suffering from eating disorders are not meant to seek attention were the most correctly answered symptoms. Eating disorders as a means of seeking attention is also a known social stigma associated with eating disorders (Ebner & Latner, 2013; Roehrig & McLean, 2010) however most dietitians (73%) did not agree with this statement. This is still a much lower number than a study done in a sample of USA psychology students in which 94% of participants did not agree with the statement. This shows that more South African dietitians hold this stigmatic view.

The answers to the attention-seeking questions were consistent with the answers to a question asked in the attitude section where 72% of participants indicated that they think that eating disorders are not a sign of manipulation. Attention-seeking behaviours and manipulation are closely related (Kling, 2014). Both these behaviours are intended to control behaviours as well as secure a feeling of safety and are often used simultaneously or interchangeably in social stigma language. The idea that “eating disorders are a means to build self-confidence” was the least known psychological symptom. Self-confidence and feelings of self-worth are some of the perceived gains from an eating disorder. Especially in anorexia nervosa, patients feel that they achieve levels of success (weight loss) that are not achievable by others (Nordbø *et al.*, 2012). This perceived confidence is false and reliant on achievement. It disappears the moment the patient does not achieve their goal, meaning that dietitians should be careful in goal or ‘rule’ setting as not reaching these goals can have serious psychological consequences. Dietitians should rather focus on learning normal (rather than perfect) eating habits and patients should learn to separate self-worth and confidence from eating and weight.

Knowledge regarding key components in the aetiology of eating disorders was also poor. None of the participants could correctly identify all the correct (and none of the incorrect) factors playing a key role in the development of an eating disorder. Most participants could correctly identify perfectionism, low sense of self, shame and guilt and unbearable negative feelings, but the incorrect answers (depression and anxiety, OCD, critique on body shape and weight, and a desire to look like a model) were ticked as often by the respondents. This shows that participants may have guessed answers at random rather than actually having in-depth knowledge of the pathology and aetiology of eating disorders.

It was previously thought that the drive for thinness seen in eating disorders stems from a desire to look like a model or look socially desirable and that modern Western culture deems thinness as an element of beauty. But media portrayal of thinness does not seem to be the driver for thinning according to patients suffering from anorexia or bulimia nervosa (Blodgett *et al.*, 2015; Claude-Pierre, 1999). In this study, 54% of participants valued the “desire to look like a model” (as part of media influence) as a causation of eating disorders. This is even more than the result of a study done in the USA using the general population of which 47% thought this way (Blodgett *et al.*, 2015), therefore showing that, in this sense, South African dietitians are not better educated.

Critique from others have also previously been considered as a cause for developing eating disorders, but newer literature shows this to be only true when critique is experienced from parents or a romantic partner (Blodgett *et al.*, 2015). The question in this study, however, did not specify whether the critique is from parents or romantic partners.

Proper knowledge in the subject is vital to build rapport between therapist and patients. Studies have found that patients who have received treatment from more knowledgeable practitioners were more likely to schedule follow-up sessions and reported a better experience, which in turn improved the therapeutic relationship (Currin, Waller & Schmidt, 2009). This is also supported by a qualitative study done in 2012 which found that therapist knowledge in the subject is one of the attributes of therapists preferred by patients (Gulliksen *et al.*, 2012).

5.3 Objective 2: Dietitians’ Knowledge Related to the Treatment and Nutritional Management of Patients with Eating Disorders

A small portion of participants (17.6%) scored an adequate score of above 70% for questions pertaining to knowledge of treatment and nutritional management of eating disorders despite the fact that only one participant could correctly identify the recommended counselling model for bulimia nervosa and none could identify the recommended counselling models for anorexia nervosa. Interestingly, from the 26 dietitians who indicated that they have had experience treating patients with eating disorders, only three (11.5%) scored above 70% for this section. The other 12 participants who scored adequately

(> 70%) indicated that they have never worked with patients suffering from eating disorders before and most of them were less than 30 years old. Participants have not been asked their institution of studies, but it may be possible that some have learned some didactic counselling strategies during their course of studies.

The majority of participants could answer most questions pertaining to nutrition counselling correctly. Almost all respondents correctly answered that trust and teamwork are important as well as learning to enjoy a flexible and spontaneous diet. Knowing these fundamental principles of nutrition therapy in eating disorders but showing poor results in pathology and diagnosis show that South African dietitians may be able to apply some didactic treatment strategies to change patient behaviours without necessarily understanding the mechanism of the disease and lack focus on the causes of the disease. This corresponds with the results of a Canadian study that found that Canadian dietitians were able to use more didactic strategies (doing therapy methods or prescribing how patients should behave) rather than thinking therapy methods needed to deal with the underlying causes of disease (Cairns & Milne, 2006). The problem with this lack of foundational knowledge is that dietitians may then implement the same didactic strategies to every patient when in fact every case of an eating disorder is unique.

Compared with British psychiatrists, South African dietitians showed much poorer results when asked about counselling models and strategies useful in the treatment of eating disorders. Less than half of the sample (41%) of South African dietitians correctly identified family therapy as recommended practice for eating disorders as opposed to the 88.4% of the sample of British psychiatrists (Dellava *et al.*, 2010). CBT is most recommended throughout international treatment guidelines as a suitable counselling model for bulimia nervosa but only 46% of this South African sample could identify it (Beumont *et al.*, 2005; Wilson & Shafran, 2005; Yager *et al.*, 2010,, 2012). Other answers could not be compared as the studies reported on different parameters.

5.4 Objective 3: Dietitians' Attitudes Regarding Eating Disorders and Prognosis of Eating Disorder Sufferers

The majority of respondents held a positive attitude towards working with patients suffering from eating disorders. There was no difference in the attitudes of respondents with work experience in eating disorders versus respondents without experience in eating disorders.

When isolating frustration, helplessness and feelings of incompetence (as the main drivers of negativity towards treating a patient with an eating disorder), most participants held a negative view of treating a patient suffering from an eating disorder. Feelings of incompetence relate to perceived unsuccessfulness in the treatment of eating disorders (Clanton *et al.*, 2014) and hence lower levels of perceived feelings of confidence in respondents' own ability to treat patients with eating disorders successfully.

Similarly, a systematic review done in 2012 found that up to 87% of clinicians working with patients with eating disorders reported feeling frustrated at some time and 54% lacked perceived confidence in their ability to provide successful therapy (Thompson-Brenner *et al.*, 2012). These results were further supported by results from a study done by a British psychiatrist (Jones, Saeidi & Morgan, 2013) showing that 85.1% of respondents, who were also clinical psychiatrists, lacked perceived confidence in their ability to treat patients with eating disorders successfully.

Studies in Britain found that many general clinicians and some psychiatrists held the belief that eating disorders and specifically anorexia nervosa were in essence untreatable causing healthcare providers to feel helpless towards patients suffering from eating disorders (Currin, Waller & Schmidt, 2009; Jones, Saeidi & Morgan, 2013). Contrary to these findings, this current study showed that most participants believed eating disorders are treatable and improvement is possible. Studies done regarding the outcomes and prognosis of eating disorders show that 50 – 70 % of patients with bulimia nervosa and 50 % of patients with anorexia nervosa may actually recover from their illness (Fairburn *et al.*, 2000; Keski-Rahkonen *et al.*, 2007; Vrabell *et al.*, 2008; Zipfel *et al.*, 2000). Even with a poor prognosis for complete recovery from an eating disorder, patients may still experience a significant improvement in quality of life with proper treatment and therapy (Bamford *et al.*, 2014; Hay *et al.*, 2012).

Respondents with work experience in eating disorders held more positive attitudes than respondents without experience in the treatment of eating disorders. This can mainly be explained by the fact that respondents with experience felt more confident treating patients with eating disorders than those who had no experience with treating patients suffering from eating disorders. In this regard, the results of the study correlate with a study done in Britain using a population of psychiatrists (Jones *et al.*, 2013) as well as the review done by Thompson-Brenner *et al.* (2012) who found that more experienced psychiatrists (especially those working in a specialised setting) were much more positive towards eating disorder patients than those who had little or no experience in the field (Jones, Saeidi & Morgan, 2013; Thompson-Brenner *et al.*, 2012).

Consensus is that dietitians should form part of an integrated healthcare team involved in the treatment of eating disorders (Currin, Waller & Schmidt, 2009; Hart, Russell & Abraham, 2011; Ozier & Henry, 2011). The role of the dietitian has been described as being responsible for nutritional assessment (including anthropometry and diet history), providing nutritional intervention strategies, behavioural change strategies, nutrition counselling, and nutrition education in a supportive collaborative environment (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011). Participating dietitians in this study agreed that dietitians should be involved in the treatment of eating disorders. Understanding the role and duties of the dietitian (as part of the multi-disciplinary team) is, however, particularly important before treating a patient with an eating disorder. Dietitians should

be clear regarding the boundaries of the scope of practice and their responsibilities towards the patient and other members of the healthcare team (Cairns & Milne, 2006; Hart, Russell & Abraham, 2011; Ozier & Henry, 2011). This study did not test whether South African dietitians are familiar with their scope of practice boundaries when treating eating disorder patients, but a study done in a sample of Canadian (2006) dietitians found uncertainty regarding scope of practice boundaries and responsibilities to be a problem (Cairns & Milne, 2006).

Nutritional intervention can either be focused on didactic strategies (where patient behaviours are prescribed) or thinking strategies (encouraging the patient to think and process information), or a combination of the two. “Prescribing a diet to a patient with an eating disorder” and “providing nutrition information” are seen as didactic strategies whereas nutrition therapy and counselling (helping the patient to understand the role and meaning of food in their condition) are seen as a thinking strategies (Cairns & Milne, 2006).

Most respondents indicated that they feel nutrition education is the most important, but also agreed that dietitians should go beyond didactic strategies and providing the patient with a diet and meal plan. They should include thinking strategies in the nutrition counselling sessions. The results did not show a preference towards the one or the other strategy but also did not assess whether participants used didactic or thinking strategies more often.

A Canadian study (Cairns & Milne, 2006) found that most Canadian dietitians deemed thinking strategies to be more useful than didactic strategies but tended to use didactic strategies more often. The Canadian study found that dietitians approached their sessions with patients in an intuitive manner rather than a structured way and were more likely to use strategies most familiar to them. Because only one of the participants in this study could correctly identify recommended counselling methods to be used when treating a patient with an eating disorder, it could be argued that participants are not sure or are not aware of what is meant by thinking strategies (as part of a counselling model) and how to use them.

Most participants agreed that weight gain is not the most important goal when treating a patient with anorexia nervosa. This was contradicted by the fact that more than two-thirds (68.2%) of the participants incorrectly thought weight gain is a good indicator of treatment progression in anorexia nervosa. The most important goal when treating patients with anorexia nervosa is actually to normalise patients’ relationship with food, including how they think and feel about food and how food, weight and body shape affect their self-concept (Claude-Pierre, 1999; Hart, Russell & Abraham, 2011; Ozier & Henry, 2011). This includes normal eating habits and portion sizes as a reaction to internal stimuli of hunger and satiety as well as acceptable social circumstances. Recommendations regarding weight gain are varied across the literature and ranges from 500 g / week to 2 kg / week

(Golden *et al.*, 2015; Susan Hart *et al.*, 2013; Marzola *et al.*, 2013; Robb *et al.*, 2002; Sylvester & Forman, 2008; Wilson & Shafran, 2005; Yager *et al.*, 2012). Most of these references do however specify that weight gain is dependent on the rate of psychotherapy and that it should be in accordance with the agreement between patient and therapist.

Eating disorder patients are often stigmatized by the general public as wanting attention and that they use their disorder to manipulate their friends and family (Ebnetter & Latner, 2013; McNicholas *et al.*, 2016; Roehrig & McLean, 2010). Another common misconceptions held by both the general public as well as medical health care practitioners is that patients cause their own condition or “chose” to have an eating disorder (Ebnetter & Latner, 2013; Jones *et al.*, 2013). This study did not aim to determine the misconceptions dietitians hold regarding eating disorders but some questions did refer to the most commonly held misconceptions regarding patients with eating disorders. Misconceptions are wrong ideas or thoughts that are taken as the truth, which often stem from assumptions or input from uneducated media (including television and magazines) (Keeley, 2012). Most study participants (54.1%) held one or more of these misconceptions. The misconception most commonly believed was that “an eating disorder is a sign of manipulations” (28.2%). This is considerably more than the result of a study done in psychiatrists in which only 7.8% of respondents believed that an eating disorder is a sign of manipulation (Jones, Saeidi & Morgan, 2013). Another study found that only 6% of American psychology students felt an eating disorder was a way of getting attention (Roehrig & McLean, 2010). Because eating disorders are often misunderstood, there is a prevailing stigma that patients with eating disorders cause their own condition (Ebnetter & Latner, 2013). In this study, respondents/participants did not believe that patients caused their own condition as only 8.2% agreed with the statement that patients are to blame for their own condition. All but one of the participants who held this view had no experience working with a patient suffering from an eating disorder. This study’s percentage is much lower than a study done in the United States of America (USA) using a sample of psychology students. The study on these psychology students found that 37.5% of respondents regarded eating disorder patients responsible for their own condition (Roehrig & McLean, 2010). Another study done in the USA with undergraduate psychology students also showed similar results with participants tending to blame eating disorder patients for their condition on a five-point Likert scale questionnaire (Ebnetter & Latner, 2013).

There were also a number of participants (17.6%) who held the incorrect opinion that black ethnic groups have an extremely low risk of developing an eating disorder. A high number of participants (46%) incorrectly thought that an eating disorder is due to a desire to look like a model. Misconceptions and incorrect ideas may deflect focus away from the actual problems and thereby hinder proper treatment. Patients may feel misunderstood due to this, and therefore struggle to form a therapeutic alliance with their therapist, resulting in poor treatment outcomes and bad treatment experiences (Gulliksen *et al.*, 2012; Maine, 2009; Smith *et al.*, 2016).

The increased number of misconceptions the sample population may be related to a lack of detailed knowledge regarding the pathology and causes of eating disorders. By not fully understanding the causes and mechanism of the disease, dietitians are more likely to make false assumptions regarding the patients suffering from the disease. In order for dietitians to treat an eating disorder patient successfully, they need to have in-depth knowledge of the cause and course of eating disorders with little space to accommodate wrong ideas (Hart, Russell & Abraham, 2011; Ozier & Henry, 2011). Misconceptions and assumptions about the conditions may influence the quality of treatment of patients negatively (Currin, Waller & Schmidt, 2009).

5.5 Objective 4: Dietitians' Confidence In Their Ability to Treat Patients Suffering from Eating Disorders

Just more than a quarter (27%) of participating dietitians perceived themselves to be confident to treat a patient with an eating disorder. A general consensus of there being insufficient training opportunities in South Africa for dietitians to acquire the necessary skills may greatly contribute to this perceived incompetence or lack of confidence in their ability to treat such patients successfully. The low level of confidence shown in this study is shared by different healthcare professionals across the world. A study done in the USA with general practitioners (GPs) found that only 41% felt that they have the skills and knowledge to treat patients with eating disorders (Linville, Brown & O'Neill, 2012). The results of this current study compares closely to a British study done with a sample of psychiatrists. The British study found that a low 14.9% of the sample population felt confident in treating eating disorder patients (Jones, Saeidi & Morgan, 2013).

Confidence in one's ability to succeed in a certain task, for example, in this study treating eating disorder patients successfully, depends on the degree of difficulty an individual believes they can attain; how strongly this belief is manifested; if one can learn the required skills; and the general expectations of the outcome and success of the task (Lunenborg, 2011). These concepts are most often referred to in psychology as magnitude, strength and generality, respectively.

The lack of exact guidelines for the treatment of eating disorders, together with the complexity of the disease, may contribute greatly to the low levels of perceived magnitude dietitians hold towards treating patients with eating disorders (Smink, Van Hoeken & Hoek, 2013). The lack of training opportunities available feeds into the strength of their beliefs regarding their ability to treat eating disorder patients effectively as well as their perceived ability to learn to implement the treatment successfully.

Slow treatment progression and poor prognostic statistics have led to eating disorders being deemed as some of the most difficult conditions to treat successfully causing a generality that healthcare practitioners often fail in treating patients with eating disorders (Carter *et al.*, 2012; Dalle-Grave, 2011; Weiss *et al.*, 2013). Together, these three pillars of

magnitude, strength and generality negatively drive the perceived lack of confidence that healthcare practitioners hold in their ability to treat patients with eating disorders (Clanton *et al.*, 2014).

Low levels of practitioner confidence may actually influence the patient-healthcare provider relationship negatively by hampering the ability of the patient to trust the healthcare provider, which damages the therapeutic relationship indirectly (Twenge *et al.*, 2014). Low levels of confidence and self-doubt may not be all bad as the presence of these encourages practitioners to seek advance knowledge and training if available (Clanton *et al.*, 2014).

It is important to mention that confidence may improve as skills and/or knowledge improves, but confidence in itself is a poor indicator of competency and there is no linear relation between confidence and competence (Clanton *et al.*, 2014; Molteni & Chan, 2015). Confidence may be gained by expert classroom and practical training by a qualified and experienced teacher using multiple methods of teaching (Farey *et al.*, 2018).

5.6 Objective 5: Dietitians' Use of Recommended Counselling Models and Strategies in the Management of Eating Disorders

Some of the most commonly used counselling models and strategies used in the management of eating disorders are discussed in a previous chapter and include CBT, dialectical behavioural therapy, and motivational interviewing to mention a few. The use of these models and strategies facilitate treatment success. Participants who indicated that they have experience in treating patients with eating disorders were asked to indicate how often they used a specific counselling model or strategy when counselling such a patient. Unfortunately, none of the participants answered this section, so no data could be documented. This may indicate that the dietitians in this sample are not sure what each of the counselling models entail or that they do not follow a specific counselling model in their practice.

Studies done internationally using samples of psychologists showed that up to 33% of psychologists deviated from family-based therapy practice guidelines and also omitted elements from other treatment protocols and counselling models (Kosmerly, Waller & Robinson, 2014; Waller, 2016). Clinicians with more experience tended to deviate more from written protocols and guidelines than those with little experience in the field.

This deviation from practice guidelines is not isolated to the use of counselling models and strategies. An international study examining dietitians' use of the Canadian Critical Care Nutrition Practice Guidelines found equal deviations from the guidelines among dietitians working in an intensive care unit setting (Cahill *et al.*, 2010). Reasons given for not following the practice guidelines are unawareness that such guidelines exist and unfamiliarity with its content. A portion of the participants, in the Canadian study

regarding critical care guidelines, also indicated that they do not adhere to practice guidelines if they feel that the guidelines do not benefit the patient. Another study carried out exploring the reasons why renal dietitians do not adhere to guidelines found that limited time as well as a lack of skills or tools needed to implement the guidelines led to deviations reported (Trudel *et al.*, 2010).

These reasons may be equally true in the treatment of eating disorders. As seen in this study, many dietitians were unaware of the recommended counselling models for anorexia and bulimia nervosa. The majority could not identify the correct manual describing the diagnostic criteria for eating disorders. The lack of knowledge regarding the pathology and symptomology of eating disorders seen in South African dietitians may also lead to deviations from recommended strategies and models.

These studies have suggested that the use of guidelines and recommended practices improves with extensive training thereof (Cahill *et al.*, 2010; Trudel *et al.*, 2010).

5.7 Objective 6: Association Between Knowledge of South African Dietitians Regarding Eating Disorders and Their Attitudes Towards Patients With Eating Disorders

No associations were found between knowledge of respondents regarding eating disorders and whether they hold a positive or negative attitude ($P > 0.05$). The small sample size of this study decreases the study's power and consequently makes it more difficult to establish an association between two factors. Another reason to explain the lack of association in this study may also be because none of the participants scored adequately in the knowledge section of the questionnaire and therefore it could not be established if there is a difference in attitudes between participants who showed adequate knowledge versus those who did not.

In their study, Currin, Waller & Schmidt (2012) also did not find any association between GPs' knowledge and attitudes towards patients with eating disorders despite conceptual frameworks depicting a direct relationship between knowledge and attitudes or perceptions (Launiala, 2009). Jones, Saeidi & Morgan (2013) did suggest that attitudes become more positive as practitioners gain age, knowledge and experience in the field, but also could not find a correlation between knowledge and attitudes in psychiatrists.

5.8 Summary

In this chapter, the outcomes of the study objectives were discussed in detail and compared with the results of similar studies. In general, it was found that a sample of South African dietitians held positive attitudes towards individuals with eating disorders but more negative attitudes towards treating patients suffering from eating disorders. Dietitians with experience in treating patients with eating disorders showed a more

positive attitude than those who have no experience. Most South African dietitians tend not to agree with the general stigma associated with eating disorders, namely, that eating disorders are a sign of manipulation and that patients are mainly responsible for their own condition despite the fact that many of the respondents held one or more misconception of the disorder. Compared with British psychiatrists, South African dietitians held more misconceptions and negativity but were more positive than British GPs. This sample of South African dietitians showed to have some similar incorrect beliefs regarding the aetiology of eating disorders than the general public in the USA.

Knowledge of the sample group of dietitians in South Africa showed to be poor with knowledge regarding the diagnosis scoring the lowest marks followed by pathology and symptomology and knowledge regarding the nutritional management of eating disorders faring the best. Most dietitians showed some foundational knowledge regarding recommended treatment practices for eating disorders, meaning that some dietitians have a limited idea of how to counsel a patient with an eating disorder without necessarily understanding the mechanisms of the disorder and applying in-depth pathology in treatment strategies. The dietitians who showed to possess some knowledge in the treatment of eating disorders, however, indicated that they are not the ones who have had previous experience in treating a patient with an eating disorder.

Interestingly, more dietitians felt comfortable in their ability to treat patients suffering from eating disorders than the sample of British psychiatrists despite the fact that they answered less knowledge-based questions correctly.

CHAPTER 6: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 Value of the Study

Research in the field of eating disorders is very limited within a South African setting. It is clear that dietitians should form an integral part of the multi-disciplinary team involved in the treatment of eating disorders but training opportunities for dietitians are scarce in the field. It is therefore uncertain if South African dietitians are adequately equipped to deal with these patients effectively and successfully.

The findings of the study described the current KAP of practising dietitians in South Africa regarding anorexia nervosa, bulimia nervosa and OSFEDs. The results of this study indicated whether South African dietitians feel confident in their ability to treat patients with eating disorders as well as possess basic knowledge in the diagnostic criteria, symptomology, pathology and recommended practices for the treatment of eating disorders. The study also explored whether dietitians hold negative beliefs about eating disorders or agree with common misconceptions.

These results can be useful in identifying gaps in knowledge and misconceptions that need to be addressed in order to better prepare dietitians for working with patients suffering from eating disorders.

6.2 Limitations

Many participants may have refrained from participating in the study or have not completed the study. In order to motivate dietitians to participate in the study, there was a lucky draw where three participants each received a shopping voucher to the value of R250. The researcher also sent out a reminder email/notice two weeks from the first email/notice, reminding dietitians to please complete the survey.

Participants may have guessed answers that they do not know. In order to discourage guessing, some questions had more than one correct answer and participants had to tick all of the correct and none of the incorrect answers to receive a point for the question. This was to evaluate whether the participant had comprehensive knowledge on the subject. These questions were clearly marked, and the participants were asked to indicate all correct answers.

The questionnaire used to assess the participants was not validated but was compiled from previous work done in the field. However, it was adjusted to be more applicable to dietitians. It was not always possible to compare results with previous studies done as these previous studies did not report on each individual question and they used older literature and recommendations when assessing participants.

Although the researcher included questions of different difficulties in the questionnaire, the difficult and easier questions were not distributed equally between knowledge pertaining to the diagnosis, pathology and symptomology and treatment sections of the questionnaire; questions regarding the treatment tended to be easier than questions pertaining to diagnosis.

The questionnaire did not contain open-ended questions and only closed-ended questions. This makes it more difficult to assess actual knowledge without considering guesswork.

This study only assessed knowledge and ideas, but no conclusions can be made regarding actual practices of dietitians in South Africa when treating a patient with an eating disorder.

6.3 Overall Conclusion of the Study

From this study it can be concluded that dietitians in South Africa in general hold a positive attitude towards patients suffering from an eating disorder but a slightly more negative attitude towards treating these patients. A large portion of the sample also agreed with one or more of the most common misconceptions regarding eating disorders. Dietitians with prior experience in the treatment and counselling of eating disorder patients tended to have more positivity than their counterparts without experience but not more knowledge.

It can also be concluded that overall knowledge of South African dietitians regarding the diagnosis, pathology and treatment of eating disorders (especially bulimia nervosa and anorexia nervosa) is not adequate with none of the participants scoring above 70%.

Participants showed to have some knowledge regarding the foundations of nutrition therapy for eating disorders without showing an understanding of the diagnosis and pathology of the disease. South African dietitians also did not show any knowledge regarding the counselling models and strategies that are scientifically recommended in the treatment of eating disorders. It remains unclear if any of these models and strategies are used when treating a patient with an eating disorder. A more detailed understanding of the condition is needed to provide adequate and patient-orientated nutrition therapy rather than just nutrition education.

6.4 Recommendations

It is recommended from the results of the study that dietitians who would wish to be involved in the treatment of eating disorders should seek additional advanced training. This should include theoretical training in the field of eating disorders, as well as intensive practical training and mentorship in order to implement correct scientifically based counselling models and strategies.

Due to the complexity of the condition, advanced training will require many hours, which may not be feasible to include in undergraduate studies. Opportunity for advanced training should be provided on a post-graduate level. Additionally, in order to ensure that only thoroughly trained professionals deal with this delicate and complex condition, it is recommended that the HPCSA revise their policy of 1974 and allow dietitians to specialise in the treatment of eating disorders. This may improve the clinical practice of dietitians in the field of eating disorders and consequently give patients the best opportunity to overcome their condition. A study done with a sample of Canadian dietitians also supported this notion that dietitians who wish to work in the field of eating disorders should receive advanced training and become specialised (Cairns & Milne, 2006).

Continuous research in eating disorders is needed within a South African setting determine the best course of treatment for each individual and also to evaluate the efficacy of therapy in South Africa.

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**APPENDIX A: DIAGNOSTIC CRITERIA OF RESPECTIVE EATING DISORDERS
AS DEPICTED BY THE DSM-V**

Diagnosis:		Criteria:
Anorexia nervosa (AN) (American Psychiatric Association, 2013)	AN-R	<ul style="list-style-type: none"> • Persistent restriction of energy intake leading to significantly low body weight (in context of what is minimally expected for age, sex, developmental trajectory, and physical health). • Either an intense fear of gaining weight or of becoming fat, or persistent behaviour that interferes with weight gain (even though significantly low weight). • Disturbance in the way one’s body weight or shape is experienced, undue influence of body shape and weight on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.
	AN-BP	<p>Same as for AN-R with:</p> <ul style="list-style-type: none"> • Regular binge-eating and purging behaviours, such as self-induced vomiting and/or the misuse of laxatives or diuretics. <p>An episode of a binge consists of three of the following:</p> <ul style="list-style-type: none"> • Eating much more rapidly than normal. • Eating until feeling uncomfortably full. • Eating large amounts of food when not feeling physically hungry. • Eating alone because of feeling embarrassed by how much one is eating. • Feeling disgusted with oneself, depressed, or very guilty afterwards.

Diagnosis:		Criteria:
Bulimia nervosa (BN) (American Psychiatric Association, 2013)		<ul style="list-style-type: none"> • Recurrent episodes of binge-eating • Recurrent inappropriate compensatory (such as self-induced vomiting, misuse of laxative, fasting or excessive exercise) in order to prevent weight gain • The binge-eating and inappropriate compensatory behaviours both occur, on average, at least once a week for three months • Self-evaluation is unduly influenced by body shape and weight • The disturbance does not occur exclusively during episodes of anorexia nervosa.
Binge-eating disorder (BED) (American Psychiatric Association, 2013)		<ul style="list-style-type: none"> • Recurrent episodes of binge-eating. • Binge-eating episodes are characterised by three or more of the following: <ul style="list-style-type: none"> ○ Eating much rapidly than normal. ○ Eating large amounts of food when not feeling physically hungry. ○ Eating until feeling uncomfortably full. ○ Eating alone because you are embarrassed by how much you are eating. ○ Feeling disgusted with oneself, depressed, or guilty after overeating. • Marked distress regarding binge-eating. • The binge-eating occurs on average once a week for three months. • Binge-eating is not associated or followed by the use of inappropriate compensatory behaviours to prevent weight gain, and does not occur exclusively during periods of anorexia or bulimia nervosa.

Diagnosis:		Criteria:
Other specified feeding or eating disorders (OSFED) (American Psychiatric Association, 2013)		<ul style="list-style-type: none"> • Atypical anorexia nervosa. • All criteria for anorexia nervosa is met, despite significant weight loss and the individual's weight is within, or above, the normal weight range (age, height, physical health and growth trajectory considered). • Bulimia nervosa of low frequency or limited duration. • BED of low frequency or limited duration. • Purging disorder. • Purging occur without the symptom of binge-eating. • Night-eating syndrome.

APPENDIX B: INVITATION TO PARTICIPATE IN A RESEARCH STUDY (ADVERTISEMENT)

Survey Title: Eating disorders

Title of dissertation: Knowledge, attitudes and practices (KAP) of registered dietitians in South Africa regarding eating disorders

Institution: University of the Free State (Department of Nutrition and Dietetics)

Type of project: Masters

Contact details: Carla Molenaar, 0743665595, eatingdisordersKAP@gmail.com

For more information click on the following hyperlinks:

[Information letter](#)

[Ethical approval](#)

Please follow the link below should you wish to participate in the study:

<http://surveys.ufs.ac.za/evasys/online.php?p=FCUC6>

APPENDIX C: INFORMATION LETTER

INFORMATION LETTER

PROJECT TITLE: KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) OF REGISTERED DIETITIANS IN SOUTH AFRICA REGARDING EATING DISORDERS

Fellow Dietitian

You are invited to please participate in an online survey regarding the knowledge, attitudes and practices of South African dietitians in the field of eating disorders. We would highly appreciate your participation.

Title of dissertation: Knowledge, attitudes and practices (KAP) of registered dietitians in South-Africa regarding eating disorders.

The research project aims to explore and evaluate the knowledge of South-African dietitians in the field of Anorexia nervosa, Bulimia Nervosa and Other Feeding and Eating Disorders (OSFED) and their scientifically proven treatment approaches.

What is involved in the study: Participation will involve completing an online survey which will take approximately 20 minutes of your time. A lucky draw will be done following the completion of the questionnaires and three randomly selected participants will each receive a voucher to the value of R 250 each. The randomly selected winners will be contacted via email.

The first section will ask questions regarding your work experience and education. The second section will ask questions regarding your view and attitude towards eating disorders. The third section is regarding your knowledge in the diagnostic criteria of eating disorders and the fourth section contains questions pertaining to nutritional intervention in the therapy of eating disorders.

Please follow all instructions during the completion of the questionnaire. Answer all questions to the best of your ability and knowledge.

Risks: This study holds no risks to the participant. Participation is anonymously unless the participant chooses to enter into the lucky draw (and provide a contact detail) in which case participation will be confidential. All information given is completely voluntary and care shall be taken to protect your privacy and confidentiality in the study.

Benefits of participation: Participants help contribute to dietetics in terms of the level of knowledge of dietitians in the field of eating disorders. From there the researcher may make recommendations regarding how to improve the standard of practice of dietitians in the field of eating disorders.

Cost of the study to the participants: This study will take about 20 - 30 minutes of your time and some internet data to complete. Other than that there are no costs involved for participating in the survey.

You may contact the researcher, Carla Molenaar at 074 366 5595 or email eatingdisordersKAP@gmail.com at any time if you have questions about the research.

You may contact the Head of Ethics Administration of the Health Sciences Research Ethics Committee of the Faculty of Health Science at the University of the Free State at telephone number (051) 401 7795 if you have questions about your rights as a research subject.

If you are a registered dietitian working in South-Africa and you are able to participate please follow the link below to complete the survey:

<http://surveys.ufs.ac.za/evasys/online.php?p=FCUC6>

Kind regards

Carla Molenaar (RD) SA

Researcher

APPENDIX D: INFORMED CONSENT FOR PARTICIPATING IN A RESEARCH PROJECT

PROJECT TITLE: KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) OF REGISTERED DIETITIANS IN SOUTH AFRICA REGARDING EATING DISORDERS

You have been asked to participate in a research study. Please note that by completing this questionnaire you are voluntarily agreeing to participate in this research in this research study. You will remain anonymous and your data will be treated confidential at all times, unless you enter your email address for the lucky draw (at the end of the questionnaire) in which case your information will only remain confidential. You may withdraw from the study at any given moment during the completion of the questionnaire. The results of the study may be published.

APPENDIX E: RESEARCH QUESTIONNAIRE

PROJECT TITLE: KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) OF REGISTERED DIETITIANS IN SOUTH AFRICA REGARDING EATING DISORDERS

DEMOGRAPHIC INFORMATION

1.1	What gender are you	Male
		Female
1.2	Please provide your age	years old
1.3	What is your highest qualification in the field of dietetics:	Bachelors degree
		Bachelors degree with additional diploma
		Masters Degree
		PhD.

1.4	How long have you practiced as a dietitian?		years
1.5	Have you ever practiced as a dietitian outside the RSA?		Yes
			No
1.7.1	Do you have experience in the treatment of eating disorders?		Yes
			No
1.7.2	If yes – How many years have you worked with eating disorders? (if you do not work currently in the field you can report previous experience)		Years
1.8	In what line of field are you currently practising dietetics? (Tick all applicable fields)		Not currently practising
			Community service
			Clinical nutrition – government setting
			Private Practice – out patients only
			Private practice – hospitalised patients
			Academic
			Food Service Management
			Community Nutrition

1.9	In what area are you currently practising? (Tick all applicable fields)		Rural
			Urban
			Semi-Rural /Township

ATTITUDES PERTAINING TO EATING DISORDERS:

Please indicate if you agree or disagree with the following statements

		Agree	Disagree
2.1	Eating disorders are not part of clinical nutrition therapy and should only be treated by a psychiatric team.		
2.2	An eating disorder is a sign of manipulation.		
2.3	It is frustrating to work with patients suffering from an eating disorder.		
2.4	I am confident to treat a patient suffering from an eating disorder.		
2.5	Nutrition education guiding a patient with an eating disorder to make healthy nutrition choices is one of the most important factors of the road to recovery.		
2.6	I find it difficult to treat patients with an eating disorder as they are often reluctant to make changes.		
2.7	There are sufficient training opportunities available in South Africa in order for me to develop the necessary skills in order to effectively treat a patient suffering from an eating disorder.		
2.8	I would like to receive formal training in the management of eating disorders.		
2.9	Weight gain is the most important goal in treating anorexia nervosa.		
2.10	Weight gain in patients with anorexia nervosa is a good indicator of treatment progress		
2.11	The role of the dietitian (as part of a multi-disciplinary team) is to provide a diet plan to patients in order to achieve a normal weight only.		
2.12	Eating disorders are western conditions with black ethnic groups having an extremely low risk of developing an eating disorder.		

2.13	Dietitians should go beyond nutrition education helping patients understand the meaning of their subjective feelings regarding food and weight.		
2.14	Patients suffering from eating disorders have difficulty understanding their own condition and therefore it is the health care provider's to decide on the best route of treatment.		
2.15	Eating disorders are chronic conditions and patients are unlikely to improve even with specialised care.		
2.16	Patients suffering from eating disorders caused their own condition making them responsible to deal with symptoms themselves.		

SECTION B: MULTIPLE CHOICE QUESTIONS

3.1 The diagnostic criteria for eating disorders are explained in the following manual:

- a) ESPEN guidelines on anorexia and bulimia nervosa
- b) DSM-V (APS)
- c) American Dietetic Association (ADA)
- d) International Society for Eating disorders (ISED)
- e) do not know

3.2 In order for a patient to be diagnosed with anorexia nervosa the following criteria must be met: (Tick all that apply)

- a) Obsessive thoughts regarding food intake and weight.
- b) A significant low body weight (as what would be expected the in context of age, sex, developmental trajectory and physical health) caused by a persistent restriction in energy intake.
- c) Delusions in how one perceives body shape (perceiving body parts larger than their actual size)
- d) Amenorrhoea longer than 3 months.
- e) An intense fear of gaining weight or becoming fat (even though significantly low weight) leading to deliberate behavioural efforts to prevent weight gain.
- f) Disturbance in the way one's body weight or shape is experienced, undue influence of body shape and weight on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

3.3 In order to be diagnosed with anorexia nervosa a patient's Body Mass Index (BMI) needs to be: (select only one answer)

- a) $<18.5 \text{ kg/m}^2$
- b) $< 16 \text{ kg/m}^2$
- c) Not specified as long as the patient experienced significant weight loss in the last 3 months.
- d) Significantly lower than the expected minimum considering height, age, sex, physical health and development.

3.4 In order to be diagnosed with bulimia nervosa, a patient must present with the following: (Tick all that apply)

- a) Self-evaluation and self-image is largely influenced by body shape and weight
- b) Patient presents with binge eating followed by inappropriate compensatory behaviours, including laxative use, purging, excessive exercise, diuretics or medication use.
- c) compensatory behaviours, including laxative use, purging, excessive exercise, diuretics or medication use follows most meals.
- d) Episodes of compensatory behaviours occur on average at least twice a week for a period of 3 months.
- e) Patient presents with heightened levels of anxiety and distress during compensatory behaviours that is relieved afterwards.
- f) Patient presents with co-occurring clinical depression.

3.5 True or false: Patients suffering from other feeding and eating disorders (OSFED) have a less severe condition than those with anorexia nervosa or bulimia Nervosa:

- a) true
- b) false

3.6 Indicate the correct statements: (Tick all that apply)

- a) Patients suffer from either anorexia nervosa or bulimia nervosa but it is unusual that patients show symptoms from more than one diagnosis.
- b) Anorexia nervosa and bulimia nervosa stem from two different pathologies and therefore patients cannot cross from one diagnosis over to another.
- c) Patients may cross from anorexia nervosa over to bulimia Nervosa but not the other way around.
- d) Symptoms are constantly changing and therefore it is difficult to diagnose a patient with a specific diagnosis.

3.7 Indicate the correct statements :(Tick all that apply)

- a) Patients with eating disorders are known for being ambiguous and do not really want treatment for their condition.
- b) Patients suffering from eating disorders use their condition deliberately to manipulate others around them.
- c) Patients suffering from eating disorders have a poor sense of identity and who they are.

- d) Patients suffering from eating disorders seek attention from friends and family.
- e) Patients suffering from eating disorders use their condition as a means to build self-confidence.
- f) Patients suffering from eating disorders often suffer from severe shame and guilt.

3.7 Which of the following are key components in the aetiology and symptomology of eating disorders: (Tick all that apply)

- a) Shame and guilt
- b) Depression and anxiety
- c) Obsessive compulsive disorder (OCD)
- d) Poor sense of identity
- e) Perfectionism
- f) Critique from others on one's body and weight
- g) Self critique or self-hate
- f) Unbearable negative thoughts and emotions
- h) A desire and determination to become a model

3.9 True or false: Only female patients suffer from eating disorders.

- a) True
- b) False

3.10 True or False: Normalisation of weight and BMI is the most important factor in the treatment of eating disorders:

- a) true
- b) false
- c) do not know

3.11 According to NICE (National institute for health and care excellence) the recommended weight gain for patients suffering from anorexia nervosa is: (select only one answer)

- a) not specified
- b) according to the agreement between patient and therapist
- c) 0.5 – 1 kg / week
- d) 0.7 – 1 kg/ week

- e) 1 – 1.5 kg / week
- f) > 2kg/ week
- g) do not know

3.12 Patients suffering from an eating disorder benefit the most from: (select only one answer)

- a) A prescribed diet plan to follow at home to help them normalize weight
- b) Education and information regarding nutrition and food
- c) Empathy, understanding and compassion from their therapist
- d) Behavioural change strategies
- e) do not know

3.13 When eliciting nutritional therapy dietitians should be aware of refeeding syndrome: (Tick all that apply)

- a) always
- b) when artificial nutrition is given e.g TPN or NG feeds
- c) with an oral diet
- d) when patients receive an oral diet together with nutritional supplementation
- e) do not know

3.14 Choose the correct statement: (select only one answer)

- a) Patients suffering from eating disorders need to receive psychotherapy first, and then eating behaviour and weight will correct itself.
- b) Patients need to first receive nutritional therapy and once the target weight has been reached they need psychotherapy to maintain healthy eating habits
- c) Patients need to receive nutritional therapy in parallel with psychotherapy but both are independent of the other
- d) Patients need to receive nutritional therapy in parallel with psychotherapy but the progress of nutritional therapy is dependant of the pace of psychotherapy
- e) do not know

3.15 As part of the treatment for anorexia nervosa the following counselling models have been found useful: (Tick all that apply)

- a) Dialectical behavioural therapy
- b) Family therapy
- c) Cognitive behavioural therapy
- d) Motivational interviewing
- e) Feminist approach
- f) Psycho-analytical psychotherapy
- g) None of the above
- g) do not know

3.16 As part of the treatment for bulimia nervosa the following counselling models have been found useful: (Tick all that apply)

- a) Dialectical behavioural therapy
- b) Family therapy
- c) Cognitive behavioural therapy
- e) Feminist approach
- f) Psycho-analytical psychotherapy
- g) None of the above
- h) do not know

3.17 Please select the correct answer regarding recommended dietetic practices in the treatment of eating disorders: (Select only one answer per question)

3.17.1 Weight gain in patients with anorexia nervosa should be:

- a) Forced and rapid (>750 g/ week)
- b) Slow and determined by the patient (< 500 g / week)
- c) do not know

3.17.2 Nutritional therapy should:

- a) be weight orientated because the goal is a normal weight in relation to age
- b) be health orientated and focus on the importance of a variety of food rather than weight gain
- c) do not know

3.17.3 Education given to patients should include:

- a) information regarding the importance of different food groups in terms of micronutrients
- b) information regarding healthy and unhealthy foods
- c) do not know

3.17.4 Nutritional therapy should focus on:

- a) regular meals and a consistent eating pattern
- b) protein and energy dense foods
- c) do not know

3.17.5 Nutritional therapy should include:

- a) showing patients how to measure and weigh the correct amount of food they should consume
- b) encourage the patient to follow an example of a flexible spontaneous diet including social eating.
- c) do not know

3.17.6 Advice regarding exercise to patients suffering from an eating disorder should entail:

- a) encourage exercise for mental and physical fitness
- b) encourage exercise for weight control and increase in lean body mass
- c) do not know

3.17.7 The patient-therapist relationship between a dietitian and patient should be:

- a) focused on trust and teamwork to develop a normal eating attitude
- b) focused on ensuring that the patient received adequate nutrition
- c) do not know

Please complete this section only if you have indicated that you have experience in the treatment of patients suffering from eating disorders.

Please indicate how often you would use the following counselling models and strategies when treating patients with

ANOREXIA NERVOSA.

Counselling Model	I am using this model most of the time	I am applying this model sometimes	I almost never apply this model	I am not sure what this is
5.1 Cognitive behavioural therapy (CBT)				
5.2 Dialectical behavioural therapy				
5.3 Motivational Interviewing				
5.4 Stages of change model				
5.5 Family therapy				
5.6 The Maudsley model				
5.7 Interpersonal psychotherapy				
5.8 Cognitive remediation therapy				

Please complete this section only if you have indicated that you have experience in the treatment of patients suffering from eating disorders.

Please indicate how often you would use the following counselling models and strategies when treating patients with

BULIMIA NERVOSA.

Counselling Model	I am using this model most of the time	I am applying this model sometimes	I almost never apply this model	I am not sure what this is
5.1 Cognitive behavioural therapy (CBT)				
5.2 Dialectical behavioural therapy				
5.3 Motivational Interviewing				
5.4 Stages of change model				
5.5 Family therapy				
5.6 The Maudsley model				
5.7 Interpersonal psychotherapy				
5.8 Cognitive remediation therapy				

Please complete this section only if you have indicated that you have experience in the treatment of patients suffering from eating disorders.

Please indicate how often you would use the following counselling models and strategies when treating patients with

BINGE EATING DISORDER.

Counselling Model	I am using this model most of the time	I am applying this model sometimes	I almost never apply this model	I am not sure what this is
5.1 Cognitive behavioural therapy (CBT)				
5.2 Dialectical behavioural therapy				
5.3 Motivational Interviewing				
5.4 Stages of change model				
5.5 Family therapy				
5.6 The Maudsley model				
5.7 Interpersonal psychotherapy				
5.8 Cognitive remediation therapy				

THANK YOU VERY MUCH FOR YOUR PARTICIPATION