The Truth about Diabulimia

- A scoping review on the experiences of type 1 diabetic patients with Diabulimia

Alira Bianca Mae Gade

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Abstract/Summary

Individuals with diabetes require insulin injections to manage their diabetes, and because insulin promotes fat accumulation, individuals with type 1 diabetes have established the link between lowering their insulin consumption and weight reduction. Diabulimia, also defined as Eating Disorder-Diabetes Mellitus Type 1 (ED-DMT1) in medical terminology, occurs when a type 1 diabetic patient limits or refuses to take insulin in order to regulate weight loss.

The primary aim of this study is to describe the experiences of patients with diabulimia. In addition, the author has used this study to provide awareness about diabulimia to both health care providers and patients who have the illness.

This research used 10 articles, 8 were qualitative and 1 quantitative study and 1 mixed study. Scoping review was used in this study to identify different information about diabulimia and stories from diabulimia patients who shared their experiences in living with this disorder. This study utilized a scoping review to gather information regarding diabulimia as well as personal stories from diabulimia individuals who discussed their experiences with the disorder. The findings of the study show that diabulimia patients have experiences that make them susceptible to every circumstance. This includes being overweight, depressed, refusing to accept their illness, and even skipping insulin to decrease weight, which might lead to serious consequences.
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1 Introduction

Diabetes Mellitus is a serious life-long disease that affects the person's quality of life diagnosed with this disease. It can also cause many complications. It is considered one of the life-threatening diseases that cause death globally. According to the World Health Organization (WHO), about 422 million people are diagnosed with diabetes worldwide. Furthermore, in Finland, they recognize diabetes mellitus as one of the health problems for their people. As a result, there are about 50,000 individuals who are diagnosed with type 1 diabetes mellitus, and around 4,000 children under 15 years old have diabetes (Finnish Diabetes Association, 2021). Moreover, diabetic patients use insulin injections to control diabetes. Since insulin encourages fat storage, people with type 1 diabetes have discovered the connection between reducing the amount of their insulin intake and resulting in weight loss. (Larrañaga et al., 2011).

As we continue to define diabulimia, the term was based on dia, meaning Diabetes, and bulimia, a type of eating disorder. To further understand bulimia, Lambrini et al. (2019) defined the term bulimia nervosa as a food intake disorder characterized by episodic binge eating (eating a large quantity of food in a short period of time) following an attempt to purge all of the extra calories, generally by vomiting, laxatives, diuretics, and excessive exercise. Diabulimia usually starts with having issues with their body image, and because of this, they start deciding to lose weight. In addition, diabetes burnout, or the state of disillusion, and frustration that leads to disregarding their blood sugar levels, can be seen as a symptom of diabulimia (Hanlan et al., 2013). Diabulimia treatment is indeed challenging for people with type 1 diabetes because they have more chances of dropout rates and more cases of poorer treatment outcomes. Therefore, the medication and treatments should address both the eating disorder and diabetes itself (DiMeglio, 2018).

The author has been curious about eating disorders ever since a teenager. Yet, the urge of interest increases when a video on YouTube about diabulimia, the world's most dangerous eating disorder, arises. It was the first time the author had heard about it, and was eager to learn more about the disease. The author realized that diabulimia is not as popular as the other eating disorders and that only a few people are aware of this and have an idea about it. Diabulimia patients exist, and they might not be aware that they have it. And unfortunately, some health care professionals also do not have any idea what diabulimia is about. This might cause huge problems that can affect the care that is supposed to be given by health
care providers to the diabulimia patients. That is why the author decided to make this study to provide awareness and knowledge to diabulimia patients and health care providers.

Additionally, this study can contribute to the literature about diabulimia and its definition. The study can also help future researchers to give more knowledge and interesting facts about diabulimia. This may also help practitioners such as doctors and nurses to be involved in what patients feel about diabulimia and consider the patients’ experiences as an organizational innovation of the many practitioners (Paugets and Dammak, 2017; Paugets and Wald, 2018, as cited by Bastard and Liarte, 2019). Furthermore, the study of Goebel-Fabba (2019) also improves knowledge and clinical care for the high prevalence of diabulimia (Goebel-Fabba, 2019). In line with this, the study focuses only on the type 1 diabetes patients and the eating disorder that is only comorbid to it— Diabulimia; the Diagnostic and Statistical Manual of Mental Disorder (DSM V) classifies diabulimia as purging disorder because of insulin omission, so it can be classified as bulimia nervosa if the individual binges and restricting insulin intake. Moreover, if the individual restricts food and insulin, it can be classified as anorexia nervosa (NEDA, 2021).

This study helped both the readers and the healthcare practitioners to understand diabulimia as a clinical disorder that needs to be given attention. Furthermore, all the healthcare professionals should be aware that there is an increased prevalence and incidence of people with diabetes developing eating disorders. According to Neumark-Sztainer (2013), the majority of eating disorder habits increased among adolescents and young adults with type 1 diabetes (ages 12-21): 37.9% of girls and 15.9% of boys. Nurses also should be more careful about knowing the indication from the symptoms that patients have. Therefore, it is primarily important to understand what diabulimia is and its treatment.
2 Background

In this chapter, different symptoms and treatments of diabulimia were described.

2.1 What is Diabetes?

Diabetes is known as a lifelong chronic illness that requires continuous medical care with multifunctional risk-reduction strategies to avoid different infections and comorbidities. The most common kinds of diabetes are diabetes type 1 and diabetes type 2 (American Diabetes Association, 2012). According to American Diabetes Association (2019), diabetes can be classified into four categories: (1) Type 1 diabetes can be classified due to autoimmune b-cell destruction that usually leads to an absolute insulin deficiency; (2) Type 2 diabetes can be classified due to a progressive loss of b-cell insulin secretion that is frequently on the background of insulin resistance; (3) GGDM (gestational diabetes mellitus) is a kind of diabetes that is discovered in the second or third trimester of pregnancy and is not clearly overt diabetes previous to pregnancy; (4) Specific types of diabetes that are due to other causes such as monogenic diabetes syndromes (Diabetes Care, 2019).

According to the World Health Organization (2022), diabetes mellitus is a chronic metabolic illness characterized by the body's failure to create or respond to insulin, resulting in an increase in blood glucose levels in the body. Insulin is the main problem for diabetes patients, and it is an important hormone that is produced by the pancreas. Insulin's primary function is to regulate blood glucose levels by allowing glucose to enter and be used as energy by cells in the muscle, fat, and liver.

Diabetes is a disease characterized by sudden and chronic complications that significantly affect an individual's quality of life and prognosis (Terveysportti, 2020). In Finland, about 500,000 people have diabetes, a number which is expected to grow over the next few decades. Microvascular and macrovascular complications are associated with diabetes, and the problems these patients experience affect their quality of life and contribute significantly to healthcare costs in Finland (Terveysportti, 2020).

There are two types of diabetes mellitus, Type 1 diabetes, also known as juvenile or insulin-dependent diabetes, and type 2 diabetes, usually pertaining to adults. However, the study focuses on Type 1 diabetes; this type of diabetes affects the beta cells in the pancreas and is incorrectly being destroyed by the immune system. This causes the pancreas to stop producing insulin or produce insufficient amounts of insulin; when less insulin attaches to
the receptors on target cells, less glucose enters the cells, resulting in an increase in blood glucose levels. A person with type 1 diabetes should take insulin every day to stay alive. The pancreas generates adequate insulin but has trouble binding receptors, or insulin has trouble transmitting signals to target cells in type 2 diabetes. As a result, the cells become resistant to insulin and do not respond to the message to let the glucose inside the cell, which leads to an increased glucose level in the blood (NIH, 2017).

In this study, the author focuses on one type of diabetes mellitus and one eating Disorder that is comorbid to this type of diabetes—Diabulimia. Patients with diabetes mellitus experience change in their weight, and this is a struggle that they must deal with every day. This situation eventually forces them to restrict the insulin they need to control their weight completely. Adolescence and young adults are mostly affected by eating disorders because this is the stage in their life when they search for their identity. Peer pressure and self-acceptance are other reasons for eating disorders in adolescence (Dada, J. 2012).

2.2 What is Eating Disorder?

Eating disorders are primarily among the most complex disorders among young adults, adolescents, and even children. Eating disorder is defined by the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV) as a disturbance in eating habits that can be either too much or too little food intake (Rikani et al., 2013). Anorexia nervosa, bulimia, and binge-eating are the most common eating disorders. Anorexia nervosa is a constant pursuit to sustain body weight below minimally normal weight or body mass index. It is an act of continually depriving oneself of eating food. On the other hand, bulimia nervosa is also defined as recurrent binge-eating episodes followed by excessive vomiting, exercise, or even fasting for at least two times a week. The most common concern of bulimia nervosa is their body weight or shape. In addition, binge eating is an eating disorder in which people with this type overeat without purging or vomiting, exercising, or even fasting. Furthermore, atypical eating disorders are types of eating disorders that are significantly important clinically, have no specific reason, or do not meet any criteria from the most common types (Rikani et al., 2013). According to The National Eating Disorder Association (NEDA), eating disorders are severe mental and physical illnesses that can be treated. Everyone can have an eating disorder of all genders, ages, and races (NEDA, 2021).
2.3 What is Diabulimia?

There are different types of eating disorders, but this research focuses on diabulimia and its impact on persons who have type 1 diabetes. According to Nezami et.al. (2018) Diabulimia is a combination of two words, diabetes and bulimia. Diabulimia, also known as Eating Disorder-Diabetes Mellitus Type 1 (ED-DMT1) in medical terms, is when a type 1 diabetic patient restricts or omits taking insulin to control weight loss. Diabulimia is not yet formally recognized as a medical or psychiatric condition by the Diagnostic statistical manual of mental disorders 5 (DSM-5) (Diabetes UK, 2017).

According to Winston (2020), in his journal article about diabetes and eating disorders, there are 40% of teenagers or young adult women with type 1 diabetes admits to insulin restriction. Because of this, there is a big chance that almost all patient with type 1 diabetes comorbid eating disorder is strongly associated with insulin restriction and bulimic behaviors such as purging and binge eating. Furthermore, there is an increased prevalence of eating disorders in patients with type 1 diabetes (Winston, 2020). Lastly, most people with diabetes are females, and type 1 diabetes can be diagnosed at any age; primarily, the pick of the age range for diabetes was diagnosed between 5 to 7 years of age or near puberty (Atkinson et al., 2015). Additionally, Yan (2007) estimates that 450,000 women in the United States suffer from diabulimia. Therefore, the prevalence of the disease has risen from 30% to 40% in the teenage and young adult population (Hasken et al., 2010).

A person with ED-DMT1 can eat normally but eventually control their insulin intake to accomplish losing weight. There are three key points to know if you have diabulimia. First, it can only be seen in people with type 1 diabetes. Second, if you are restricting yourself from taking insulin, it might be a few units of insulin, or you don't take any insulin at all, and lastly, if you are afraid to gain weight because of insulin (Shaban, 2013).

In the United Kingdom, there is a study about diabulimia. However, there is a lack of awareness among the individuals who suffer from the disorder and healthcare professionals. It is difficult to estimate the total number of individuals with diabulimia in the current situation. They imply that there are 40% of women with type 1 diabetes restrict or lower the dose of their insulin to be able to lose weight. They recommend having an awareness of the disorder to understand the appropriate treatment better and reduce the number of severe complications of diabetes (Diabetes UK, 2017).
One of the most problematic situations that clinicians worry about is the combination of diabetes type 1 and an eating disorder. Diabulimia has become more infamous in recent years, even though there are a lot of contradictions between these terms. Not all people with diabulimia binge eat, but because diabulimia came from the word bulimia nervosa, it is tough to form a new term for this disorder. Diabulimia has gained widespread acceptance throughout the years, and many clinicians and authors try to give speculations and seek treatment for this (Winston, 2020). As said in the previous paragraph, diabulimia is a disorder where a patient deliberately takes an insufficient amount of insulin to maintain their body weight, which is called "insulin restriction." This may be taking a small amount of insulin or, worse, omitting insulin at all. In addition, the combination of type 1 diabetes and an eating disorder may lead to an increased level of HbA1c, and this can raise the risk of both acute and chronic complications (Winston, 2020).

According to Shabah (2013), the appearance of diabetes with eating disorders was reported in the 1970s. As cited by Chelvanayagam (2018) from Doyle et al. (2017), women with type 1 diabetes are more likely to have an eating disorder than most people without diabetes, and their prevalence can be as high as 31% to 40%, especially between the age ranges of 15 to 30 years old. People with diabulimia are more likely to have impaired glycaemic control and have a greater risk of complications from diabetes (Chelvanayagam, 2018).

Diabulimia is less famous than anorexia and bulimia. The term diabulimia comes from dia, meaning diabetes, and bulimia, meaning an eating disorder. Diabulimia appears to have been coined in 2007, yet the mid-1970s already described it in 1980 (Hoffman, 2019). In the current DSM-IV, diabulimia was not classified or occurred. Even though it was not in the DSM-IV, it does not change the truth that diabulimia is very dangerous, and it can lead to severe complications or worse, death (Hoffman, 2019).

### 2.3.1 Symptoms of Diabulimia

According to Hoffman (2019), the symptoms of diabulimia are very similar to the symptoms of weight in the Diagnostic and Statistical Manual (DSM) for eating disorders. Even though it is very similar, the diagnosis of this disorder must be detailed because it requires a big distinction from other eating disorders. It must also emphasize that this disorder only appears in diabetic patients, and consequently, once those two diseases overlap, it may lead to extreme risk and effects on the patient's health. The most common symptoms of diabulimia are the reduction of insulin intake, and the patient displays different behaviors that are seen
in many eating disorders. The following behavioral patterns must be seen to suspect eating disorder on a patient with Diabetes: (1) persistent high hemoglobin A1c (glycosylated hemoglobin); (2) hyperglycemia; (3) recurrent episodes of ketoacidosis; (4) high levels of HbA1c that can cause irregular menstruation and amenorrhea, and delayed puberty; (5) unreliable blood glucose monitoring that indicates irregularities in the documentation of glucose measurements; (6) canceled or rare control visits of diabetic patients; (7) low BMI values and low content of fat; (8) nutritional behaviors similar to people with bulimia nervosa; (9) excessive concentration on the accurate counting and control of the number of carbohydrate exchangers; (10) dissatisfaction or lack of acceptance of the own body; (11) noticeable concentration on the external appearance; (12) high level of focus on food and related activities; (13) use of alternative diets such as elimination of gluten without medical indications, vegetarianism, veganism, protein diet; (14) very high level of physical activity; (15) noticeable changes in the mood and well-being of these patients such as lowered mood, depression, apathy, lack of willingness to perform daily activities, fatigue, emotional liability (mood swings), putting too high demands on themselves, excessive scrupulousness and duty, tendencies for substantial control (Hoffman, 2019).

2.3.2 Treatment on Diabulimia

Diabulimia can be caused by extreme distress, fear of hypoglycemia, needle anxiety, and any generic psychological problems. In any case, it is essential to assess patients that are suspected of having eating disorders, especially patients with diabetes because patients who restrict insulin because of the fear of hypoglycemia have a different treatment from patients who linked their omission to their body image or weight (Shabah, 2013).

For treating diabulimia, it is required to have evidence-based psychological therapies to treat eating disorders. The main goal of treatment is to get the diet under control and eliminate any vomiting or insulin omission. Assessments and formulation of a treatment plan are needed to succeed (Shabah, 2013). One of the most common and efficient treatments for eating disorders is cognitive-behavioral therapy (CBT) along with self-monitoring (Callum and Wellis, 2014). This series of treatments was developed by Fairburn et al., with a 40 to 50% success rate. This treatment maintains long-term changes in the behavior of the patient. If the CBT alone fails, three series of therapy are available to treat eating disorders. This treatment includes antidepressant medication, interpersonal psychotherapy, and intensive CBT. Although these treatments will have a long process, one needs to be treated for the disorder (Callum and Wellis, 2014).
2.4 Role of Health Practitioner in Diabulimia

As a part of an eating disorder, diabulimia should be taken seriously. According to Hasken et al. (2010), health practitioners should be aware of the particular circumstances of diabetes-affected pupils in their classes. "(1) Every child with diabetes is different, (2) Don't draw unnecessary attention to your student's condition, (3) Give inconspicuous and gentle reminders, (4) Do not put a 'label' on the student with diabetes, (5) Do not sympathize: empathize, (6) Always be prepared, (7) Use the buddy system, (8) Allow available bathroom breaks, (9) Be patient, and (10) Keep the lines of communication open and (11) Knowledge is power. Additionally, if at all preferable, all school healthcare practitioners should collaborate to support the students with diabulimia to improve the health of all students by increasing their knowledge and practices about good eating and exercise to avoid disease (Hasken et al., 2010). Moreover, in treatment for diabulimia, Roney (2015) stated that an endocrinologist, a registered nurse, a registered dietitian with an eating disorder and/or diabetes training, a social worker, and a psychiatrist should be part of a competent treatment team. When assembling a multidisciplinary team, physicians must be aware of local resources in order to make appropriate referrals. The role of health practitioners in diabulimia is vital for the patients to improve and be treated. It is especially challenging for doctors and mental health professionals to recognize and diagnose diabetes-specific eating disorders because there are no established diagnostic criteria. When people have brought up the word diabulimia for diagnosis, they have been informed by healthcare experts that it "does not exist" or that it was "made up on the internet." (Young, 2017). The lack of defined diagnostic criteria makes diabulimia diagnosis even more complex. It means that there is still a lot to discover about diabulimia that health practitioners are not yet aware of (Davidson, 2014).
3 Aim and Problem definition

The study aims primarily to describe the experiences of patients with diabulimia. In addition, the author has used this study to provide awareness about diabulimia to both health care providers and patients who have the illness.

Specifically, this answers the question as to the foundation of the study:

1. What are the experiences of patients with diabulimia?

4 Theoretical Framework

In constructing a thorough study about the experiences of type 1 diabetic Mellitus with diabulimia, the author applied Swanson's Theory of Caring to support and strengthen the ideas of this study. The goal of this theory was to prove that "Nursing as informed caring for the well-being of others," as well as to explain an empirically generated caring theory better. This theory identifies five interrelated processes that may be thought of as facets of a single overarching phenomenon: caring. There is no mutual exclusivity among the processes, and their connection to one another may even be hierarchical. According to the theory's proposed structure, caring is rooted in maintaining a primary belief in others, anchored by knowing the other's reality, transmitted by being with, and executed through doing for and enabling (Swanson, 1993). According to the Washington State Nursing Association (2020), Swanson's Theory of Caring established the idea that nurses indicating that they care about their patients is equally vital to the well-being of the patients as what the clinical activities offer. Kristen Swanson developed Swanson's Theory of caring in 1991 and 1993. She published more than 100 articles to build, and her theory gives a lot of foundation to many ideas that have been created for nursing care and clinical organizations in the world (WSNA, 2020).

Swanson's Middle Range Theory of Caring was based on the three phenomenological researches in different perinatal contexts. She also stated that caring is an elegant way of establishing a link to valuing others while experiencing an intimate sense of responsibility and commitment (Kalfoss and Owe, 2015). This study used Swanson's Middle Range Theory of Caring to provide a specific and detailed review of other literature that was developed from previous years about diabulimia and the experiences of people having this kind of
Disorder. Swanson's Middle Range Theory of Caring appended five (5) caring processes: (1) Knowing; (2) Being With; (3) Doing for; (4) Enabling; (5) Maintaining Belief. These five caring processes are vital to attaining a patient's well-being, as shown in Figure 1 below:

*Figure 1. Swanson's Middle Range Theory of Caring*

**Swanson's Middle Range Theory of Caring**

A 5-step Process

- **Knowing**: Getting informed understanding about the different experiences of patients without them being judged and respecting their perspective in life.
- **Being With**: Expresses deep and intimate interest and concern toward the patient's situations.
- **Doing For**: Being professionally competent and have a sufficient amount of skills and knowledge to anticipate growth and development.
- **Enabling**: The need for self care is present and willingness to share power and responsibility is a characteristics of enabling to implies good choices and decision making for patients.
- **Maintaining Belief**: Being able to have a humanistic point of view to look and recognize spiritual being to discover meaning in life and gives hope, compassion, and love where it was based and constructed from.

*Inspired by Kalfoss and Owe 2015, pg. 908*

Kalfoss and Owe (2015) stated that Swanson defines Knowing as giving attention to others that involve a humanistic point of view. It strives to acquire a deeper understanding of a particular situation with interpretation, inference, intuition, imagination, intellectual cognition, sensitivity, and empathy. Moreover, this process includes nurturing ways to relate to and value others, like treating every patient uniquely by not judging them based on their experiences and respecting their decisions. This process helped the study by knowing the different experiences of patients with diabulimia without them being judged and respecting their perspective in life.

The second process in this theory is Being With. This process is identified as an intimate caregiving relationship that is characterized by professional nursing practice, personal relationships, and interpersonal sensitivity. This interpersonal sensitivity is being empathetic and instinctive to other people's suffering (Kalfoss and Owe, 2015). In addition, this process
expresses being interested and concerned about the patient's situation. The study enables the author to understand how patients with diabulimia contact other people and their sentiments over their eating disorder. This process supported the study by understanding deeply every detail of diabulimia and the experiences of people with this kind of eating disorder.

The following process in this theory is called Doing For. Swanson defined doing for as professional competence. This process includes different training and academic and clinical knowledge. It proposes that to help patients, sufficient knowledge is needed to provide care. Therefore, professionalism is required to attain growth and development. This includes being experiential, evidence-based, safe, and skilled in developing therapeutic physical psychospiritual nursing interventions needed by the patients (Kalfoss and Owe, 2015). In line with this, the study discussed different pharmacotherapy necessary for this eating disorder.

The fourth process of this theory is Enabling. In this process, the need for self-care is present. On account of this, a patient's competence, self-determination, and motivation can be seen through this process. Willingness to share power and responsibility is one of the characteristics of enabling (Kalfoss and Owe, 2015). This means that this process includes empowerment partnerships that give strength to the patients and develop self-care.

Lastly, Maintaining Belief is defined by Kalfoss and Owe (2015) as a humanistic point of view that incorporates spiritual relationships. It is a concept where people understand the balance of body and spirit, and it gives hope, compassion, and love while maintaining belief-based and construction. This process helped the study create firm belief and keep it about diabulimia and its hidden truths needed to understand and give attention to.

This theory supports and strengthens the study to give further knowledge, understanding, and perception about how diabulimia affects people and provide a comprehensive and detailed review of other literature about this eating disorder. With this, the author will be able to give a new perspective about diabulimia that mental health practitioners and nurses can use for taking care of patients with the said Disorder. This theory will be used to deeply understand diabulimia with Swanson's steps created. By knowing the disorder, being with the patients with this kind of disorder, doing for which this study was conducted for a better knowledge of practitioners regarding this disorder, and enabling by doing the right treatments and therapy with patients with diabulimia.
5 Research Methodology

This research used a scoping review to identify different information about diabulimia and stories from diabulimia patients who shared their experiences living with this Disorder. Scoping review is a kind of research synthesis that focuses on plotting literature about a particular topic area that needs to be proven and identifying the main point of this study. In conducting a scoping review, the author can incorporate a broad and extensive scope of different scientific articles that have been published over many years (Pham et al., 2014). Scoping review is prevalent in a research study because it includes a limited amount of research and it is based on easily accessible studies that are related to the topic, and to give an overview of the available research evidence or proofs without jumping to a conclusion or summary answer to a specific research problem (Sucharew and Macaluso, 2019).

5.1 Scoping Review

According to Pham et al. (2014), scoping review is a type of research methodology where the literature was based on the searched journals, databases, network references, sages, web pages, thesis works, research studies, and clinical guidelines, and reports. Furthermore, the main objective of scoping review is to describe the nature of the abiding literature on a specific topic (Sargeant and O’Connor, 2020). This methodological framework was first developed by Hilary Arksey and Lisa O’Malley in 2005 and was published online in 2007. Eventually, in the year of 2010 scoping review was refined by Danielle Levac, Heather Colquhoun, and Kelly O’Brien, and stated that they built up their experiences in conducting the scoping review in their studies. They recommend clarifying the different stages of this methodological framework (Levac et al., 2010).

The scoping review has six (6) steps to attain substantial studies to be included in the research (Sucharew and Macaluso, 2019). These six steps are the following: (1) Identify the research question: wherein the inquiries are broader to scope a lot of areas within the study; (2) Identify the relevant studies: this step mainly is the most thorough because it includes searching much-related literature and even gray literature that are relevant to the research topic; (3) Study selection: wherein it includes inclusion and exclusions of the criteria that are relevant and needed in the study that arises during the information gathering using literature; (4) Chart the data: wherein it helped the study to extract vital and vital information in the literature gathered; (5) Collate, summarize, and report the result; (6) Consultation exercise (Optional): wherein some stakeholders outside the study review are invited so that
they can provide some insights to bring proof from the scoping review (Sucharew and Macaluso, 2019).

5.2 Identify the relevant studies

This study used different literatures that can be accessed easily through the internet. To be sure that all the information in this study is accurate in searching and choosing what types of articles to use for this study. The author used free of charge tools, such as CINAHL, EBSCO, Google Scholar, and PUBMED.

The author explores research articles that were probably published ten years ago from 2011 up to recent and must be written in full English text. Focusing on adolescence and young adult females. Literature related to this study help develop an understanding of human experiences by exploring, learning, and describing the participant's experiences. This is important for health care providers to gain knowledge and be aware of the patient's well-being (Holloway, I., 2016). Scoping review helps the author map existing literature relevant to the study and identify some topic related to the study that has not yet been given an extreme review or development (Pham et al., 2014).

The first step in scoping review is to identify the research question. Pham et al. (2014) state that scoping review aims to map the literature on a particular topic; therefore, it is imperative to identify the research question. The author's question in the study is what has a patient with diabulimia experienced. The second step of scope review is to identify the relevant studies. In this part, the author collects data through different platforms and sites such as Google Scholar that are connected and related to diabulimia. It includes journal articles and a thesis from Google Scholar and other engines available. The author uses the title keys or keywords to search for relevant studies around the search engines. The title keys to finding relevant articles and thesis are diabetes type 1, diabulimia and experiences with diabulimia.

After analyzing the studies that qualify for the criteria, the author will present the data using categories. Therefore, these categories will be utilized to extract essential data in a systematic form to describe the experiences of the patients with diabulimia. Furthermore, the description, such as the lived experiences of diabulimia patients in this study gathered through the results and discussions, will be based on the extraction and dialogues from the diabulimia patients.
5.3 Study Selection

In study selection, the author provides inclusion and exclusion criteria on the literature that was used. Using inclusion and exclusion criteria (Health Science Library, 2022) helps to gather information smoothly and adequately. It serves as a guide for the author to choose the best and correct literature that is used. The following criteria should be seen in articles and journals to be collected: (1) Articles published between 2011 to April 2022; (2) Articles published in the English language; (3) Articles that are free and accessible; (4) Articles in different countries; (5) Articles that are related to diabulimia; (6) Articles with experiences of the patients with diabulimia; (7) Adolescence and young adult age group. On the other hand, the following exclusion criteria to exclude the articles that are not used in the study are (1) Articles published before 2010; (2) Articles that are written in other languages; (3) Articles that are not accessible; (4) Articles that are not related to diabulimia; (5) Articles with no lived experiences written; (6) Older age group; (7) Blogs. Based on Fleming (2019), blogs are considered unreliable due to insufficient information about the author's credentials and their level of expertise in writing. Additionally, people tend to write blogs to express opinions and not mere facts (Fleming, 2019). Table 1 below shows the inclusion and exclusion criteria of articles.
### Table 1. Inclusion and Exclusion Criteria of Articles

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of publication</td>
<td>Articles and thesis that are written from the year 2011 to April 2022</td>
<td>Articles and thesis that are written before the year 2011</td>
</tr>
<tr>
<td>Language</td>
<td>Research written in the English Language</td>
<td>Research written in a different language aside from the English Language</td>
</tr>
<tr>
<td>Design of the study</td>
<td>Qualitative and Quantitative Studies, Articles, and Thesis</td>
<td>Blogs</td>
</tr>
<tr>
<td>Thematic Accordance</td>
<td>Free access, full text, adolescents and young adults age group, relevant to the study and focuses on lived experiences</td>
<td>Older age group and an article that does not have dialogues and lived experiences</td>
</tr>
</tbody>
</table>

### 5.4 Data Charting, Summary, and Analysis

In charting the data, Sucharew (2019) explains that charting and analyzing the data is vital to extract the relevant information from the review of related literature used. In line with this, the author looked at the following categories to analyze the literature comprehensively.

Scoping review enables the author to summarize the results from all the literature used. It is vital in review literature because it involves the description and charts that are outlined based on the key terms of all the literature that is used (Sucharew, 2019).

The ten (10) relevant studies about lived experiences of patients with diabulimia are written by ten different authors. All studies were published between 2011 to the recent year. The types of studies used to gather are qualitative studies, quantitative studies, journal articles, case studies, and thesis.
All selected articles were charted using the following categories, and an overview of the study descriptions was given in Appendices 1 at the end of the thesis. Additionally, the reports needed to overview the studies used are the following: Author's name, Year of publication, Aim, Title of selected material, Result, Study design, or Method.

In summarizing and analyzing the data, the author utilized categories in order to collect essential data in a methodical manner to identify the experiences of diabulimia patients. Therefore, all of the information gathered from previous research will be presented clearly and comprehensively using categories.

Additionally, the author created a breakdown of the journal articles and thesis that were used in the study. Using the PRISMA 2009 Flow Diagram, the author is able to know what articles are duplicated and removed due to screened criteria and eligibility of the articles themselves. Therefore, the overall number used in this study is ten (10) articles. The figure 2 below shows the following breakdown of the data gathered.
Records identified through database searching (EBSCO, CINAHL, Pubmed, NIB, and Google Scholar) (n = 663)

Additional records identified through other sources (n = 0)

Records after duplicates removed (n = 603)

Records screened (n = 663)

Records excluded (n = 547)

Full-text articles assessed for eligibility (n = 116)

Studies included in the study (n = 10)

Full-text articles excluded, with reasons (Did not have lived experiences of patients with Diabulimia, Did not explore insulin omission and restriction)
6 Ethical Consideration

The Ministry of Education and Culture in Finland decided to appoint the Finnish National Board on Research Integrity (TENK) to advocate for the responsible conduct of an author and prevent research misconduct, spread discussion, and provide increased information on research integrity in Finland. There are guidelines for authors regarding violations and research misconduct, which include Fabrication, Falsification, Plagiarism, and Misappropriation. If one of these violations has been done, the Responsible Conduct of Research (RCR) does the investigation, and TENK monitors the RCR process based on TENK's guidelines (TENK, 2021).

The study followed the guidelines supported by The Finnish National Board on Research Integrity (TENK, 2021) to ensure that the entire research was fair, square, and strictly appropriate, which benefits the respondents and future readers. In addition to this, the information collected from the patient’s experiences in the relevant studies, including their identity and other personal details, was kept confidential.

In addition, as this study focuses on patients' experiences with diabulimia using scoping review, it has no participants yet; one of many ethical considerations that is important in this study is to protect the liberty, welfare interest, and confidentiality of the participants. Since this research collected data from many journal articles, it is crucial to cite each article correctly without forgetting the confidentiality of the persons involved in the study. The author identified each person with the diabulimia as patient 'n'. Therefore, their identity was protected without compromising their experiences. According to Burles (2018), informed consent and confidentiality are needed to avoid the fabrication of experiences. As per this study, confidentiality is vital because there are no participants, and all the data were collected from journal articles about the experiences of diabulimia patients.
7 Result

This part primarily discussed all the ten (10) relevant studies used in this research. In addition, the data gathered through eight qualitative studies, one quantitative study, and one mixed-method study was presented.

7.1 Categorical Experiences of Patients with Diabulimia

In the study, the main goal is to describe the experiences of the patients suffering from diabulimia. The Figure 3 below shows the complete overview of categories of the experiences of patients with diabulimia. Coleman and Caswell (2020), Falcão and Francisco (2017), Kinik et al. (2017), and Roney (2015) have the following challenges in their studies and stated all the dialogues from their respondents. Coleman and Caswell (2020) list all the different experiences of diabulimia patients. According to them, people with diabulimia often describe themselves as a person who will never get to be expected about their appearance. One of their respondents stated that "Rather die than be fat." This means that they are having a hard time accepting that their disease may result in weight. Additionally, they also stated in their study that some of the patients felt like they had to omit insulin to escape from the reality of having diabulimia. Consequently, some of the respondents by Coleman and Caswell (2020) also experienced being traumatized by the stigma about their disease and, worse, mental abuse. Some of them got depressed by the results of getting into mental hospitals or seeking professional health. Lastly, Coleman and Caswell (2020) also stated that patients have near-death experiences because of the misuse of insulin or omission of it. On the other hand, Falcão and Francisco stated that insulin intakes make the patient gain more weight. One of their respondents said that "I don't eat carbohydrates, or when I eat them, I don't use insulin." This shows that physical appearance means a lot for diabulimia patients. In line with this, Kinik et al. (2017) also stated that having insulin intake with overeating increases the possibility of being obese. One of their respondents says that "You will become obese. You overeat." That leads to them omitting insulin and making them more vulnerable to complications. Lastly, Hastings et al. (2016) emphasize that so much pressure from people about diabulimia makes the patients more concerned about themselves and leads to depression. The figure below shows the effects and lived experiences of people with diabulimia.
7.1.1 Physical Appearance

On the data gathered, it was emphasized that having diabulimia will cause weight gain. Many respondents answered that they would become fat if they intake insulin and ate food. As stated in the study by Coleman and Caswell (2020), Ribeiro et al. (2021), Brookes (2018), Kinik et al. (2014), and Roney (2015) interviewed respondents, saying that,

"When I first started injecting insulin after being diagnosed, I began to gain weight, so I stopped."

"Rather die than be fat."

"Because it's you know food binging you're going to gain weight, but like if you weigh yourself daily, you'll find that you will lose weight after you skip your insulin, and you'll lose more weight the more sugar you eat. Like the higher your blood sugars go, the more ketones you have, the more weight you'll lose."

"Well, I don't feel good about my body because, like today, all that's worth more is appearance. Not that I'm fat today, I think I'm too skinny and with a little belly like, say, defective. I eat all brown: brown rice, wholemeal bread, light butter. I like these things a lot. But I think if I did more exercise, if I had a stiffer diet, maybe I could even conquer a certain body type close to what I want."

"From the ages of 20 to 33, I struggled with severe diabulimia" (I was diagnosed at 15). I ate as much sugar as I could and injected very little insulin."

"I am gaining weight."
This means that patients are struggling with their physical appearance because of their disease. In order to lessen their burdens, they tend to stop injecting insulin because, based on Falcão and Francisco (2017) and Ribeiro et al. (2021), injecting insulin makes the patient fat.

"I don't eat carbohydrates, or when I eat them, I don't use insulin."

"I don't think about it... I know all [the consequences], but I think that what matters to me is to be thin (...) I don't feel good being fat".

"I’ve used my diabetes to lose weight. When I was 13, I started not taking enough insulin and getting sick on purpose to start losing weight, like, because I thought this was being better than taking care of my diabetes and keep getting fat."

This dialogue of the respondents means that eating and injecting insulin while having diabulimia makes them obese. The study by Kinik et al. (2017) makes the patient obese if they take too much food and intake insulin. One of the respondents stated that,

"You will become obese. You overeat."

### 7.1.2 Disease Denial

Patients also experience denial about their disease, and they decide to stop injecting insulin to escape from the reality that they have diabulimia. The study of Coleman and Caswell (2020) and Roney (2015) received this kind of experience from their respondents, stating that,

"Escaping being diabetic."

"I didn't always take my insulin because I didn't want to worry about being diabetic."

‘Like it’s a way to cope with life for me.’

### 7.1.3 Stigmas and Mental Health Abuse

Another challenge experienced by people with diabulimia is having mental abuse due to the stigmas about the disease. As Coleman and Caswell (2020) and Hastings et al. (2016) stated in their study that people have stereotypes about diabulimia and make the patients ashamed
of themselves. Additionally, Roney (2015) said that people with diabulimia often experience suicidal thoughts and depression. These statements from their respondents stated that,

"I feel that people may judge me."

"I'm too ashamed to talk about it."

"I was really sick. I was like at the bottom. Um, I was feeling suicidal, really depressed."

"Sometimes I felt people would be thinking, 'oh, here she goes again, on about her sodding diabetes."

This emphasizes that people judge this disease and makes every patient uncomfortable about their physical appearance. From this, patients make themselves aloof from other people because of their illness and make most of the patients with diabulimia more triggered because many people have a common belief that diabetes is a fat person's disease. In the study by Morris (2021), one patient also stated that,

"I was sitting with my computer one night, trying to figure out what was the easiest way to die...that’s when I realized I needed help."

"I really felt that no one else was doing this, no one else understands what this is like, it is only me, and because it's only me, I can't talk to anyone else about it. Felt like I had to keep doing it because I can't stop because no one understands."

"Second, the public's misunderstanding and widespread notion that “diabetes is a fat person's disease” prompted me to show them they were wrong."

This dialogue from the respondents makes the patients with diabulimia experience negative emotions from other people, leading to stress and, worst, depression.

Furthermore, this part is alarming in terms of medical practitioners and health professionals. This is because most people with diabulimia are frightened to go with specialized doctors and practitioners because of the stigma that this disease is not existing. As one of the patients interviewed by Morris (2021) and Hastings et al. (2016), the health professionals told them they would record them as non-compliant rather than having psychological issues regarding their situation. This statement proves to us about it.
"Every healthcare professional I came across would initially say, well just take your insulin and like labeled me as non-compliant. It sounds to me that you're not looking after your diabetes on purpose, that you're kind of not caring about the consequences and just kind of yeah, because you can't be bothered or whatever, but for me, I really did want to erm like start taking my insulin again but the psychological barrier I had toward it, I was genuinely terrified too."

"They made me think like I was being naughty or defiant, although they call it "non-compliant," and that's the key term cos that suggests that you're breaking the rules, and yet this is something you have to manage yourself day today, and they're (medical/healthcare professionals) suggesting that you are breaking a regime or you're breaking some sort of law, and that's a big problem I think they're judging me straightway and unless they are diabetic, and they've been through it who are you to sit and say."

"I've tried counseling and therapy (for eating disorders), but none of them had a clue what diabulimia was, so they weren't much help whatsoever. Everyone I tried to explain to they'd just ignore me and talk about other eating disorders that I may have."

### 7.1.4 Medical Consequences due to Misuse of Insulin

Additionally, when patients omit their insulin intake, most of them experience severe complications through it. Diabetic Ketoacidosis (DKA) makes the body more vulnerable and leads to severe complications. Respondents from Coleman and Caswell (2020) and Staite (2018) stated that,

"DKA nearly killed me last Friday."

"I've spent more time in DKA than I can recall."

"I was in such severe DKA that I needed to be in their ICU for the first four days."

Van Heyningen and Manoharan (2018) report a case study about a patient with diabulimia who is experiencing DKA and tends to misuse the insulin intake that, causes severe complications in health. This statement comes from the patient stating that,

"Once I go home, I will not inject myself. I will become unwell, which is the best way to get back into a coma. This is what I want."
8 Discussion

This part of the study tackled the data findings from all the journal articles and thesis that were gathered and analyzed together with the background and framework that makes the outcome of attaining the aim of this research. In addition, one study question was answered in this research, “What are the experiences of patients with diabulimia?”.

The author aimed to focus on exploring people's experiences with diabulimia in terms of adding information and knowledge to develop the diagnosis and treatments used by the medical practitioners about diabulimia. Using a scoping review will help discover the different existing knowledge and ideas to analyze if diabulimia should be given more attention to producing a more accurate diagnosis and treatment for the betterment of the patients living with this disease.

8.1 Method Discussion

This study was done as a scoping review utilizing categories to describe the patients' experiences. Therefore, it was difficult to find relevant studies and articles about the topic; nonetheless, the scoping review was suitable for this study because it includes qualitative and quantitative research. Therefore, out of the data gathered, there are ten articles overall, and one out of ten were quantitative, 8 out of ten were qualitative, and one out of ten where a mixed method was used.

Additionally, four of the articles that have been found were from the database of EBSCO, CINAHL, PubMed, and NIB, while the other six articles were found in Google Scholar. Furthermore, there are different sites, including SpringerLink, ScienceDaily, BMC Psychology, CrossMark, and Addictive Behaviors Report. Even though the author finds it more challenging to find a relevant study about diabulimia, all the articles were considered to answer the study's problem and aim. Some of the articles explained the different lived experiences of the patients with diabulimia; however, this study was written to produce additional information about this topic.
8.2 Result Discussion

The main goal and purpose of this study were to describe patients' experiences with diabulimia. This study gives more information about the life of people with diabulimia and the experiences that they are going through. The result of the study indicates that there are experiences of diabulimia patients that make them vulnerable in any situation. This includes gaining weight, disease denial, stigmas, mental health abuse, and even omitting insulin to lose weight, leading to severe complications (Coleman & Caswell, 2020; Falcão & Francisco, 2017; Kinik et al., 2017; Hastings et al., 2016).

Gaining weight is the most common result of diabetes mellitus type 1 with comorbidity of diabulimia (Coleman & Caswell, 2020). There are a lot of patients that experienced body shaming because of this. Some patients became restricted in their social communications, and some patients also prohibited themselves from taking insulin to reduce weight. According to Shabah (2013), patients with diabulimia are mostly women because they are the ones who are constantly more concerned about their weight. Although normal eating applies to patients with diabetes mellitus type 1, eventually, they tend to control the intake of their insulin to accomplish losing weight, which leads to one of the symptoms of diabulimia. Swanson also stated in her theory that caring involves being with through the various process of patient's experiences with their disease. This helps to explore their condition and helps the patients to develop themselves again from their ailment (Swanson, 2020).

Patients with diabulimia have mostly developed an ego defense mechanism of denying their disease to cope with their situation (Coleman & Caswell, 2020). This disease denial takes as their escaping method to accept the reality that they have diabetes and diabulimia, respectively. Patients tend to stop taking insulin and live like ordinary people. They also stopped thinking about it and denied that they had this disease. According to Swanson (1993), her theory includes doing where health professionals involve themselves with the patients, help them grow, and become better people even having their disease. Using this theory, nurses and health care professionals are now aware that patients with diabulimia are mostly in denial of their condition. This will help them know the proper response and reactions to patients with this kind of behavior. This will help the healthcare professionals to interact appropriately with the patients (Swanson, 2020).

Stigmas and mental health abuse in patients with diabulimia are very alarming. As Winston (2020) stated, combing diabetes and eating disorder is very problematic, it involves the
stereotyping and prejudiced mentality toward the patients themselves and other people. Stigmas that include in patients with diabulimia are terminally ill. Their disease causes them to become picky about their food, which is very weak. This stigma tends to result in suicidal thoughts and depression in the patients. They become aloof to people and, most of the time, alone. People look at them as very whiny and annoying because of their disease. Mental health abuse comes from the stigmas that people bring with their condition. These stigmas make patients vulnerable. Additionally, stigma includes healthcare professionals stereotyping patients, such as being stubborn in taking insulin. Some healthcare professionals claim that patients are non-compliant in injecting insulin, not knowing the valid reason for their behavior (Morris, 2021).

Medical consequences of misuse of insulin are also one of the most commonly experienced near-death situations. Even though there are a lot of complications to omitting insulin, patients still choose to restrict themselves. The maintained belief about this disease is very blunt, with the patients being weak and non-compliant as well as claiming that diabulimia is a non-existing disease. In connection to this, it drives them not to take insulin regularly. In the theory of Swanson, healthcare professionals should establish the idea that they care more about their patients by involving themselves with them. Utilizing this study, the nurses may be able to know the root cause of complications and medical problems of patients with diabulimia. They can react and give appropriate care to diabulimia patients by understanding the root cause of their problems. This can prevent and avoid situations that can lead to more severe consequences (Coleman & Caswell, 2020; Swanson; 1993).

In this study, the author chose Swanson's Theory of Caring. Swanson (2020) stated that the established idea that nurses indicate that they care about their patients is equally vital to the well-being of the patients as what the clinical activities offer. Through this, it will help the study to be able to gain more knowledge about the disease that has been unrecognized for the past years. Some studies explained experiences in more detail, such as the challenges of the diabulimia patients and which their depression began. Some patients do not heal because of the medical treatment but instead of the fact that they need to accept the reality that they should live together with their disease. Nonetheless, many patients fight their battles in secret because of the rejection and the helplessness they feel through the stigma that their condition does not exist. It discourages the patients from seeking professional help because of the idea that no one can help and understand them, even professionals and doctors.
Additionally, this study was focused only on describing the lived experiences of the patients living with diabulimia. Any limitations regarding this disease were not included, such as the comorbidity and other disorders different from diabetes and diabulimia. Furthermore, any other related conditions regarding diabetes were not included and were different from this study. Lastly, utilizing this study as a bridge to the gap, helping professionals acknowledge these disease will help future researchers maintain the belief that diabulimia exists. Moreover, this study emphasizes that the patients’ experiences should be an eye-opener for all medical practitioners to give attention to this disease.


## 9 Conclusion

Diabulimia, also known as ED-DMT1, may not be well known, but it is one of the most important diseases that we need to dig into. As we look at different relevant studies about this disease, the author found that there are many gaps between diabulimia being a recognized disease. Furthermore, the author also discovered different experiences of people with diabulimia, especially the challenges that they experience. Although it was expected that the author would find less research or study about diabulimia, the studies that have been found can be used as additional information about this disease.

Based on the result and discussion of this study, the author emphasizes that society, especially medical practitioners, should give more attention to diabulimia and how it will be diagnosed and treated. In addition, patients with diabulimia experience many challenges living with their disease. For example, some of them gained weight, others denied their condition, felt exhaustion and depression because of the stigma about diabulimia, and others experienced near-death situations because of misuse of insulin.

Even though there are fewer articles regarding diabulimia, there are a lot of blogs that talk more about diabulimia to increase awareness and help people with this kind of disease. In addition, some of the authors excerpt dialogues of people having experiences with diabulimia that make it more recognized, but the medical knowledge about this disease remains stagnant.

Diabulimia does not get formal acknowledgment as a medical disease, the author recommends having a proper diagnosis and developing better treatment for this disease. It is beneficial for all the nurses and medical practitioners to have a better knowledge about this disease to give coherent information about the diagnosis and treatment of diabulimia. Moreover, there is still a lot of confusion regarding different eating disorders that lead to confusion and add doubts for the medical practitioners to diagnose diabulimia. Researchers should develop specific scales to diagnose this disease to achieve this future.
10 Reference


Neumark-Sztainer D, Patterson J, Mellin A, Ackard DM, Utter J, Story M, Sockalosky J


Young, Breanna. "Type 1 Diabetes and Eating Disorders: The Importance of Healthcare Provider Knowledge of Eating Disorders in Type 1 Diabetes" (2017). Honors Theses AY 16/17. 82.
# 11 Appendices

## Appendix 1: Summary of Articles

<table>
<thead>
<tr>
<th>Title</th>
<th>Author and Year</th>
<th>Aim</th>
<th>Result</th>
<th>Study Design</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes and eating disorders: an exploration of ‘Diabulimia’</td>
<td>Coleman and Caswell (2020)</td>
<td>This study aimed to conduct an exploratory analysis of the views and experiences of people with lived experiences of diabulimia. This would provide healthcare professionals with an increased understanding of diabulimia and pave the way for future research.</td>
<td>The common themes identified were concerns about weight, difficulty coping with diabetes, past trauma, and the importance of relationships. Experiences with health professionals were overwhelmingly negative. However, most participants had experienced severe medical intervention due to diabulimia and were fully aware of the consequences of insulin restriction.</td>
<td>Qualitative Research Design (Scientific Study)</td>
<td>Published Site: CrossMark Country: United Kingdom Level: MSc Number of Participants in the study: 55 individuals who stated they had T1DM and a history of insulin misuse for weight loss.</td>
</tr>
<tr>
<td>An Exploration of Eating Disorder (Diabulimia) Associated with Type 1 Diabetes</td>
<td>Roney, A. M. (2015)</td>
<td>This study aims to provide a deeper understanding of the lived experiences of patients with diabulimia.</td>
<td>This study created five themes: Mixed messages, Management of diabetes, Negative effects, diabulimia as an escape, and Barriers to care.</td>
<td>Qualitative Research Design (Thesis)</td>
<td>Published Site: Scholarworks Country: Nevada Level: MSc Number of Participants in the study: Two Participants were included.</td>
</tr>
<tr>
<td>Diabulimia: an easily missed diagnosis?</td>
<td>Van Heyningen, C. D. L., and Manoharan, K. S. (2018)</td>
<td>This case report aims to increase awareness about diabulimia as a cause of recurrent diabetic ketoacidosis (DKA).</td>
<td>This study shows that Type 1 diabetes mellitus is associated with many eating disorders in adolescents. In addition, insulin omission plays a particular role in leading to recurrent DKA and mortality.</td>
<td>Qualitative Research Design (Case Report)</td>
<td>Published Site: The British Journal Of Diabetes Country: United Kingdom Level: PhD</td>
</tr>
<tr>
<td>Study Title</td>
<td>Author(s)</td>
<td>Methodology</td>
<td>Published Site</td>
<td>Country</td>
<td>Level</td>
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<tr>
<td>Diabetes, eating disorders and body image in young adults: an exploratory study about “Diabulimia”</td>
<td>Falcão and Francisco (2017)</td>
<td>Quantitative Research Design (Scientific Study)</td>
<td>Published Site: CrossMark</td>
<td>Switzerland</td>
<td>PhD</td>
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<tr>
<td>The lived experience of Diabulimia. Individuals with Type 1 Diabetes using insulin for weight control</td>
<td>Morris, SL (2021)</td>
<td>Qualitative Research Design (Thesis)</td>
<td>Published Site: Middlesex University Research Repository</td>
<td>London</td>
<td>PhD</td>
</tr>
<tr>
<td>Diabulimia, a Type 1 Diabetes mellitus-specific eating disorder</td>
<td>Kinik, M.F. Gönüllü, F.V. Vatansever,</td>
<td>Qualitative Research Design (Case Report)</td>
<td>Published Site: Turkish Pediatric Association</td>
<td>Turkey</td>
<td>BSc</td>
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<tr>
<td>Z. Karakaya, I. (2017)</td>
<td>Insulin restriction, medicalisation and the Internet: A corpus-assisted study of diabulimia discourse in online support groups</td>
<td>Number of Participants in the study: The case report consists of 1 to 2 participants</td>
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<td>This study aims to address the knowledge gap about diabulimia by examining the discourse around diabulimia in the context of online support groups.</td>
<td>This result of the study provides a more profound, well-discussed, and many insights into the social and lived experiences of people with diabulimia. Furthermore, different themes were imposed in the study, such as the emergence of health phenomenon and offering a timely counterbalance to existing Insulin restrictions.</td>
<td>Mixed-Method Design (Research Study)</td>
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<tr>
<th>Brookes (2018)</th>
<th>Research: Educational and Psychological Aspects ‘Diabulima’ through the lens of social media: a qualitative review and analysis of online blogs by people with Type 1 diabetes mellitus and eating disorders</th>
<th>Published Site: Communication and Medicine. An Interdisciplinary Journal of Healthcare, Ethics, and Society Country: England Level: PhD Number of Participants in the study: No identified number of participants included.</th>
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<tr>
<td>To conduct a qualitative analysis of internet blogs written by persons who self-identify as Type 1 diabetics. Diabulimia is a word used by patients with Type 1 diabetes to describe an eating problem that is characterized by binge eating. Insulin resistance is a kind of obesity characterized by an intentional reduction in insulin levels to maintain weight management.</td>
<td>Three main themes and 18 subthemes emerged: 1) various aspects of bloggers' relationships with insulin, including motivations for omitting insulin; 2) different aspects of bloggers' relationships with insulin, including motivations for omitting insulin; 3) Recovery tactics and triggers for ketoacidosis in particular and their concerns regarding potential difficulties recurrence, which necessitated diabetic self-management and the establishment of a support network.</td>
<td>Qualitative Research Design</td>
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| Staite, Zaremba, Macdonald, Allan, Treasure, Ismail, Stadler (2018). | To conduct a qualitative analysis of internet blogs written by persons who self-identify as Type 1 diabetics. Diabulimia is a word used by patients with Type 1 diabetes to describe an eating problem that is characterized by binge eating. Insulin resistance is a kind of obesity characterized by an intentional reduction in insulin levels to maintain weight management. | Three main themes and 18 subthemes emerged: 1) various aspects of bloggers' relationships with insulin, including motivations for omitting insulin; 2) different aspects of bloggers' relationships with insulin, including motivations for omitting insulin; 3) Recovery tactics and triggers for ketoacidosis in particular and their concerns regarding potential difficulties recurrence, which necessitated diabetic self-management and the establishment of a support network. | Qualitative Research Design |

<table>
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<tr>
<th>Hastings, McNamara, Allan, Marriott (2016)</th>
<th>The importance of social identities in the management of and recovery from ‘Diabulimia’: A qualitative exploration</th>
<th>Number of Participants in the study: There are 13 members of an online support group for individuals with ‘Diabulimia’.</th>
</tr>
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<tbody>
<tr>
<td>This paper explores how group memberships (and the associated identities) both contribute to and hinder recovery in this cohort.</td>
<td>Findings suggested that those with whom one shares a recovery identity can be well placed to provide psychological resources necessary for successful recovery. However, such connections can be damaging if group norms are not managed.</td>
<td>Qualitative Research Design (Thesis)</td>
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