

Medical Science

To Cite:

Kriese N, Komorowska E, Szyszowski J, Kucharski T, Tucka B, Zgrzywa Z, Zawadzka I, Wądołowska P, Jaworski J, Kowalski B. Diabulimia: characteristics, psychopathology, and treatment approaches - a narrative review. *Medical Science* 2026; 30: e19ms3770 doi: <https://doi.org/10.54905/disssi.v30i167.e19ms3770>

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Peer-Review History

Received: 07 October 2025

Reviewed & Revised: 18/October/2025 to 12/January/2026

Accepted: 21 January 2026

Published: 30 January 2026

Peer-review Method

External peer-review was done through double-blind method.

Medical Science

pISSN 2321-7359; eISSN 2321-7367



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Diabulimia: characteristics, psychopathology, and treatment approaches - a narrative review

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ABSTRACT

Background: Diabulimia, the intentional omission or reduction of insulin administration in a patient with type 1 diabetes mellitus (T1DM) to lose weight, is now becoming an increasingly recognized problem in both diabetology and psychiatry. **Aim:** In this review, we will consolidate and analyze the available research on diabulimia and its clinical implications, including screening methods, potential complications, and treatment. **Materials and Methods:** After a thorough search of medical databases (Scopus, PubMed/MEDLINE), we analysed publications published from January 2000 to September 2025 and selected 23 articles based on their quality and significance. This narrative review includes original research, meta-analyses, and reviews on diabulimia and other eating disorders linked to T1DM. **Results and discussion:** Patients with diabulimia are at higher risk of developing both short-term complications of diabetes (ketoacidosis) and long-term complications (retinopathy, neuropathy, microvascular complications). Therefore, a screening should be performed to early diagnose it and to implement treatment. Because the disorder itself is complex and multidisciplinary, its management must likewise address both the somatic and psychiatric components. Alongside re-nourishing and stabilising the life signs, family counselling and cognitive-behavioral therapy should be implemented. **Conclusions:** Diabulimia is a life-threatening disorder that needs to be addressed by a multidisciplinary team, including an endocrinologist, psychologist, and social workers. Further research is required to evaluate the long-term benefits of treatment and to establish clear clinical guidelines for the management of patients with diabulimia.

Keywords: Diabulimia, diabetes mellitus, eating disorders, insulin omission

1. INTRODUCTION

Diabulimia is an eating disorder (ED) that occurs among patients with type 1 diabetes mellitus (T1DM) and is characterized as a deliberate restriction or omission of insulin to control weight. It is not formally recognized in the International Classification of Diseases (ICD-11), the most widely used diagnostic system in the world. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) offers some categories under which diabulimia could be classified. Those labels are, for

example, inappropriate compensatory purging behavior, misuse of medications for weight loss, or bulimia nervosa (Brookes, 2019). Regardless, diabulimia is increasingly recognized as a severe medical condition unique to patients who depend on insulin (Atriham et al., 2024). It is a dangerous combination of an eating disorder and a metabolic disease that leads to poor glycemic control and both acute and chronic complications (Juruć et al., 2016). Patients suffering from T1DM are often adolescents and young adults, who are at risk for weight fluctuations from insulin therapy, body image issues, and psychological stress from managing their illness every day (Jones et al., 2000).

Recently, healthcare providers have improved at recognising eating disorders in people with diabetes (Coleman and Caswell, 2020). Still, more clinical research and better guidelines are needed to address this problem with higher accuracy (Tomás et al., 2025). In this review, we will summarize recent research on diabulimia, focusing primarily on clinical aspects such as screening, monitoring alarming symptoms, and effective treatment of this disorder.

2. REVIEW METHODS

This narrative review aims to synthesize current data on the medical phenomenon known as diabulimia, particularly to examine general characteristics, risk factors, and treatment approaches in this and other EDs coexisting with T1DM. Literature research was conducted in the Scopus and PubMed databases to ensure the quality of the selected studies (Figure 1).

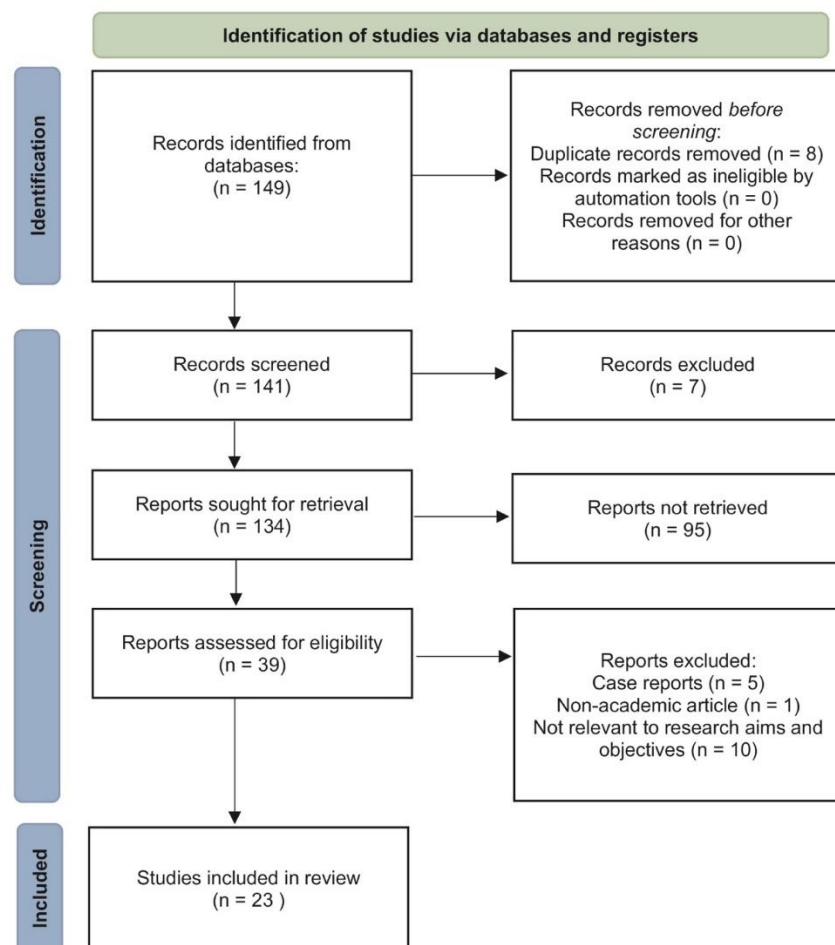


Figure 1: PRISMA chart

Search strategy

To investigate this topic, we applied a set of keyword operators in multiple configurations, focusing on terms such as “diabulimia”, “eating disorder”, and “diabetes”. These search strings were combined in different ways depending on the specificity of each database in order to capture both foundational studies and the most up-to-date publications. We limited the literature search to articles

published between January 2000 to September 2025 to ensure the material reflected contemporary clinical perspectives and developments in diagnostic criteria and treatment approaches.

The inclusion criteria for articles were as follows:

- Studies investigating the topic of diabulimia
- Studies exploring the occurrence of eating disorders in the diabetic patient population
- Studies that were original research articles, reviews, or meta-analyses. We included only peer-reviewed articles for analysis.

The exclusion criteria for articles were as follows:

- Language other than English
- Case reports
- Articles that did not meet the academic standards
- Studies that did not address the aim of this review

3. RESULTS & DISCUSSION

Epidemiology and Risk Factors

Estimating the epidemiology of this condition remains difficult, mainly because terminology across studies is far from uniform. Researchers often describe the same clinical picture in different ways. For example, many call this condition “diabulimia”, while others opt for broader labels such as “diabetes-specific eating disorder”, arguing that it better captures the range of behaviors involved. For this review, we decided to use the term “diabulimia”, as it appears more frequently in the literature and is generally better recognized within both clinical practice and patient communities.

Prevalence rates vary depending on study methods and populations. Most authors report that 20-30% of people with T1DM intentionally misuse insulin (Albaladejo et al., 2023; Atriham et al., 2024), while others deliver a broader range of 8-55% (Tomás et al., 2025). Markowitz et al., (2009) registered the highest rate of 60.2%. These discrepancies likely result from inconsistent diagnostic criteria and limited physician awareness, which may lead to under-screening.

Jones et al., (2000) conducted an interesting study examining a group of diabetic and non-diabetic adolescent girls. They have shown that young females with type 1 diabetes have a 2.4 times higher risk of developing an eating disorder compared to their non-diabetic peers. Among the risk factors that have been shown to be significantly associated with ED were: Body Mass Index (BMI) > 29.1 kg/m², age under 62 years, and a history of ED (Albaladejo et al., 2023). Contrary to prior assumptions, gender differences, insulin pump use, and continuous glucose monitoring (CGM) were found to be insignificant (Albaladejo et al., 2023; Tarçın et al., 2023).

Diabulimic patients tend to score higher in standard mental-health questionnaires, compared to their non-diabulimic peers, especially in areas linked to anxiety and depression (Tarçın et al., 2023). The difference suggests that emotional strain not only accompanies the disorder but can gradually intensify as these behaviors become more ingrained.

Several situational factors appear to contribute to the emergence of this kind of disordered eating. Comparing oneself with peers - especially during adolescence, when concerns about appearance tend to sharpen - can be a significant influence. In addition, strict parental oversight or parental divorce may heighten a young person’s sense of vulnerability and insecurity, which can lead to disordered eating (Pinhas-Hamiel et al., 2015; Tarçın et al., 2023).

Psychopathology

Diabulimia, as a multidisciplinary disorder, impacts both the physical and psychological dimensions of a patient’s health. This eating disorder affects only people with insulin-dependent diabetes mellitus, which makes it exclusive to this population. Deficiency of that crucial hormone prevents the regular use of glucose for energy, leading to weight loss as the body is forced to use stored fat instead (Tomás et al., 2025). Patients often report fear of weight gain from insulin use, they tend to have rigid dietary beliefs, and usually are dissatisfied with their self-control and body image (Köprülü et al., 2025).

Another element that appears to shape the psychological landscape of diabulimia is a phenomenon known as diabetes distress (DD). This term describes the emotional burden that comes with managing type 1 diabetes every day - a chronic condition that leaves little room for breaks or lapses. Estimates suggest that 20% to 40% of people with T1DM experience some degree of DD (Skinner et al., 2020). Research using standardised measures, such as the Diabetes Distress Scale (DDS), suggests a possible link between this

emotional burden and the development of diabulimia (Poos et al., 2023). Nevertheless, the available data remain insufficient to establish a definitive association, and further research involving larger and more representative patient samples is required to clarify the nature of this relationship.

The broader social and psychological setting in which a person lives has a considerable influence on how diabulimia develops and how it is experienced day to day. Hastings et al., (2016) note that many individuals affected by this condition come to define their identity through the illness, allowing it to take on a defining role in how they see themselves. Because of this, the authors believe that treatment should not depend only on medical care. It should also consider how patients connect with others and with themselves. Building supportive relationships, helping patients rediscover parts of their identity beyond the disorder, and creating a safer social environment can all play important roles in recovery.

In the study conducted by Brookes (2019), it became clear that online communities operating on social media platforms - particularly Facebook support groups - can influence disordered behaviors in ways that are both constructive and detrimental. These groups often provide a space where individuals feel comfortable discussing symptoms that worry them, and such exchanges may prompt some users to consult a healthcare professional sooner than they otherwise would. The sense of recognition and shared experience can, at times, reduce the hesitation or shame that prevents people from seeking help.

Yet the same online spaces also carry risks. Within these communities, certain individuals present themselves as authorities despite lacking clinical training, and their advice can shape conversations in misleading directions. Brookes notes that these self-appointed experts frequently emphasize the medical or biochemical dimensions of the problem while giving far less attention to its psychological, social, or behavioral components. This mixture of support and misinformation illustrates the delicate balance social media communities can create - simultaneously offering connection and inadvertently reinforcing misunderstandings.

While examining a patient, a physician should pay attention to details that may indicate diabulimia (Table 1). It is vital not to disregard those alarming signs, because undiagnosed diabulimia might lead to severe complications or even death.

Table 1. Alarming findings in patients' medical history and/or examination that may suggest diabulimia.

| | |
|----------------------|---|
| Past medical history | <ul style="list-style-type: none"> • History of eating disorder, depression, or anxiety (Atriham et al., 2024) • Recurrent ketoacidosis (Pinhas-Hammil et al., 2015) |
| Physical examination | <ul style="list-style-type: none"> • Amenorrhea (females), poor virilization (males), significant weight loss (Atriham et al., 2024) • Esophagitis, abdominal discomfort, dysphasia (Hasken et al., 2010) |
| Laboratory findings | <ul style="list-style-type: none"> • High levels of serum glycosylated haemoglobin (HbA1c), persistent hyperglycemia (Pinhas-Hammil et al., 2015) |
| Other | <ul style="list-style-type: none"> • Missing follow-up appointments (Atriham et al., 2015) • Excessive focus on calorie intake, weight, and overall appearance; refusing to be weighed (Pinhas-Hammil et al., 2015; Atriham et al., 2024) |

Clinical Consequences

Diabulimia can have some serious metabolic effects that could potentially be fatal. When insulin is regularly omitted, it causes ongoing hyperglycemia, which can lead to diabetic ketoacidosis and late complications like retinopathy, nephropathy, and neuropathy (Hall et al., 2021). There is also evidence that disordered eating behaviors are predictive of microvascular complications, usually due to high levels of HbA1c (Takii et al., 2008). Moreover, comorbid psychiatric symptoms – especially depression and anxiety – are intensifying the disease burden, and they reduce compliance to treatment (Bombaci et al., 2024).

It has been proven that depression and disordered eating correlate positively among T1DM patients (Krzyżowska et al., 2023). This group of people requires comprehensive care from specialists, including a diabetologist, psychologist, psychiatrist, diabetes educator, nurse, and nutritionist. Living with several overlapping health problems places a considerable strain on patients, making day-to-day management far more challenging than it may appear from the outside. Body dissatisfaction and fluctuating blood glucose levels may negatively affect a patient's mental condition, and this deterioration in mood could lead to metabolic destabilization. This mechanism creates a positive feedback loop that is hard to cease.

Screening and Diagnosis

General diagnostic tools created to identify eating disorders - most notably the SCOFF (Sick, Control, one stone, Fat, Food) and its adapted version, the mSCOFF - are not well-suited for people living with type 1 diabetes. Several issues contribute to this mismatch. The main problem is that these questionnaires interpret a patient's sustained focus on diet or food-related decisions as a potential warning sign of pathology. For individuals with T1DM, however, such preoccupation is an expected and necessary step to manage their condition accurately. It therefore cannot be taken at face value as evidence of disordered eating. Another limitation is that these instruments overlook behaviors that are specific to the diabetic population, particularly the intentional omission or reduction of insulin doses. This pattern is usually central to diabulimic practices but remains invisible within the SCOFF framework (Markowitz et al., 2009).

In response to these shortcomings, researchers developed a specialized screening tool tailored to the needs of this population: the Diabetes Eating Problem Survey Revised (DEPS-R). This measure was designed to capture the full range of problematic eating and insulin-related behaviors that may occur among individuals with T1DM. Karastogiannidou et al., (2021) conducted a study in a Greek adult population with T1DM using the DEPS-R and demonstrated that it can be successfully used to screen this population. However, the DEPS-R has not yet been formally validated or adapted in many countries; therefore, the SCOFF and mSCOFF questionnaires continue to have practical value in some regions of the world (Albaladejo et al., 2023).

Treatment Approaches

An effective way to treat diabulimia is to use a team approach that includes medical care, nutrition, and psychological support (Figure 2). Takii et al., (2003) found that integrated inpatient therapy for women with T1DM and bulimia nervosa has improved HbA1c levels, elevated mood, and helped overcome eating habits after three years. Their program, which focused mainly on behavioral changes, cognitive restructuring, and family counselling, resulted in remission of all ED symptoms in 78% of cases.

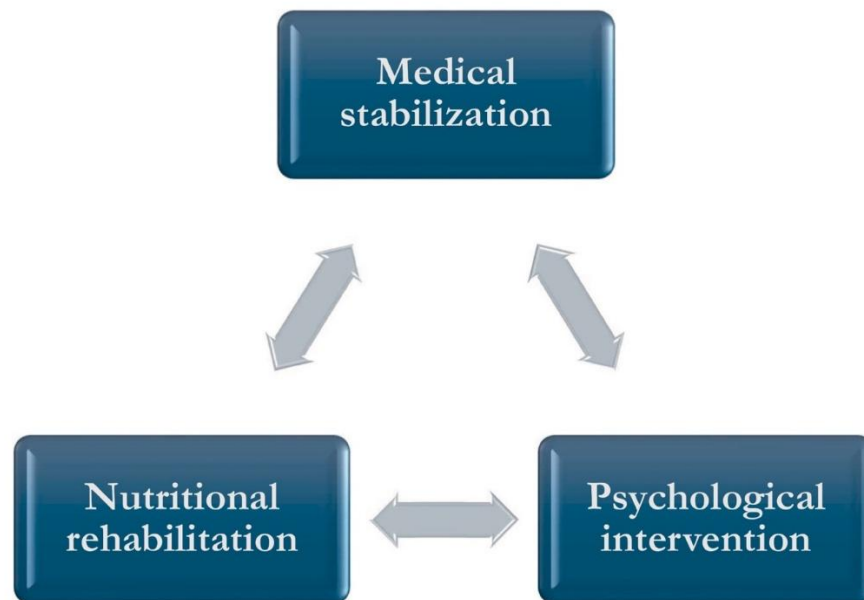


Figure 2: Multilevel treatment of diabulimia.

Good results were also achieved with psychological interventions such as cognitive-behavioral therapy (CBT), dialectical behavior therapy (DBT), and motivational interviewing (Takii et al., 2003; Coleman et al., 2020). There is a need for early detection and coordinated management between endocrinologists and mental health professionals for adolescents (Pinhas-Hamiel et al., 2015). Hasken et al., (2010) noted that school health staff play a key role in early identification and support, particularly by educating children about healthy eating. They can also encourage them to calculate their optimal BMI, so that they know how much they should weigh.

Using this knowledge, teenagers can confront their unrealistic goals for their desired body mass and consider whether they should really manipulate their insulin intake.

Recently, there has been progress in treating diabulimia through technology. Patient education, along with CSII and CGM systems and psychological support, can lower the risk of eating disorders in patients who have poor glycemic control, especially when HbA1c levels are above 9% (Köprülü et al., 2025). Telehealth programs and online CBT sessions have not only increased the accessibility of treatment for people living far from health centres, but also improved adherence (Rami et al., 2006). However, technology alone cannot replace psychotherapy, particularly for individuals who continue to skip insulin.

Social and Cultural Dimensions

Cultural and social identity are essential in understanding how diabulimia develops and how people recover from it. Hastings et al., (2016) and Brookes (2019) highlight that social belonging, group support, and changing how people view their illness help with psychological recovery. People might be hesitant to seek treatment because of stigma around chronic illness or because of feeling insecure in their own bodies, due to not fitting the body image standards. It is a challenging mission for health centres to provide empathetic care to these individuals while remaining open-minded in addressing this problem.

When the patient is an adolescent, it is essential to look closely at how the family - especially the parents - perceives the illness and reacts to its demands. The way caregivers approach daily diabetes management often sets the tone for the young person's own engagement with treatment. Consistent encouragement and a willingness to share responsibilities generally result in better adherence and create an environment in which recovery is possible.

Findings reported by Tarçın et al., (2023) suggest that disordered eating behaviors may start or intensify when family relationships are tense or when meaningful emotional support is absent. These difficulties can subtly shape the adolescent's coping strategies, sometimes long before the problem becomes visible. It is important to early recognize such patterns to create interventions that address more than the medical aspects of the disorder. In many cases, progress depends on understanding the household as part of the therapeutic landscape, rather than merely as the backdrop against which treatment occurs.

Limitations

It is important to note that this review has its limitations. The methodological heterogeneity of the included studies has made them hard to compare. Most research, due to limited awareness of diabulimia, relies on small, cross-sectional, or retrospective samples, often focused on female or adolescent populations. Interpreting studies from around the world was challenging due to different diagnostic criteria for the disorder and inconsistent nomenclature. It should also be stated that publication bias might have favored studies that reported a significant correlation between diabetes and the occurrence of ED.

4. CONCLUSION

Diabulimia is still a little spoken of, but it is a life-threatening disorder that affects diabetic patients specifically. However, awareness is growing, and diagnostic and treatment frameworks continue to develop. Over the past two decades, interventions that have proven effective have combined endocrinological management, cognitive-behavioral therapy, and psychosocial rehabilitation. The most important aspects of preventing diabetes complications are to detect eating disorders early and to treat them efficiently by firstly stabilizing them medically, and then administering both nutritional rehabilitation and therapy.

Future research should focus on establishing universal and straightforward diagnostic criteria for diabetes-specific eating disorders. We assume that there is still unexplored potential in technology that physicians could utilize in the therapeutic process. Moreover, there is still a need for studies regarding gender and identity factors in recovery. Collaborative care models that connect endocrinology, psychology, and community support remain essential for effective diabulimia management.

Acknowledgments

The authors have no acknowledgments to disclose.

Author's Contribution:

Natalia Kriese: Conceptualization, supervising, writing – rough preparation

Ewelina Komorowska: Formal analysis, investigation

Jakub Szyszkowski: Writing – rough preparation
 Tomasz Kucharski: Project administration
 Brygida Tucka: Conceptualization
 Zuzanna Zgrzywa: Resources, literature review
 Izabella Zawadzka: Methodology, literature review
 Paulina Wądołowska: Conceptualization, methodology
 Jakub Jaworski: Investigation, editing
 Bartłomiej Kowalski: Editing

Informed consent

Not applicable.

Ethical approval

Not applicable. This article does not contain any studies with human participants or animals performed by any of the authors.

Funding

This research did not receive any external funding like specific grant from funding agencies in the public, commercial, or nonprofit sectors.

Conflict of interest

The authors declare that they have no conflicts of interest, competing financial interests or personal relationships that could have influenced the work reported in this paper.

Data and materials availability

All data associated with this study will be available based on reasonable request to the Corresponding Author.

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