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Diabulimia in Adult Patients with Type 1 Diabetes - Review of Literature

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Abstract

Background "Diabulimia" is a term used in the literature to describe intentional insulin restriction/omission in people with type 1 diabetes (T1D) to influence weight, but it is not a formally recognized diagnosis in current classification systems, which complicates clinical identification and coding [1-2]. This behavior is discussed as a dangerous form of diabetes-related disordered eating because it is linked to metabolic decompensation (notably recurrent ketoacidosis) and poorer prognosis in T1D [3, 4-5].

Aim This article synthesizes current evidence on diabulimia in adult patients with T1D, focusing on epidemiology, etiology, diagnostics, clinical presentation, long-term complications, treatment, and prevention [1-5].

Material and methods A narrative synthesis was conducted using the provided peer-reviewed reviews, observational studies, thematic analysis, and clinical case reports addressing: (I) insulin restriction as disordered eating in T1D, including adult/young-adult samples, (II) acute metabolic crises (DKA), (III) chronic diabetes complications relevant to sustained insulin omission, and (iv) diagnostic challenges specific to adults (adult-onset T1D, LADA, secondary diabetes) [1-6].

Results Across sources, diabulimia is consistently characterized by weight-motivated insulin restriction and repeatedly described as underdiagnosed because of absent formal criteria and overlap with other eating disorders and diabetes distress [1-7, 8]. Evidence in young adults and adults indicates clinically meaningful prevalence of disordered eating behaviour and insulin restriction in T1D populations, while robust epidemiologic estimates for older adult groups remain limited [1, 9, 10]. Reported outcomes include recurrent DKA and a pathway to microvascular and neuropathic complications via chronic hyperglycemia and poor metabolic control [3, 5, 11, 12, 13-14].

Conclusion Diabulimia in adults with T1D should be approached as a high-risk, interdisciplinary condition at the interface of endocrinology and mental health, requiring proactive detection (patterns of poor control and acute crises), exclusion of adult diagnostic mimics (e.g., LADA/secondary diabetes), structured acute management of DKA, and sustained psychological and diabetes-care interventions [1-5, 11, 15, 16].

Keywords: diabulimia, Type 1 Diabetes, insulin omission, eating disorders, adult patients.

Introduction

Diabulimia is most commonly described as a pattern in which individuals with insulin-dependent diabetes (typically T1D) deliberately restrict or omit insulin to prevent weight gain or to lose weight [1, 4, 7, 17]. Multiple sources emphasize that "diabulimia" is not an official diagnostic category, and its absence from major nosologies can limit standardized assessment and contribute to clinical invisibility despite serious medical risk [1-2, 7]. A further complication is that eating disorders, when comorbid with diabetes, are associated with higher risk of acute complications (e.g., recurrent DKA) and adverse outcomes, strengthening the rationale for a dedicated clinical focus even in the absence of formal criteria [3, 4-5].

The adult focus is clinically important for two reasons supported by the literature. First, adult-onset T1D is common and frequently misclassified, which can delay appropriate insulin-centered management and obscure recognition of intentional insulin restriction as a disordered-eating behavior [6, 11, 18]. Second, insulin restriction behaviours have been documented in young adults and adults with T1D, including an adult clinical case report (age 35) highlighting psychopathological and psychosomatic mechanisms in "diabulimia" [5], and observational evidence in adolescents/young adults demonstrating measurable rates of disordered eating behaviour and insulin restriction [8-9]. Public and patient-facing discourse may also shape help-seeking and stigma; a thematic analysis of online commentary illustrates that diabulimia is widely discussed yet still contested and poorly understood in the public sphere, aligning with its under-recognition in formal systems [3, 7].

Epidemiology

Quantifying diabulimia is challenging because the construct is not formally defined in DSM/ICD frameworks, and studies operationalize it variably (e.g., insulin omission for weight control as a subtype of disordered eating) [1-2, 4]. Nonetheless, the problem is consistently portrayed as clinically significant in T1D populations, with one review describing diabulimia as affecting a substantial proportion of patients in late adolescence/young adulthood (15–30 years), implying that many affected individuals will enter ongoing adult diabetes care with persistent risk [1, 19]. Complementing this, a cross-sectional study in Saudi adolescents and

young adults with T1D specifically assessed disordered eating behaviour and insulin restriction, supporting that these behaviours occur at non-trivial frequency in clinical populations even when not labeled as a distinct diagnosis [4, 9].

Evidence synthesis in younger cohorts also matters for adult care planning. A systematic review and meta-analysis in adolescents with T1D evaluated prevalence of “diabulimia”/insulin omission-related disordered eating, suggesting that risk emerges early and may track into adulthood, even though adolescent estimates cannot be directly extrapolated to older adults [4, 10, 19]. In adults, dedicated epidemiologic estimates remain comparatively sparse in the provided literature; however, adult case-based evidence confirms occurrence beyond adolescence, including in mid-adulthood [3, 5]. More broadly, because more than half of incident T1D may occur in adults, the absolute number of adults potentially exposed to diabulimia-relevant risk pathways is likely substantial, even if age-stratified prevalence is uncertain [11, 18].

Etiology

The etiology described across sources is multifactorial, integrating weight and shape concerns, diabetes-specific burdens, and broader eating-disorder psychopathology. Reviews frame diabulimia as a compensatory behaviour (insulin omission) used for weight control in insulin-dependent diabetes, aligning it conceptually with purging-type behaviours seen in bulimia-spectrum disorders, while emphasizing its unique biomedical danger because insulin manipulation directly drives hyperglycemia and catabolism [1, 4, 17, 20]. A clinical case report further supports a complex psychopathological and psychosomatic interplay in an adult patient, indicating that mechanisms may include more than aesthetic motives alone [5, 17].

Diabetes-specific psychological stress appears central. Work examining correlates in young adults with T1D links intentional insulin restriction and diabetes-specific disordered eating to diabetes distress and appearance-related perceptions, providing an empirically supported pathway by which the burdens of intensive diabetes self-management intersect with body image to produce risky compensatory behaviour [4, 8]. The broader review literature also emphasizes that the required focus on food, weight, and glycemic targets in diabetes care can heighten vulnerability to eating disorders, especially when coupled with fear of weight gain from insulin therapy [1, 4, 9]. Additionally, the absence of formal classification and inconsistent terminology

may itself contribute to delayed recognition and fragmented care pathways, a limitation explicitly highlighted in case-based discussion of classification systems [2-3].

Sociocultural and informational environments may shape attitudes and help-seeking. Analysis of public commentary surrounding a documentary on diabulimia demonstrates contested narratives and misunderstanding, which may reinforce stigma or normalize dangerous practices, potentially influencing patient behavior and clinical disclosure [3, 7]. These findings align with the repeated characterization of diabulimia as "frequently overlooked" and difficult to detect in routine diabetes practice [1, 7, 17].

Diagnostics

Diagnostic assessment is constrained by the lack of official diagnostic criteria for diabulimia and the tendency for insulin restriction to be hidden or rationalized as routine diabetes-management difficulty [1-2, 7]. Accordingly, the literature supports a clinical-suspicion approach in adults with T1D, centered on identifying patterns consistent with intentional insulin underdosing in the context of weight concerns or eating-disorder cognitions, especially when accompanied by metabolic instability [1, 4-5, 17]. Because eating disorders in diabetes are associated with worse biomedical prognosis, including recurrent DKA and increased mortality risk, diagnostic vigilance is emphasized in case-based and review discussions [3-4, 7].

A key diagnostic signal is recurrence of hyperglycemic crises. DKA is consistently described as a life-threatening acute complication of diabetes, particularly associated with T1D, and requiring prompt recognition and treatment [15, 21]. Reviews of adult DKA outline that it is precipitated by multiple factors and remains a major emergency presentation; intentional insulin omission is clinically relevant because it directly creates the insulin-deficient state that precipitates ketosis and acidosis [15, 21-22]. Case-based literature on euglycemic DKA further underscores that ketoacidosis can occur even without marked hyperglycemia in specific contexts, reinforcing that clinicians must assess ketone-related risk and not rely solely on glucose levels when evaluating suspected insulin manipulation or atypical presentations [15, 23].

Adult diabetes-type uncertainty can complicate interpretation of poor control. Adult-onset immune-mediated diabetes may be misclassified, and slowly evolving immune-mediated

diabetes in adults can present with features overlapping T1D and T2D, delaying appropriate therapy and confounding assessment of adherence versus pathophysiology [11, 18]. Similarly, LADA case-based insights highlight that adult autoimmune diabetes exists on a spectrum and can complicate diagnostic reasoning in adults with unstable control [6, 18]. Reviews of monogenic/mitochondrial diabetes and secondary diabetes emphasize that identifiable alternative etiologies require targeted diagnostic consideration because management differs; thus, adult patients with atypical features should be assessed to exclude non–T1D causes before attributing decompensation solely to behavioral insulin restriction [11, 16, 24].

Clinical presentation

The clinical presentation described in the diabulimia literature centers on intentional insulin restriction to affect weight, leading to hyperglycemia and catabolic weight loss, often accompanied by psychological features of eating disorders or diabetes distress [1, 4, 8, 17]. Because the behavior is compensatory and may be concealed, patients can appear intermittently adherent, with fluctuating control that does not match the expected pattern for their insulin regimen and diabetes education history, contributing to under-recognition [1, 3, 7]. An adult clinical case report illustrates that presentation may include a complex psychopathological profile and psychosomatic relationships, reinforcing the need for integrated mental-health evaluation rather than purely biomedical escalation of insulin doses [4-5].

Acute decompensation is a common clinically emphasized manifestation. Intentional insulin omission is mechanistically consistent with precipitating DKA, and case/review literature emphasizes DKA as a major life-threatening presentation in diabetes that requires urgent management [3, 15, 21]. Because euglycemic DKA is also documented, clinicians should evaluate ketosis and acidosis symptoms even when glucose is not severely elevated, particularly in complex adult presentations or where insulin omission is suspected [15, 23]. From a practical standpoint, diabulimia should be suspected in adults with T1D who present with recurrent DKA or repeated emergency visits in the context of weight concerns and disordered eating behaviour, as emphasized by the association between comorbid eating disorders and recurrent DKA in diabetes-focused case discussions [3-5].

Long-term Complications

Long-term complications arise plausibly through sustained insulin deficiency and chronic hyperglycemia, aligning diabulimia with pathways known to drive microvascular and neuropathic disease in T1D [12, 25]. Reviews of T1D pathophysiology and heterogeneity emphasize that inadequate insulin replacement and suboptimal glycemic control contribute to long-term complications, and individual variability can influence clinical trajectories, implying that persistent insulin restriction may accelerate complications in susceptible adults [12, 25].

Neuropathy-related outcomes are particularly relevant. Expert consensus on painful diabetic peripheral neuropathy and broader reviews of diabetic neuropathy describe neuropathy as a common chronic complication of diabetes that impairs quality of life and requires interdisciplinary management, making it clinically salient in adults with prolonged poor control [13, 26]. Cardiovascular autonomic neuropathy further characterize autonomic involvement as a serious diabetes complication with defined clinical and epidemiological features and diagnostic approaches; chronic poor compensation is repeatedly discussed as a relevant context for its development and manifestation [13, 27-28].

Other microvascular and systemic complications are also pertinent in adults with longstanding poor control. A retrospective, population-based analysis of diabetic retinopathy in an adult diabetes cohort underscores the clinical burden of ocular microvascular disease in adult practice settings [12, 29]. A detailed clinical case describing T1D with chronic kidney disease and neuroosteoarthropathy illustrates the multi-complication phenotype that can develop with long-term poor control, supporting the plausibility of renal and musculoskeletal sequelae in persistently decompensated patients [12, 14]. Reviews addressing osteoporosis risk and management in diabetes support that bone health issues are clinically relevant in diabetes populations and should be considered in comprehensive adult complication surveillance [14, 30].

Gastrointestinal and infectious complications may further compound risk in poorly controlled diabetes. A review of diabetic gastroparesis describes its epidemiology, pathophysiology, and clinical consequences, highlighting how impaired gastric emptying can complicate glycemic management—an important consideration when re-establishing safe insulin therapy in patients with disordered eating or erratic intake [12, 31]. Separately, reviews of evidence on community-

acquired pneumonia in diabetes and vaccine-prophylaxis emphasize that infection risk and prevention strategies are clinically important in diabetes care, particularly in contexts of unsatisfactory compensation, which is relevant to adults with diabulimia-driven instability [32-33].

Treatment and Prevention

Treatment requires addressing both acute metabolic emergencies and the underlying eating-disorder/psychological drivers of insulin restriction. When patients present with DKA or suspected ketoacidosis, the literature emphasizes prompt recognition and emergency management of DKA as a life-threatening complication, with adult-focused overviews and clinical discussions underscoring its urgency and precipitating factors consistent with insulin deficiency [15, 21-22]. Because atypical presentations such as euglycemic DKA occur, clinicians should treat based on acid–base and ketone status rather than hyperglycemia alone in complex adult cases [15, 23]. These acute-care priorities align with the broader characterization of diabulimia as increasing risk for recurrent DKA and premature mortality when co-occurring with diabetes [3-4, 7].

Longer-term management is inherently interdisciplinary. Diabetes-and-eating-disorder reviews emphasize that dual management is challenging and requires integrated care addressing abnormal eating behaviours alongside diabetes self-management demands [1, 4, 17]. Work on emerging eating disorder diagnoses and the limitations of current classification systems further supports that the lack of formal criteria should not preclude structured clinical pathways; rather, it increases the need for careful assessment and coordinated endocrinology–psychiatry collaboration [2-3]. Evidence on correlates of insulin restriction in young adults (diabetes distress and appearance-related perceptions) supports targeting modifiable psychological contributors—such as distress and body image—in therapeutic planning and relapse prevention [4, 8]. More generally, because insulin misuse is also recognized in the context of bulimia-spectrum pathology, medical reviews of bulimia complications reinforce the need to assess for broader compensatory behaviours and medical sequelae when insulin restriction is identified [4, 20].

Prevention strategies supported by the provided literature emphasize proactive detection and supportive care environments. Observational evidence that disordered eating behaviour and insulin restriction are present in adolescents and young adults with T1D supports early

screening and continuity into adult services, as risk may originate before adulthood [9-10, 19]. Public-discourse analysis suggests that misconceptions and stigma around diabulimia exist, implying that patient education and clinician communication strategies should anticipate shame and non-disclosure and explicitly address the risks of insulin omission [3, 7]. Finally, given the intersection between poor compensation and infection vulnerability, respiratory-infection prevention (including vaccination approaches reviewed for diabetes populations) is a relevant adjunct component of comprehensive risk reduction in adults with recurrent metabolic instability [32-33].

Summary and Conclusions

Diabulimia denotes intentional insulin restriction for weight control in people with T1D, is widely described as under-recognized, and remains outside formal diagnostic systems, creating barriers to standardized detection and treatment despite evidence of serious risk [1-2, 7]. Although much prevalence research focuses on adolescents and young adults, adult cases are documented, and adult clinical relevance is reinforced by the high burden of adult-onset and adult-managed autoimmune diabetes, where misclassification and heterogeneity complicate care [5-6, 11, 18, 25].

Clinically, diabulimia should be considered in adults with T1D who show discordant glycemic patterns, recurrent DKA (including atypical/euglycemic presentations), and psychosocial features consistent with eating-disorder psychopathology or diabetes distress [3, 5, 8, 15, 23]. The expected long-term trajectory—if insulin restriction persists—aligns with recognized pathways to microvascular disease, neuropathy (including autonomic neuropathy), renal and musculoskeletal complications, and increased infection burden in poorly controlled diabetes [12-13, 33]. The literature collectively supports a management model that combines emergency treatment of acute crises with sustained interdisciplinary therapy addressing both diabetes self-management and eating-disorder mechanisms, while also emphasizing the need for improved classification, adult-focused epidemiology, and scalable prevention strategies across the transition into adult care [1-7, 8, 10-11].

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In preparing this work, the authors used Google Gemini to improving language and readability. After using this tool, the authors reviewed and edited the content as necessary and accept full responsibility for the substantive content of the publication.

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