

Diabetes Distress in Adults with Type 2 Diabetes and Multimorbidity: A Scoping Review

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Background: Diabetes distress is a distinct psychological construct often conflated with depression in adults with Type 2 Diabetes Mellitus (T2DM) and multimorbidity. Current literature lacks a unified synthesis explaining how “therapeutic competition”, where managing multiple conditions creates conflicting self-care demands, and cumulative regimen complexity specifically drive distress in this population.

Objective: This scoping review systematically maps the biopsychosocial determinants of diabetes distress in adults with T2DM and multimorbidity to inform integrated, patient-centered interventions.

Methods: A systematic search was conducted across PubMed/MEDLINE, Scopus, and EBSCOhost up to July 2025, following PRISMA-ScR guidelines. Peer-reviewed English studies examining diabetes distress in adults (≥18 years) with T2DM and multimorbidity were included. Evidence was thematically synthesized using a biopsychosocial framework.

Results: Of 269 records, 17 studies met the inclusion criteria. Thematic synthesis identified a synergistic interplay across four domains. Clinically, distress was driven primarily by treatment complexity (insulin regimens, polypharmacy) rather than disease duration, and was linked to poor glycemic control. Psychologically, distress emerged as a distinct mediator between depression and self-management. Behavioral challenges included medication non-adherence and physical inactivity. Notably, sociodemographic risks revealed significant cultural divergence: while socioeconomic disadvantage was universal, marital status acted as a protective buffer in Western cohorts but a source of caregiving strain in specific non-Western contexts.

Conclusion: Diabetes distress in multimorbidity is a biopsychosocial phenomenon driven by therapeutic competition and context-dependent social dynamics, rather than chronicity alone. Effective management requires a paradigm shift toward integrated care that prioritizes routine screening for high-risk profiles and culturally adapted support systems.

Keywords: diabetes distress, type 2 diabetes mellitus, multimorbidity, biomedical factors, psychosocial factors, sociodemographic factors, scoping review

Background

The global population of individuals living with type 2 diabetes mellitus (T2DM) is projected to reach 783 million by the year 2045, while the global economic burden may rise to \$1.7 trillion by 2030.¹ These projections highlight the urgent need for management strategies that not only rely on innovative pharmacological therapies but also incorporate proactive care models and address social risk factors beyond the clinical environment.^{2,3} Over the past decade, diabetes care has evolved from a traditional biomedical model to a more holistic, patient-centered approach. This shift is largely driven by a growing recognition of the complex and lifelong nature of chronic diseases.^{4,5}

Over 20% of people living with T2DM endure significant psychological distress associated with the management of their condition, which is distinct from depression and includes concerns about medication regimens, dietary restrictions, future complications, and social relationships.^{6,7} This form of distress is closely associated with anxiety, low mood, and fear of complications, often affecting self-esteem and leading to feelings of isolation.⁸ Effective coping mechanisms and

robust emotional regulation skills are correlated with diminished levels of diabetes-related distress, indicating that interventions focused on these domains may yield advantageous outcomes.⁹ Therefore, integrating psychosocial support into diabetes management is essential to address both the emotional and physical well-being of patients.^{6,8}

The burden of diabetes distress is compounded by the high prevalence of multimorbidity. In this review, we operationally define this scope to explicitly encompass both concordant conditions (sharing similar pathophysiology) and discordant conditions (unrelated to diabetes), as approximately 75% of individuals diagnosed with type 2 diabetes exhibit a combination of both concordant and discordant comorbidities.¹⁰ The presence of each additional comorbidity markedly elevates the likelihood of experiencing diabetes distress, potentially initiating a detrimental cycle characterized by diminished medication adherence and suboptimal glycemic control.¹¹ Crucially, multimorbidity intensifies distress through complex mechanisms beyond mere treatment complexity. Conflicting therapeutic guidelines between diabetes and discordant comorbidities often create a “therapeutic competition”, significantly increasing the cognitive burden and emotional distress for patients as they navigate contradictory self-management advice.^{4,11} Social determinants such as food insecurity, financial instability, and limited access to comprehensive care further exacerbate health disparities, particularly among vulnerable populations.^{6,12}

While extensive literature exists on diabetes distress, critical gaps remain in the context of multimorbidity. First, existing syntheses often conflate diabetes distress with clinical depression, obscuring the unique emotional burden stemming specifically from conflicting self-management demands.^{13,14} Unlike depression, distress in this population is frequently driven by the aforementioned “therapeutic competition” where guidelines for comorbidities contradict diabetes protocols yet this distinct mechanism remains poorly synthesized within current reviews.^{4,11} Second, current frameworks rarely account for the synergistic impact of discordant conditions (eg, arthritis or anxiety) on distress, often isolating diabetes as a singular clinical entity.^{10,15} Consequently, there is a need to synthesize how the interaction of multiple conditions, particularly through mechanisms like therapeutic competition, uniquely shapes the experience of diabetes distress. Therefore, a comprehensive scoping review is necessary not merely to fill a gap in quantity, but to disentangle these complex biopsychosocial pathways.

Consequently, this scoping review aims to systematically map and synthesize existing evidence regarding the biopsychosocial determinants of diabetes distress in adults with Type 2 Diabetes Mellitus (T2DM) and multimorbidity. Specifically, the review aims to: (1) characterize the nature and prevalence of distress within this complex population; (2) identify the psychometric instruments utilized for assessment; and (3) explore the synergistic interplay of clinical, psychological, behavioral, and sociodemographic factors to inform the design of integrated, patient-centered interventions. The remainder of this paper is organized as follows: first, we describe the methodological approach using PRISMA-ScR guidelines; second, we present the results stratified by biopsychosocial domains; and finally, we discuss the theoretical and clinical implications of these findings.

Methods

Design

This study used a scoping review design to explore the broad and varied literature on diabetes distress among patients with multimorbidity. This method was selected because it allows researchers to address wide-ranging questions and to map evidence from studies that may use different definitions and measurement tools.¹⁶ This review followed the literature and used the PRISMA Extension for Scoping Reviews (PRISMA-ScR) as a reporting standard.¹⁷

Eligibility Criteria

The eligibility criteria were established using the PCC (Population, Concept, and Context) framework to ensure alignment with the study objectives.

Population

Adults (aged ≥ 18 years) diagnosed with Type 2 Diabetes Mellitus (T2DM) and living with multimorbidity. For the purpose of this review, multimorbidity is operationally defined as the co-occurrence of T2DM with at least one additional chronic condition, explicitly encompassing both concordant conditions (eg, hypertension, cardiovascular disease) and discordant conditions (eg, arthritis, depression, anxiety).

Concept

Primary studies examining diabetes-specific distress and its associated biopsychosocial determinants. This included quantitative studies utilizing validated psychometric instruments (eg, DDS, PAID) and qualitative studies exploring the lived experience of distress related to diabetes management.

Context

All healthcare settings (primary, secondary, or tertiary care) and community settings, with no geographic restrictions to ensure a global perspective.

Inclusion and Exclusion Criteria

This review included only primary empirical research (eg, cross-sectional, cohort, intervention, or qualitative designs) available in full text and published in the English language. Studies were required to explicitly investigate factors associated with diabetes distress within the target population. Exclusion criteria comprised

- Secondary research (eg, systematic reviews, meta-analyses, scoping reviews).
- Non-empirical publications (eg, editorials, commentaries, letters, opinion pieces).
- Grey literature (eg, conference abstracts, dissertations, government reports) to ensure the inclusion of peer-reviewed evidence.
- Inaccessible full-text articles (eg, studies where the full text could not be retrieved through institutional databases).

No restrictions were applied regarding the year of publication to capture a comprehensive overview of knowledge development in this field.

Search Strategy

A systematic literature search was conducted across three major electronic databases: PubMed/MEDLINE, Scopus, and EBSCOhost. These databases were strategically selected to ensure multidisciplinary coverage spanning biomedical, clinical, nursing, and social science literature. The search strategy employed a combination of controlled vocabulary (eg, Medical Subject Headings [MeSH]) and relevant free-text keywords centered on three core concepts: “Type 2 Diabetes Mellitus”, “Multimorbidity”, and “Diabetes Distress”. Boolean operators (“AND”, “OR”) were utilized to construct precise search queries (detailed search strings are provided in [Supplementary File 1](#)).

The search was limited to peer-reviewed empirical articles published in the English language to ensure the inclusion of rigorously validated evidence. To maintain feasibility and focus on peer-reviewed data, grey literature (eg, dissertations, conference proceedings, and unpublished reports) was excluded. The final search was concluded in July 2025. All retrieved records were imported into Mendeley reference management software for deduplication and subsequent screening.

Study Selection and Data Extraction

Study Selection To ensure consistency and minimize selection bias, the screening process was conducted in two consecutive stages by two independent reviewers (MAA and RA). In the initial phase, titles and abstracts were screened against the pre-defined eligibility criteria to identify potentially relevant studies. In the second phase, full-text articles of selected records were retrieved and rigorously assessed for final inclusion. Any discrepancies between reviewers at either stage were resolved through consensus discussion or, where necessary, by arbitration with a third senior reviewer (NJ).

Data Extraction Data were extracted independently by the same two reviewers using a standardized data charting form developed in Microsoft Excel. To ensure inter-rater reliability, this form was pilot-tested on a random sample of five included studies and refined prior to final data charting. Extracted variables encompassed: (1) study characteristics (author, year, country, design, setting); (2) participant profiles (sample size, mean age, gender distribution); (3) operational definitions and psychometric instruments used for assessing multimorbidity and diabetes distress; and (4) key findings stratified by clinical, psychological, behavioral, and sociodemographic domains.

Data Analysis and Synthesis

Data synthesis was conducted using a narrative approach underpinned by Engel's biopsychosocial framework.¹⁸ This framework elucidates the interdependent influence of biological, psychological, and social factors on health outcomes. Accordingly, extracted determinants of diabetes distress were deductively mapped into these three core domains to facilitate a comprehensive analysis. To ensure analytical rigor and trustworthiness, the research team engaged in iterative consensus meetings to resolve discrepancies and refine the thematic categorization. The final results are presented in a descriptive narrative format, complemented by thematic tables to systematically summarize key insights, consistent with scoping review methodological guidance.¹⁶

Result

Study Selection

The systematic literature search across three electronic databases yielded a total of 269 records (Scopus: n=115; PubMed: n=103; EBSCOhost: n=51). Following the removal of 130 duplicates, 139 unique records were screened by title and abstract. During this initial phase, 64 records were excluded as they did not align with the study's scope. Consequently, 75 reports were sought for full-text retrieval, of which 4 reports could not be retrieved. The remaining 71 full-text articles were rigorously assessed for eligibility. At this stage, 54 articles were excluded, primarily due to an incorrect population (n=50) and ineligible publication types (n=4). Ultimately, 17 studies satisfied all inclusion criteria and were included in this scoping review. The detailed selection process is illustrated in the PRISMA flow diagram (Figure 1).

Characteristics of Included Studies

A total of 17 studies met the inclusion criteria, with publication dates spanning from 2008 to 2025. Notably, there has been a marked surge in research interest recently, with the majority of studies (64.7%, n=11) published since 2020. In terms of geographic distribution, research predominantly originated from North America (52.9%, n=9; comprised of 7 studies from the USA and 2 from Canada), followed by Asia (29.4%, n=5; India, China, Thailand, and Vietnam), Africa (11.8%, n=2; Ghana and Egypt), and Europe (5.9%, n=1; Spain). Regarding study design, the literature is dominated by cross-sectional surveys (64.7%, n=11). The remaining articles comprised longitudinal studies (11.8%, n=2), randomized controlled trials (11.8%, n=2), and qualitative inquiries (11.8%, n=2). Sample sizes exhibited significant variation, ranging from 16 participants in qualitative work to 2,040 in large-scale quantitative surveys. Detailed characteristics of each included study, including the specific methods used for assessing multimorbidity and diabetes distress, are summarized in Table 1

Factors Associated with Diabetes Distress

The thematic synthesis of the 17 included studies identified a multifaceted array of biopsychosocial determinants contributing to diabetes distress. To facilitate a structured analysis of the multimorbidity burden, these factors were stratified into four interconnected domains: clinical and physiological, psychological, behavioral and lifestyle, and sociodemographic. This classification framework highlights the synergistic interactions that precipitate and perpetuate distress in individuals managing Type 2 Diabetes alongside comorbid conditions. A comprehensive summary of these determinants is presented in Table 2.

Clinical Factors Associated with Diabetes Distress

A high cumulative disease burden frequently emerges as a primary predictor of diabetes distress. Multiple studies have demonstrated a significant positive association between an increased number of comorbidities and higher distress levels, reflecting the overwhelming load of managing concurrent conditions.^{27,28,30,32} This physiological burden is consistently mirrored in glycemic outcomes; suboptimal control (elevated HbA1c) is robustly linked to greater distress, creating a bi-directional cycle of frustration and poor health.^{13,14,24,25,31,32} Crucially, treatment complexity acts as a distinct amplifier. Specifically, the use of insulin regimens has been identified as a potent source of distress due to the logistical demands and stigma associated with injections.^{23,24,30} While polypharmacy has been independently linked to higher distress

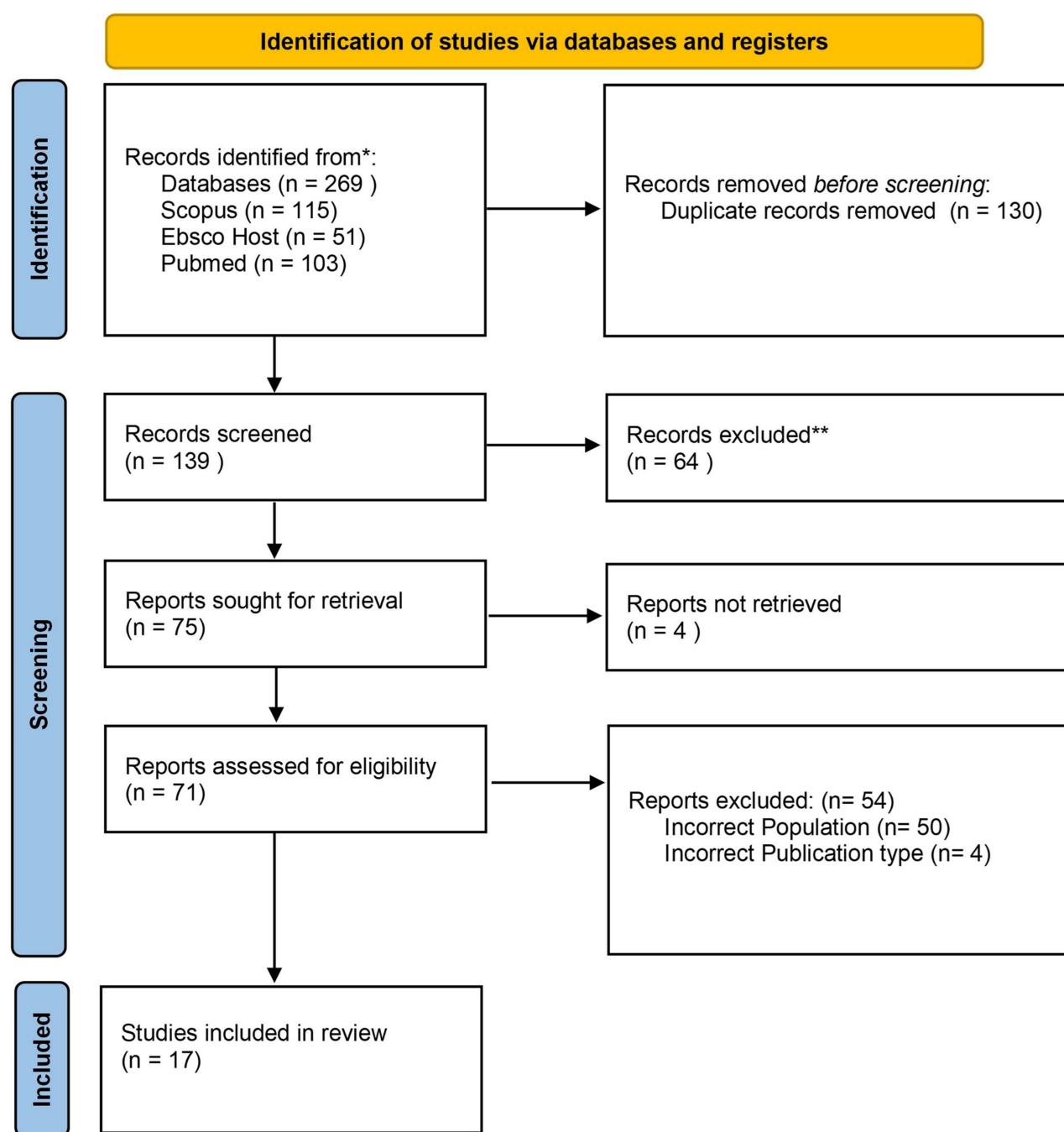


Figure 1 PRISMA Flow Diagram. Adapted from Page MJ, McKenzie JE, Bossuyt PM et al. The PRISMA 2020 statement: an updated guideline for reporting systematic. **Note:** *Records identified from each specific electronic database searched. * Records excluded during the screening phase because they did not meet the inclusion criteria based on title and abstract review.

odds.³³ Conversely, the association between diabetes duration and distress remains inconsistent; while some studies suggest a link, others report no significant relationship, indicating that the complexity of the disease management weighs more heavily on the patient than its chronicity alone.^{28,30,32}

Psychological Factors Associated with Diabetes Distress

Psychological determinants of distress were dominated by the burden of affective symptoms, particularly depressive symptoms. This relationship appears robust across diverse populations; for instance, Sayed Ahmed et al (2022) reported

Table 1 Characteristics of Included Studies

Author & Year	Country/Region	Study Design	Population Characteristics	Multimorbidity Assessment	Diabetes Distress Assessment
Johnson et al (2016) ¹⁹	Canada	Cross-sectional	N=2040; community-based; mean age 64.4 ± 10.6 years; 45.2% female	Self-report: Count of chronic conditions (BP, Heart, Arthritis, etc).	PAID-5: Problem Areas in Diabetes Scale (5 items).
Lipscombe et al (2015) ²⁰	Canada	Longitudinal	N=1135; community-based; mean age 60.0 ± 8.0 years; 49.0% female	Administrative Data: Charlson Comorbidity Index & chronic condition count.	DDS-17: Diabetes Distress Scale (17 items)
Asuzu et al (2017) ¹³	USA	Cross-sectional	N=615; two primary care clinics; mean age 61.3 ± 10.9 years; 38.4% female	Medical Records & Self-report: Charlson Comorbidity Index (CCI)	DDS-17: Diabetes Distress Scale (17 items)
Kretchy et al (2020) ²¹	Ghana	Cross-sectional	N=188; outpatient clinic; mean age 59.3 ± 11.9 years; 72.3% female	Self-report/Records: Presence of comorbidities (Yes/No).	PAID-20: Problem Areas in Diabetes Scale (20 items).
Zhang et al (2022) ²²	China	Cross-sectional	N=400; three major hospitals; age ≥18 years; 43.0% female	Self-report: Complication status	DDS-17 (Chinese): Translated and validated version.
Tanenbaum et al 2016) ²³	USA	Qualitative	N=32; diabetes program and primary care clinics; mean age 54 and 58 years; ~59% female	Self-report: Charlson Comorbidity Index (CCI).	DDS-17: Used to characterize sample distress levels.
Fisher et al (2008) ¹⁴	USA	Longitudinal	N=506; community-based; mean age 57.8 ± 9.9 years; 57.0% female	Structured Interview (CIDI) for mental disorders; Self-report for physical comorbidities.	DDS-17: Diabetes Distress Scale (17 items).
Gupta et al (2025) ²⁴	India	Cross-sectional	N=200; large hospital; mean age 57.0 ± 9.9 years; 41.0% female	Medical Records: End-organ damage (Retinopathy, Nephropathy, Neuropathy, CAD).	DDS-17: Diabetes Distress Scale.
Verdecias et al (2023) ²⁵	USA	Cross-sectional	N=473; community-based; mean age 51.6 years; 75.9% female	Administrative Claims: Charlson Comorbidity Index (CCI).	DDS-17: Diabetes Distress Scale.
R.Misra et al (2021) ²⁶	USA	RCT Pilot	N=20; church-based; mean age 55.0 ± 9.6 years; 70.0% female	Inclusion Criteria: Comorbid Hypertension (Self-reported/Screening).	DDS-17: Diabetes Distress Scale (17 items).
Hernandez et al (2019) ²⁷	USA	Qualitative	N=16; community-based; mean age 68.9 (Men) and 81.5 (Women); 56.0% female	Self-report: Demographic questionnaire (Complications checklist).	DDS-17: Used for screening inclusion (Score ≥3)
Sayed Ahmed et al (2022) ²⁸	Egypt	Cross-sectional	N=403; eight rural primary health facilities; mean age 46.0 ± 11.5 years; 59.1% female	Interview/Self-report: Count of chronic comorbidities and complications.	PAID-20 (Arabic): Problem Areas in Diabetes Scale
Jeon et al (2020) ²⁹	USA	Cross-sectional	N=145; US clinics; age groups <65 and ≥65 years; 53.8% female	Clinical Measurement: Apnea-Hypopnea Index (OSA) and Insomnia Severity Index (ISI).	PAID-20: Problem Areas in Diabetes Scale (20 items).
Mahala et al (2024) ³⁰	India	Cross-sectional	N=152; outpatient clinic; mean age 50.1 ± 0.9 years; 48.7% female	Structured Proforma & Clinical Exam: Known co-morbidities (HTN, Dyslipidemia).	DDS-17: Diabetic Distress Scale (17 items).
Hoyo et al (2023) ³¹	Spain	RCT	N=180; primary care; mean age 65.9 years; ~67% female	Structured Interview (MINI) and PHQ-9: Comorbid Depression.	DDS-17: Diabetes Distress Scale.
Tunsuchart et al 2020) ³²	Thailand	Cross-sectional	N=370; primary health care; mean age 60.95 ± 7.96 years; 68.1% female	Interview: Presence of co-morbidity (Yes/No).	DDS-17 (Thai): Diabetes Distress Scale.
Thi Bui et al (2021) ³³	Vietnam	Cross-sectional	N=806; community-based; mean age 65.2 ± 9.0 years; 52.7% female	Self-report: Count of comorbidities (0, 1–2, ≥3).	PAID-5: Problem Areas in Diabetes Scale (5 items).

Abbreviations: T2DM, Type 2 Diabetes Mellitus; DDS, Diabetes Distress Scale; PAID, Problem Areas in Diabetes; CCI, Charlson Comorbidity Index; CSDD, Clinically Significant Diabetes Distress; OSA, Obstructive Sleep Apnea; RCT, Randomized Controlled Trial; ~, approximately.

Table 2 Summary of Biopsychosocial Factors Associated with Diabetes Distress in the Context of Multimorbidity

Domain	Determinant	Association	Clinical Implications	References
Clinical & Physiological	Cumulative comorbidity burden	↑	Patients with multiple conflicting conditions require prioritized psychosocial support to manage symptom load.	[27,28,30,32,33]
	Poor glycemic control (HbA1c)	↑	Persistent elevation in HbA1c should trigger a distress screening, rather than immediate therapy intensification alone.	[13,14,24,25,31,32]
	Treatment complexity (Insulin & Polypharmacy)	↑	Regimen burden especially insulin use and polypharmacy must be assessed as a modifiable risk factor; simplification is recommended.	[23,24,30,33]
	Duration of diabetes	~	Distress may fluctuate over time and does not always correlate linearly with disease duration.	[14,32,33]
Psychological	Depressive symptoms	↑	Screening for both distress and depression should be integrated into routine care.	[13,14,24,25,28,31]
	Anxiety symptoms	↑	Clinicians are encouraged to regularly inquire about patients' specific fears regarding complications.	[14,28]
	Low self-efficacy	↑	Enhancing self-efficacy through realistic, small-step self-management goals may reduce distress.	[25,26]
	Fatalism/negative perceptions	↑	Fatalistic beliefs (eg, "diabetes cannot be controlled") should be recognized and discussed.	[13,30]
Behavioral & Lifestyle	Low medication adherence	↑	Non-adherence should be viewed as a potential "red flag" for distress, not simply as patient non-compliance.	[21,24,25,31]
	Low physical activity	↑	Accessible and tailored physical activity programs are recommended to break the distress-inactivity cycle.	[19,26,30]
Sociodemographic	Low social support	↑	Identifying and connecting patients to available family or community support resources is essential	[20,25,26,32]
	Younger age	↑	Young adults require special attention due to "biographical disruption" and higher distress risks.	[14,25,29,30]
	Low socioeconomic status	↑	Screening for social determinants (eg, financial strain) should be part of holistic care.	[25,28,30]
	Marital Status	Mixed	Assessment should consider cultural context: risk of isolation (Western) vs caregiving burden (Non-Western). Nurses should screen for "double burden" in married patients in collectivist cultures.	[20,28,32]
	Low educational attainment	↑	Educational interventions should be tailored to patients' health literacy levels to reduce cognitive burden.	[28,32]

Notes: Association symbols: ↑ = Positive association (factor increases distress). ~ = Inconsistent or non-significant association across studies. References: The citations listed are representative examples from the included studies supporting each factor.

a strong positive correlation ($\rho=0.673$, $p<0.001$) between distress and depression scores in an Egyptian cohort.²⁸ In a US Medicaid sample, Verdecias et al (2023) identified depression as a significant independent predictor, increasing the odds of distress by 35% (AOR=1.35).²⁵ Crucially, Asuzu et al (2017) clarified the mechanistic pathway between these constructs using structural equation modeling. They found that while depression predicts distress ($\beta=0.27$), it does not

directly impact glycemic control; instead, depression impacts HbA1c indirectly through diabetes distress, which serves as the direct mediator.¹³

Beyond depression, anxiety symptoms also significantly contribute to the emotional load, as evidenced by Fisher et al (2008) in longitudinal analyses and Sayed Ahmed et al (2022) ($\rho=0.484$). Furthermore, maladaptive cognitive patterns such as fatalism the belief that health outcomes are beyond one's control were found to directly exacerbate distress ($\beta=0.25$).¹³ Qualitatively, Tanenbaum et al (2016) described this as a perceived "interrelatedness of mood and blood glucose," where patients feel trapped in a cyclical relationship between negative emotions and fluctuating sugar levels, reinforcing a sense of helplessness.²³

Behavioral and Lifestyle Factors Associated with Diabetes Distress

Behavioral and lifestyle factors play a pivotal role in the persistence of diabetes distress, operating through a bidirectional relationship. Challenges in daily self-management, particularly medication non-adherence, were consistently associated with higher distress levels. Quantitatively, Verdecias et al (2023) identified that patients who frequently forgot their medication had over three times the odds of experiencing distress (OR 3.19).²⁵ This trend was corroborated by Kretchy et al (2020), who demonstrated that high distress reduced the likelihood of medication adherence by 68% (OR 0.32).²¹ Furthermore, physical inactivity significantly exacerbates this burden. Mahala et al (2024) reported that non-compliance with physical activity recommendations increased distress risk by 2.14-fold,³⁰ while Johnson et al (2016) observed that distressed individuals were 1.8 times more likely to fail meeting activity guidelines.¹⁹ Qualitatively, Hernandez et al (2019) illuminated the mechanism behind this inactivity, noting that the fear of hypoglycemia and falling specifically constrained patients' willingness to exercise, thereby perpetuating a cycle of poor health and emotional burden.²⁷

Sociodemographic Factors Associated with Diabetes Distress

Social and demographic characteristics significantly shape the experience of diabetes distress, often acting as either buffers or amplifiers of stress. Low social support consistently emerged as a robust predictor of higher distress across diverse populations. For instance, Lipscombe et al (2015) found that lack of social support was associated with persistently severe distress trajectories over four years,²⁰ a finding echoed in the Thai context by Tunsuchart et al (2020), where the absence of family support was significantly correlated with moderate-to-high distress levels ($p=0.037$).³²

Regarding age, younger adults were frequently identified as a high-risk group. Fisher et al (2008) noted that younger age predicted the emergence of distress over time, while Jeon et al (2020) and Verdecias et al (2023) confirmed this association cross-sectionally (AOR=0.96), potentially reflecting the greater "biographical disruption" of managing a chronic disease during productive life years.^{25,29} Furthermore, socioeconomic vulnerabilities, specifically low socioeconomic status and lower educational attainment, remained consistent markers for increased distress. Mahala et al (2024) and Verdecias et al (2023) identified financial strain as a key determinant,^{25,30} while Sayed Ahmed et al (2022) and Tunsuchart et al (2020) highlighted the significant impact of illiteracy and low education on distress scores.^{28,32}

Notably, the impact of marital status appeared context-dependent. In Western cohorts, Lipscombe et al (2015) identified being unmarried or living alone as a primary risk factor due to isolation.²⁰ Conversely, Sayed Ahmed et al (2022) found that in a rural Egyptian population, being married was a significant independent predictor of distress, likely reflecting the heavy cultural burden of family caregiving responsibilities that competes with self-care.²⁸

Discussion

The primary finding of this scoping review indicates that diabetes distress in adults with Type 2 Diabetes Mellitus (T2DM) and multimorbidity is not driven by isolated risk factors, but emerges from a synergistic interplay of clinical burden, psychological vulnerability, behavioral challenges, and sociodemographic determinants. Specifically, our synthesis reveals that treatment complexity particularly insulin regimens and polypharmacy acts as a potent clinical precipitant, which is significantly amplified by depressive symptoms and context-dependent social factors. These findings underscore that distress in this population represents a distinct biopsychosocial phenomenon, separate from general depression, requiring a paradigm shift from fragmented, disease-centric models to integrated, holistic care pathways.^{4,5}

In terms of clinical drivers, our review highlights that treatment complexity is a more significant and consistent predictor of distress than disease duration alone, which showed inconsistent associations across studies. While previous meta-analyses have largely prioritized establishing global prevalence, we identified that the specific burden of insulin therapy and polypharmacy serves as a direct mechanism for distress. Notably, Gupta et al (2025) reported a dramatic association, finding a 23-fold increase in the odds of distress among patients on intensive insulin therapy,²⁴ a finding echoed qualitatively by Tanenbaum et al (2016) regarding the specific stigma and fear associated with injections. Additionally, Thi Bui et al (2021) confirmed that polypharmacy (≥ 5 medications) significantly increases distress odds (OR= 1.49).³³ This suggests that “therapeutic competition” where patients must navigate conflicting medication guidelines for discordant comorbidities creates a substantial cognitive and logistical strain.³⁴ Our synthesis suggests that this strain is multifaceted. It is driven not only by “cognitive overload” from processing excessive instructions but also by “decisional conflict” arising from contradictory medical advice (eg, steroid use for arthritis worsening glycemic control). This constant need to prioritize one condition over another precipitates “emotional exhaustion”, draining the psychological resilience necessary for effective self-care. Therefore, clinical assessments must look beyond HbA1c and explicitly evaluate “regimen burden” as a modifiable risk factor.

Psychologically, this review underscores the critical distinction between diabetes distress and clinical depression, which are frequently conflated in practice. Our synthesis of longitudinal data confirms that diabetes distress operates as an independent predictor of poor glycemic outcomes, often exhibiting a stronger direct association than depression itself. Mechanistically, this relationship functions as a reinforcing cycle: the emotional burden of multimorbidity diminishes the self-efficacy required for self-management, which subsequently compromises adherence and deepens distress. This behavioral pathway was quantified by Kretchy et al (2020), who demonstrated that high levels of distress reduced the odds of medication adherence by 68%. Crucially, however, this deleterious cycle is modifiable.²¹ Evidence from the TELE-DD trial by Hoyo et al (2023) confirms that integrated interventions targeting the depression-distress complex can successfully restore adherence and improve HbA1c, validating the necessity of screening protocols that differentiate emotional distress from psychiatric disorders.³¹

Furthermore, a dialectical analysis of lifestyle behaviors reveals a complex tension between coping and control. While dietary modifications are essential for glycemic management, they frequently impose a psychological burden, creating an internal conflict between the desire for “normalcy” and the rigors of restriction.¹⁹ Similarly, behaviors such as smoking and alcohol consumption often function as maladaptive coping mechanisms to alleviate immediate emotional distress. However, this relief is transient; these behaviors paradoxically exacerbate long-term physiological complications and glycemic volatility, thereby intensifying the very distress they were intended to soothe, locking patients into a self-perpetuating cycle of guilt and poor health outcomes.^{19,30}

Beyond lifestyle, sociodemographic factors like social support and marriage also exhibit a dual nature depending on cultural context, challenging the universality of risk factors reported in predominantly Western literature. While typically viewed as a protective buffer in Western populations, where living alone is a primary risk factor driven by social isolation,^{20,35} our findings indicate that in certain non-Western contexts, marriage can paradoxically introduce “caregiving strain.” For instance, Sayed Ahmed et al (2022) reported that in rural Egyptian cohorts, being married was significantly associated with higher distress.²⁸ This divergence likely reflects the “double burden” of managing a chronic disease while fulfilling demanding family caregiving roles, which outweighs the benefits of companionship in certain cultural settings. Consequently, social support cannot be viewed as a uniform protective factor; rather, its impact is context-dependent. To translate this into practice, we recommend that assessment tools in collectivist cultures be adapted to include specific items regarding “caregiver strain” and family expectations, rather than assuming family presence equates to support. Conversely, in individualistic settings, interventions might prioritize mobilizing social networks to combat isolation.

Ultimately, to elevate the theoretical integration of these findings, this review suggests that the biopsychosocial determinants of diabetes distress do not operate in isolation but through synergistic amplification. We hypothesize that factors from different domains interact dynamically to compound the patient’s burden. For instance, the biological complexity of multimorbidity (eg, polypharmacy and discordant conditions) likely depletes psychological reserves, leading to burnout and reduced executive function. This psychological depletion, in turn, compromises the patient’s

ability to navigate social demands or adhere to complex regimens, creating a “vicious cycle” where clinical and emotional burdens mutually reinforce one another. Thus, distress in this population should be viewed not as a linear accumulation of risks, but as a multiplicative outcome of these cross-domain conflicts.

Strengths and Limitations

The primary strength of this scoping review lies in its rigorous methodological approach, guided by the PRISMA-ScR standards, which ensures transparency and reproducibility. However, several limitations warrant consideration. First, consistent with standard scoping review methodology, we did not perform a formal critical appraisal of the included studies (eg, using JBI Critical Appraisal Tools). Consequently, the methodological quality and risk of bias of the individual studies remain unassessed, limiting our ability to validate the robustness of the reported evidence.

Second, our search strategy was confined to articles available in full text and published in English within major electronic databases. By excluding grey literature and articles without full-text access, there is a potential for selection bias, as relevant findings might have been omitted due to accessibility barriers. Third, substantial heterogeneity was observed across studies regarding the operational definitions of multimorbidity and the psychometric instruments used to measure distress (eg, DDS-17 vs PAID), which precluded the possibility of conducting a quantitative meta-analysis. Finally, as the majority of included studies originated from North America, the generalizability of these findings to populations in different cultural or healthcare contexts particularly in low-and middle-income countries should be interpreted with caution.

Implications for Practice and Policy

The dominance of treatment complexity and psychological burden identified in this review necessitates a targeted shift in clinical practice. Clinically, providers must move beyond generic care to operationalize the American Diabetes Association (ADA) Standards of Care, which mandate routine screening for diabetes distress. Based on our findings, this screening should not be uniform but strategically prioritized for high-risk profiles identified in this review: specifically, patients managing insulin regimens,^{23,24} those with significant polypharmacy,³³ and younger adults facing high cumulative comorbidity burdens.^{14,25} Furthermore, given the identified overlap between distress and depression, clinicians should employ differential diagnostic tools (eg, DDS-17 vs PHQ-9) to ensure that distress arising from “regimen fatigue” is not misdiagnosed or mistreated as clinical depression.¹³

Public Health Strategy Implications From a strategic public health perspective, addressing the “synergistic interplay” of biopsychosocial factors requires a transition from acute, fragmented care to sustainable, integrated support models. Health authorities should strengthen health systems by mandating psychosocial assessment as a key quality indicator for diabetes reimbursement schemes, ensuring that mental health is treated with the same urgency as glycemic control.^{28,31} Additionally, to overcome workforce shortages and address cultural barriers, strategies must incorporate task-shifting to Community Health Workers (CHWs). As demonstrated in rural interventions, trained CHWs are uniquely positioned to deliver culturally adapted psychosocial support, effectively bridging the gap between rigid clinical protocols and the patient’s daily lived reality.²⁶

Conclusion

This review highlights two distinctive contributions to the existing literature. First, it identifies that diabetes distress in multimorbid patients is uniquely driven by the mechanism of “therapeutic competition”, where conflicting guidelines for multiple conditions amplify cognitive burden, rather than by disease chronicity alone. Second, it reveals that social determinants exhibit significant cultural variability, particularly regarding marital status, which can shift from a protective buffer to a source of caregiving strain depending on the cultural context.

To advance the field, future research must move beyond broad prevalence studies toward targeted interventions. Specifically, we propose a testable hypothesis for future trials: that clinical strategies focused on “regimen simplification” (eg, coordinated deprescribing) will reduce diabetes distress more effectively than standard diabetes education alone. Validating such approaches is critical to transitioning from merely describing the burden of multimorbidity to actively mitigating it through integrated, patient-centered care.

Declaration of Generative AI

The authors used Google Gemini during the preparation of this work to improve readability and language structure. After using this tool, the authors reviewed and edited the content and take full responsibility for the integrity of the manuscript.

Ethics Statement

Ethical approval and informed consent were not required for this study as it is a scoping review of publicly available peer-reviewed literature and did not involve direct interaction with human participants or animals.

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Disclosure

The authors report no conflicts of interest in this research.

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