VIEWPOINT

Unravelling the Complexities of Diabetic Behavior: A Multifaceted Exploration of Psychological, Behavioral, and Societal Factors

RITWIK GHOSH*, MAHUA JANA DUBEY†, SUBHANKAR CHATTERJEE‡, SOUVIK DUBEY#

ABSTRACT

Diabetes management is a complex process influenced by various behavioral factors, which are crucial for developing effective interventions that promote optimal disease management and improve patient outcomes. This article explores the diverse behavioral manifestations associated with diabetes, shedding light on the psychological, physiological, and societal factors that underpin this complex interplay. Utilizing the mnemonics "DIABETES" and "DISTORTION", we interpret the behavioral dimensions of diabetes, emphasizing the need for holistic approaches addressing both physical and mental health. Our exploration reveals that diabetic behavior is shaped by a range of factors, including depression, impulsivity, anxiety, binge eating, emotional dysregulation, externalizing problems, somatic symptoms, sleep problems, substance abuse, denial, insulin stigma, suppression, taboo, oppositional behavior, resistance to therapy, template thinking, imitative behavior, oppression, and negativism. These factors interact and influence one another, resulting in a complex web of behavioral challenges that hinder effective diabetes management. By unravelling the underlying psychopathology and cognitive distortions that shape diabetic behavior, we can develop more personalized, holistic, and culturally sensitive approaches to diabetes care. The article highlights the need for integrated interventions that address the psychological, social, and cultural determinants of health, promote patient empowerment, and foster a proactive approach to diabetes management. Ultimately, this multifaceted exploration of diabetic behavior can inform the development of innovative strategies that improve health outcomes, enhance quality of life, and reduce the burden of diabetes on individuals and society.

Keywords: Multifaceted, mnemonic, distortion, stigma, suppression, taboo, holistic

Management of diabetes is a complex process influenced by various behavioral factors. Understanding these factors is essential for developing effective interventions that promote optimal disease management and improve patient outcomes. The intricate relationship between diabetes and human behavior forms a multifaceted domain crucial to understanding disease pathobiology, management, and outcomes[1] (Fig. 1). This article explores the diverse behavioral manifestations associated with diabetes, shedding light on the psychological, physiological, and societal factors that underpin this complex interplay. Utilizing the mnemonics "DIABETES" and "DISTORTION", the authors, hereby, have tried to interpret the behavioral dimensions of diabetes, emphasizing the need for holistic approaches addressing both physical and mental health.

DIABETES MNEMONIC

Depression, Delinquency, and Mood Disorder (D)

Mood disorders, including bipolar disorder, contribute to emotional dysregulation and instability. Depression, prevalent among individuals with diabetes, manifests as persistent sadness, hopelessness, worthlessness, disinterest in activities, along with multitude of somatic manifestations[2].

On the other hand, delinquency encompasses antisocial behavior marked by aggression, rule violation, and

*Senior Resident, Dept. of General Medicine, Burdwan Medical College & Hospital, Burdwan, West Bengal, India
†Specialist Medical Officer, Dept. of Psychiatry, Berhampore Mental Hospital, Berhampore, West Bengal, India
‡Post-Doctoral Trainee, Dept. of Endocrinology and Metabolism, Medical College & Hospital, Kolkata, West Bengal, India
#Assistant Professor, Dept. of Neuromedicine, Bangur Institute of Neurosciences, IPGMER & SSKM Hospital, Kolkata, West Bengal, India
Address for correspondence
Dr Souvik Dubey
Assistant Professor, Dept. of Neuromedicine, Bangur Institute of Neurosciences, IPGMER & SSKM Hospital, Kolkata, West Bengal, India
E-mail: drsouvik79@gmail.com

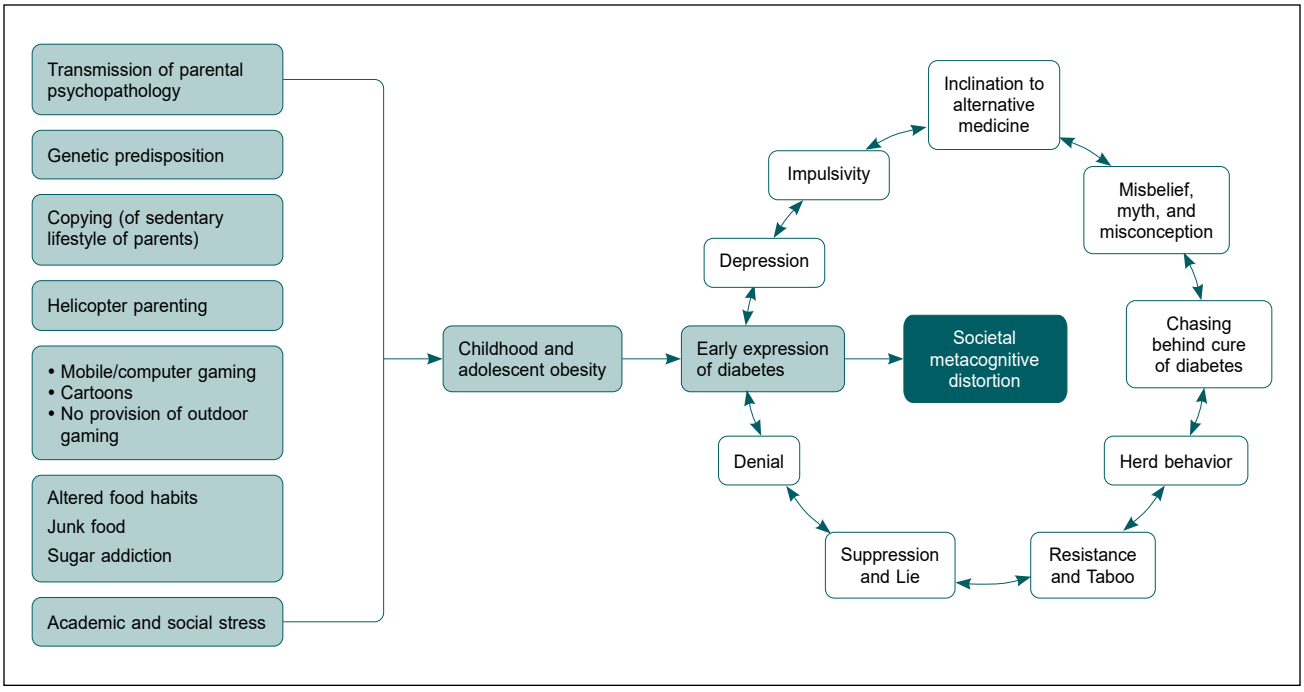


Figure 1. Intricate relationship between social, psychological, and behavioral factors leading to diabetes, and their interplay.

defiance. These psychological challenges compound the complexities of diabetes management, emphasizing the need for holistic approaches addressing both physical and mental health[3].

Impulsivity and Conduct Disorder (I)

Impulsivity, characterized by hasty decision-making and disregard for consequences, poses significant challenges to diabetes self-care. Conduct disorder, typified by antisocial behaviors and rule-breaking conduct, further complicates adherence to treatment regimens and lifestyle modifications[4].

Understanding the underlying drivers of impulsivity and conduct disorder is crucial for developing targeted interventions promoting self-control and adaptive coping strategies in individuals with diabetes.

Anxiety, Anger, Decreased Attention and Concentration, and Hyperactivity (A)

Anxiety disorders, prevalent among individuals with diabetes, exacerbate stress, and metabolic dysfunction. Anger and irritability arise from the frustrations and limitations inherent in diabetes management, impacting emotional well-being and interpersonal relationships. Decreased attention and concentration impair cognitive function, hindering decision-making and self-care behavior. Hyperactivity disrupts daily routines, exacerbating difficulties in managing diabetes effectively[5,6].

Binge Eating and Sugar Addiction (B)

Binge eating disorder, characterized by episodes of uncontrollable eating, contributes to dysregulated eating patterns and weight gain in individuals with diabetes. Sugar addiction, marked by cravings and compulsive consumption of sugary foods, poses challenges to glycemic control and dietary adherence. Addressing binge eating and sugar addiction requires strategies promoting mindful eating, moderation, and healthy coping mechanisms to mitigate their adverse effects on diabetes management[7].

Emotional Dysregulation and Eating Disorders (E)

Emotional dysregulation, characterized by difficulties in managing and expressing emotions, heightens vulnerability to mood disturbances and maladaptive coping strategies in individuals with diabetes[8]. Eating disorders, such as anorexia nervosa and bulimia nervosa, exacerbate metabolic dysfunction and nutritional deficiencies, complicating glycemic control, and overall health[9]. Integrating psychological interventions into diabetes care is essential for addressing emotional dysregulation and eating disorders and promoting holistic well-being.

Temper Tantrums (T)

Temper tantrums, i.e., sudden outbursts of anger or frustration, are common responses to the challenges and limitations of diabetes management. These emotional

reactions may stem from feelings of injustice, perceived restrictions, or conflicts surrounding treatment regimens and lifestyle modifications[5]. Strategies for emotion regulation and conflict resolution are crucial for mitigating the impact of temper tantrums on diabetes self-care and interpersonal relationships.

Externalizing Problems (E)

Externalizing problems, characterized by outwardly directed behaviors such as aggression and defiance, pose significant barriers to effective diabetes management. These behaviors may stem from underlying emotional, cognitive, or social factors and can interfere with treatment adherence and overall well-being[1-6]. Addressing externalizing problems requires a comprehensive approach targeting underlying risk factors, promoting positive coping strategies, and developing social skills.

Somatic Symptoms, Sleep Problems, and Substance Abuse (S)

Somatic symptoms, including pain, fatigue, and gastrointestinal distress, are common complaints among individuals with diabetes and may worsen due to psychological or emotional factors—sleep problems, such as insomnia and sleep apnea, further compromise metabolic health and cardiovascular risk[10]. Substance abuse, including alcohol and illicit drugs, presents additional challenges to diabetes management, contributing to treatment nonadherence and poor health outcomes[11].

DISTORTION MNEMONIC

Denial (D)

Denial emerges as a central theme in the behavioral repertoire of individuals with diabetes, reflecting a psychological defense mechanism characterized by refusal to accept the diagnosis and its implications[5,12]. From a cognitive perspective, denial may be driven by selective attention and memory biases, wherein individuals focus on information that aligns with their desired outcome (i.e., not having diabetes) while disregarding contradictory evidence. Metacognitive distortions, such as overconfidence in one's ability to control the disease through lifestyle modifications alone, may perpetuate denial and hinder efforts to foster acceptance and engagement with diabetes management.

Insulin Stigma (I)

Insulin stigma refers to the negative attitudes and beliefs surrounding insulin therapy among individuals with diabetes, which may stem from misconceptions about its efficacy, safety, or perceived association with disease severity. This stigma can have profound implications for treatment adherence and self-care behavior, as individuals may resist or delay initiation of insulin therapy due to fear of social judgment, injection-related pain, or perceived failure to manage the disease through other means[13,14]. Addressing insulin stigma requires a multifaceted approach that includes patient education, destigmatization efforts, and psychosocial support to promote acceptance and adherence to insulin therapy.

Suppression (S)

Suppression of diabetes-related symptoms and emotions is a common coping mechanism among individuals with diabetes, characterized by efforts to conceal or minimize the impact of the disease on daily functioning and emotional well-being. This may manifest as avoidance of diabetes-related discussions or activities, reluctance to seek medical care, or downplaying the severity of symptoms to oneself and others. However, prolonged suppression of diabetes-related distress can have detrimental effects on mental health and disease management, highlighting the importance of addressing emotional needs and fostering open communication in diabetes care[5,11,15].

Taboo (T)

Taboos surrounding diabetes, particularly in specific cultural or social contexts, may contribute to stigma, misinformation, and reluctance to seek appropriate medical care. Cultural beliefs about the causes and consequences of diabetes, as well as societal norms regarding body image, food, and health, can influence individual attitudes and behavior towards the disease. Addressing diabetes taboos requires culturally sensitive approaches that acknowledge and challenge prevailing beliefs, promote open dialogue, and empower individuals to make informed decisions about their health[16,17].

Oppositional Behavior (O)

Oppositional behavior refers to resistance or defiance towards diabetes management recommendations, often stemming from a sense of frustration, ambivalence, or perceived loss of autonomy. This may manifest as noncompliance with medication regimens, dietary restrictions, or lifestyle modifications, as well as reluctance to engage in self-monitoring or follow-up care[18-20]. Understanding the underlying motivations and psychosocial factors driving oppositional behavior

is essential for tailoring interventions that address individual needs, preferences, and barriers to adherence.

Resistance to Therapy (R)

Resistance to therapy encompasses a spectrum of challenges related to treatment adherence, efficacy, and acceptability among individuals with diabetes. This may include reluctance to initiate or intensify medication regimens, concerns about side effects or long-term consequences, or dissatisfaction with the perceived impact of treatment on quality of life. Addressing resistance to therapy requires a patient-centered approach that considers individual preferences, beliefs, and experiences, as well as ongoing monitoring and support to optimize treatment outcomes[5,11,13,14,18-20].

Template Thinking (T)

Template or block thinking refers to rigid or inflexible cognitive patterns that limit problem-solving abilities and hinder adaptive coping strategies in diabetes management. This may manifest as black-and-white thinking, catastrophizing, or cognitive distortions that impair decision-making and self-regulation. Cognitive-behavioral interventions aimed at challenging and modifying maladaptive thinking patterns can enhance resilience, self-efficacy, and coping skills in individuals with diabetes[5,11,13,14,18-20].

Imitative Behavior (I)

Imitative behavior refers to the tendency to model or mimic the actions and beliefs of others, particularly in social or familial contexts. In the context of diabetes management, imitative behavior may influence treatment adherence, dietary habits, and lifestyle choices through social norms, peer pressure, or familial influences. Understanding the social determinants of health and interpersonal dynamics that shape imitative behavior is essential for developing targeted interventions that promote positive health behaviors and mitigate risk factors for diabetes complications[5,11,13,14,18-20].

Oppression (O)

Oppression encompasses structural barriers, systemic inequalities, and social injustice that disproportionately affect individuals with diabetes, particularly those from marginalized or disadvantaged communities. This may include limited access to health care resources, economic disparities, discrimination in health care settings, or environmental factors that hinder healthy lifestyle choices[21,22]. Addressing oppression requires advocacy, policy change, and community-based initiatives aimed at promoting health equity, social justice, and empowerment for individuals with diabetes.

Negativism (N)

Negativism refers to a pessimistic or defeatist attitude towards diabetes management, characterized by a sense of hopelessness, resignation, or fatalism regarding the ability to control the disease and prevent complications. This may manifest as passive acceptance of diabetes-related symptoms or complications, reluctance to engage in self-care behavior or disengagement from health care services. Psychosocial interventions that enhance resilience, optimism, and self-management skills can mitigate negativism and foster a proactive approach to diabetes care[23,24].

CONCLUSION

The exploration of diabetic behavior demands rigorous scientific inquiry that integrates insights from psychology, neuroscience, endocrinology, and public health. By unravelling the underlying psychopathology and cognitive distortions that shape diabetic behavior, we can pave the way for more personalized, holistic, and culturally sensitive approaches to diabetes care that prioritize patient empowerment, well-being, and health equity[5,25,26].

Authors' Contribution: SD generated the idea. RG wrote the first draft, which was further edited by MJD, SC, and SD. All authors agreed upon the final version of the manuscript.

Conflict of Interest: Nil.

Funding: Nil.

Prior Publication: Nil.

REFERENCES

1. Chew BH, Shariff-Ghazali S, Fernandez A. Psychological aspects of diabetes care: Effecting behavioral change in patients. World J Diabetes. 2014;5(6):796-808.
2. Black S, Kraemer K, Shah A, Simpson G, Scogin F, Smith A. Diabetes, depression, and cognition: a recursive cycle of cognitive dysfunction and glycemic dysregulation. Curr Diab Rep. 2018;18(11):118.
3. Chatterjee S, Bakhla A, Biswas P, Singha S, Dubey S, Sharma CB, et al. Psychosocial morbidity among children with type-1 diabetes mellitus. J Family Med Prim Care. 2020;9(2):652-6.
4. Wainwright K, Romanowich P, Crabtree MA. Associations between impulsivity and self-care adherence in individuals diagnosed with type 2 or prediabetes. PLoS One. 2022;17(3):e0263961.
5. Kalra S, Jena BN, Yeravdekar R. Emotional and psychological needs of people with diabetes. Indian J Endocrinol Metab. 2018;22(5):696-704.

6. Bickett A, Tapp H. Anxiety and diabetes: Innovative approaches to management in primary care. Exp Biol Med (Maywood). 2016;241(15):1724-31.
7. Chevinsky JD, Wadden TA, Chao AM. Binge eating disorder in patients with type 2 diabetes: diagnostic and management challenges. Diabetes Metab Syndr Obes. 2020;13:1117-31.
8. Leukel PJ, Kollin SR, Lewis BR, Lee AA. The influence of emotion regulation and family involvement on diabetes distress among adults with type 2 diabetes. J Behav Med. 2022;45(6):904-13.
9. Ruscitti C, Rufino K, Goodwin N, Wagner R. Difficulties in emotion regulation in patients with eating disorders. Borderline Personal Disord Emot Dysregul. 2016;3:3.
10. Heidari Z, Feizi A, HassanzadehKeshteli A, Afshar H, Roohafza H, Adibi P. Psychosomatic complaints profile in patients with type 2 diabetes: a matched case-control study. Egyptian J Neurol Psychiatr Neurosurg. 2019; 55:1-9.
11. Diabetes Canada Clinical Practice Guidelines Expert Working Group:; Robinson DJ, Hanson K, Jain AB, Kichler JC, Mehta G, Melamed OC, et al; Diabetes Canada Clinical Practice Guidelines Steering Committee:; Bajaj HS, Barnes T, Gilbert J, Honshorst K, Houlden R, Kim J, et al. Diabetes and nental health. Can J Diabetes. 2023;47(4):308-44.
12. Martino G, Caputo A, Bellone F, Quattropani MC, Vicario CM. Going beyond the visible in type 2 diabetes mellitus: Defense mechanisms and their associations with depression and health-related quality of life. Front Psychol. 2020;11:267.
13. Li X, Wu L, Yun J, Sun Q. The status of stigma in patients with type 2 diabetes mellitus and its association with medication adherence and quality of life in China: a cross-sectional study. Medicine (Baltimore). 2023;102(26):e34242.
14. Liu NF, Brown AS, Folias AE, Younge MF, Guzman SJ, Close KL, et al. Stigma in people with type 1 or type 2 diabetes. Clin Diabetes. 2017;35(1):27-34.
15. Pérez-Fernández A, Fernández-Berrocal P, Gutiérrez-Cobo MJ. The relationship between emotional intelligence and diabetes management: a systematic review. Front Psychol. 2021;12:754362.
16. Young-Hyman D, de Groot M, Hill-Briggs F, Gonzalez JS, Hood K, Peyrot M. Psychosocial care for people with diabetes: a position statement of the American Diabetes Association. Diabetes Care. 2016;39(12):2126-40.
17. Chatterjee S, Biswas P. Psycho-social stigma among type 1 diabetes mellitus patients. Indian J Med Spec. 2013;4(1):55-8.
18. Moore AP, Rivas CA, Harding S, Goff LM. Misalignment: understanding the challenge of engaging with self-management advice for people living with diabetes in UK Black African and Caribbean communities. Health Educat J. 2022;81:679-92.
19. Opara HC, Anarado AN, Anetekhai CJ, Iheanacho PN, Okoronkwo IL, Obuekwu AL. Non-adherence to selected self-care actions and its determinants among adults with type 2 diabetes mellitus in a tertiary hospital in Enugu State Nigeria. J Diabetes Endocrinol. 2020;11(1):1-9.
20. Peng X, Guo X, Li H, Wang D, Liu C, Du Y. A qualitative exploration of self-management behaviors and influencing factors in patients with type 2 diabetes. Front Endocrinol (Lausanne). 2022;13:771293.
21. Bush M. Addressing the root cause: rising health care costs and social determinants of health. N C Med J. 2018;79(1):26-9.
22. Togioka BM, Duvivier D, Young E. Diversity and Discrimination in Health Care. [Updated 2024 May 2]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK568721/
23. Walker RJ, Smalls BL, Hernandez-Tejada MA, Campbell JA, Davis KS, Egede LE. Effect of diabetes fatalism on medication adherence and self-care behaviors in adults with diabetes. Gen Hosp Psychiatry. 2012;34(6):598-603.
24. Adu MD, Malabu UH, Malau-Aduli AEO, Malau-Aduli BS. Enablers and barriers to effective diabetes self-management: a multi-national investigation. PLoS One. 2019;14(6):e0217771.
25. Chatterjee S, Dubey S, Ghosh R, Bhattacharjee R. Is diabetes pre-coded in the brain? Role of hypothalamus, addiction network and social cognition. Asian J Diabetol. 2023;24(2):31-4.
26. Ghosh R, Chatterjee S, Bhattacharjee R, Dubey S. Unveiling the nexus of cognitive impairment in diabetes: Exploring the enigmatic "diabetic melancholy". Indian J Clin Pract. 2024;35(1):34-7.

■■■■