

Letter to Editor

Mental Health Disorders in Pediatric Patients With Type 1 Diabetes in Mazandaran



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Dear Editor

Type 1 diabetes mellitus (T1DM) is a chronic autoimmune condition characterized by reduced insulin production, leading to elevated blood glucose levels [1].

It typically begins in childhood or adolescence [2], and children and adolescents with T1DM are more vulnerable to psychiatric comorbidity, which may hinder self-management and worsen clinical outcomes [3-5]. This concern was especially relevant during the COVID-19 pandemic [6], a period associated with quarantine, social disruption, and health-related stress that may affect psychological well-being in vulnerable pediatric populations [7].

Evidence from Mazandaran Province demonstrated a considerable prevalence of depression, anxiety, stress, and symptoms consistent with post-traumatic stress in the general population during the COVID-19 quarantine period [8], underscoring the substantial psychosocial burden of that time. Furthermore, a Swedish cohort study reported that children with both type 1 diabetes mellitus and psychiatric disorders consistently experienced poorer long-term educational outcomes [9]. Routine early screening for mental health disorders in indi-

viduals diagnosed with diabetes is recommended, as it may contribute to improved health outcomes [10].

This cross-sectional census study examined the prevalence and pattern of psychiatric disorders among children and adolescents with T1DM during the COVID-19 pandemic, an issue of growing clinical importance. The study was carried out at Bou-Ali Sina Hospital in Sari, Iran, between January 2021 and January 2022. Eligible participants included all outpatient children and adolescents younger than 18 years with a confirmed diagnosis of T1DM who were receiving follow-up care at the pediatric endocrinology clinic. During the study period, all participants were referred to the child and adolescent psychiatry clinic, where a child and adolescent psychiatrist performed sequential evaluations using the semi-structured schedule for affective disorders and schizophrenia for school-age children-present and Lifetime Version (K-SADS-PL) diagnostic interview [11]. The study was approved by the Ethics Committee of Mazandaran University of Medical Sciences, and written informed consent was obtained from parents or legal guardians.

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The study population consisted of 405 children and adolescents, including 211 girls and 194 boys. The mean height of participants was 1.42 ± 0.22 m, with values ranging from 82 to 186 cm. The corresponding mean values for body weight and age were 38.94 ± 18.02 kg and 14.29 ± 4.99 years, respectively. Psychiatric comorbidity was detected in 174 participants (42.9%). The most frequently observed psychiatric conditions were adjustment disorder (ADJ) (27.6%), generalized anxiety disorder (GAD) (7.1%), and attention deficit hyperactivity disorder (ADHD) (5.4%) (Table 1).

The elevated frequency of ADJ observed in our study is in agreement with previous evidence suggesting that children living with chronic diseases such as T1DM may encounter substantial difficulties in psychological adaptation [12]. Similarly, the rate of GAD identified in our popula-

tion corresponds with earlier studies reporting increased anxiety symptoms among children and adolescents with T1DM [13]. Although ADHD occurred less frequently than ADJ and GAD, variations in its reported prevalence across studies may be attributable to differences in study design, diagnostic approaches, or participant characteristics [14, 15]. Other psychiatric conditions were identified less commonly; however, psychiatric comorbidity appeared to be more prevalent among girls. In contrast, ADHD and social anxiety disorder (SOC) showed relatively higher frequencies among boys. The coexistence of multiple psychiatric conditions, particularly combinations involving ADHD with ADJ and oppositional defiant disorder (ODD) with ADJ, indicates that co-occurring psychiatric disorders may occur in pediatric and adolescent patients with T1DM and could add complexity to diabetes management.

Table 1. Psychiatric disorder profiles among children and adolescents with type 1 diabetes by sex category

Variables	No. (%)		
	Boys	Girls	Total
Total sample	194(48)	211(52)	405(100)
Participants with at least 1 psychiatric disorder	77(19)	97(23.9)	174(42.9)
ADJ	52(12.8)	60(14.7)	112(27.6)
ADHD	18(4.4)	4(0.9)	22(5.4)
SOC	5(1.2)	4(0.9)	9(2.2)
ODD	6(1.4)	7(1.7)	13(3.2)
GAD	7(1.7)	22(5.4)	29(7.1)
MAD	1(0.2)	8(1.9)	9(2.2)
MDD	2(0.4)	4(0.9)	6(1.4)
SAD	0	3(0.7)	3(0.7)
Participants with 2 psychiatric disorders	13(3.2)	16(3.9)	29(7.1)
GAD & ADJ	0	4(0.9)	4(0.9)
GAD & SOC	1(0.2)	3(0.7)	4(0.9)
ADHD & ADJ	5(1.2)	4(0.9)	9(2.2)
ADHD & ODD	2(0.4)	0	2(0.4)
ODD & ADJ	4(0.9)	4(0.9)	8(1.8)
SOC & ADJ	1(0.2)	1(0.2)	2(0.4)

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Abbreviations: ADJ; Adjustment disorder; ADHD: Attention deficit hyperactivity disorder; SOC: Social anxiety disorder; ODD: Oppositional defiant disorder; GAD: Generalized anxiety disorder; MAD: Major affective disorder; MDD: Major depressive disorder; SAD: Seasonal affective disorder.

Collectively, these findings characterize the frequency of psychiatric disorders among young individuals with type 1 diabetes during the COVID-19 period and underline the necessity of systematic mental health evaluation and coordinated care approaches. Because the study is cross-sectional and lacks a pre-pandemic comparison group, the findings should be interpreted as descriptive of this period, and causal inferences regarding the effect of the pandemic cannot be made. During this time, factors such as social isolation, disrupted routines, worries about health and infection, and uncertainty may have contributed to psychological strain, depression, and anxiety, which can complicate diabetes management. A major limitation is the absence of a pre-pandemic control group; future longitudinal studies with comparison groups are needed to examine whether the prevalence of psychiatric disorders differs across periods.

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