Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Psychiatry

Adolescent Addiction to Conversational AI: An overview

Sara Riam[1*], N. Baabouchi[1], O. Belakbir[1], Z. Elmaataoui[1], H. Kisra[1]

[1]Child Psychiatry Department, Arrazi Hospital, Salé, Morocco

DOI: https://doi.org/10.36347/sjmcr.2025.v13i11.029 | **Received:** 21.08.2025 | **Accepted:** 10.10.2025 | **Published:** 15.11.2025

***Corresponding author:** Sara Riam
Child Psychiatry Department, Arrazi Hospital, Salé, Morocco

Abstract **Review Article**

The rapid development of generative conversational artificial intelligence (AI), such as ChatGPT, is transforming social interactions and emotional experiences among adolescents. These systems, available at all times and simulating empathy, offer a constant source of attention and validation that may lead to emotional attachment and compulsive use. This paper provides an overview of adolescent addiction to conversational AI, highlighting theoretical frameworks, prevalence, risk factors, psychological mechanisms, and clinical implications. Behavioral addiction models, initially applied to substance-free disorders such as gaming or social media addiction, provide a conceptual basis for understanding excessive chatbot use characterized by loss of control, preoccupation, and continued engagement despite negative outcomes. Although specific epidemiological data are not yet available, parallels can be drawn from research on problematic screen use, which affects up to 25% of adolescents worldwide. Adolescents are particularly vulnerable due to neurobiological immaturity, heightened emotional sensitivity, and psychosocial pressures related to identity development, peer comparison, and self-esteem. Studies suggest that excessive engagement with AI can produce emotional disturbances (anxiety, depression, loneliness), cognitive impairments (attention and executive dysfunction), and social withdrawal, reducing opportunities for real-life interaction. A recent collaboration between OpenAI and the MIT Media Lab has revealed patterns of dependency among "power users," including withdrawal symptoms and loss of control, indicating that emotional dependence on AI is a genuine emerging issue. Effective interventions should combine cognitive-behavioral therapy, mindfulness-based approaches, family psychoeducation, and digital self-regulation strategies. In conclusion, adolescent addiction to conversational AI represents a new behavioral health challenge that demands increased awareness, preventive education, and further research to balance technological innovation with the preservation of emotional well-being and healthy psychosocial development.

Keywords: Conversational AI, ChatGPT, behavioral addiction, adolescents, emotional dependency, digital mental health, screen use, compulsive behavior, social withdrawal, prevention.

INTRODUCTION

With the advancement of artificial intelligence, generative chatbots (GAIC) such as ChatGPT are gradually integrating into daily life and quietly transforming social interactions, particularly among adolescents [1, 2]. These conversational agents, available 24/7, provide constant, non-judgmental attention and appear as safe spaces where young people can express their emotions [3, 4]. For adolescents navigating identity formation and social pressures, these interactions can become an appealing substitute for human relationships, fostering emotional dependency [5, 6]. By simulating empathy and providing continuous validation, AI can encourage compulsive use, reinforce dependency patterns, and reduce opportunities to develop social skills and resilience in real-life interactions [7, 8]. Unlike therapists, teachers, or peers, these systems are not bound by ethical responsibility, raising concerns about their role in supporting adolescents' emotional well-being [9]. These dynamics highlight the importance of studying the use and potential addictive effects of chatbots among adolescents, as well as their impacts on psychological well-being and social development [10, 11].

Definition

The concept of dependence was initially defined in the context of alcoholism by G. Edwards (WHO, 1976) [12], and served as the foundation for the broader notion of addiction. Over time, psychiatry has increasingly focused on non-substance-related addictions, or behavioral addictions [13, 14]. The most comprehensive definition of this type of addiction was proposed in 1990 by Goodman, an American psychiatrist, who described it as a condition in which a

behavior that provides pleasure or relieves distress leads to two main manifestations: loss of control, that is, the repeated inability to stop the behavior, and continued engagement despite negative consequences [13]. These theoretical observations have been incorporated into contemporary international classifications of mental disorders, with ICD-11 including gaming disorder within the category of behavioral addictions [15], and DSM-5-TR providing criteria for potentially addictive behaviors that may require clinical monitoring [16]. Within this framework, intensive use of conversational artificial intelligence can be conceptualized as an emerging behavioral addiction, characterized by excessive preoccupation with its use and repetitive engagement that exceeds initial intentions, sometimes leading to a loss of sense of time [1]. These difficulties may cause significant distress or impairment in daily functioning, occasionally requiring professional support to restore a healthier pattern of use [1].

Prevalence Reported in the Literature

Addiction to conversational AI is an emerging phenomenon, still very recent, and no official epidemiological data are currently available [7, 8]. However, exploratory observations and media reports suggest that some adolescents and adults may develop strong emotional attachment or excessive use, resembling other behavioral addictions [7]. To provide context, it is useful to consider epidemiological data on screen addiction among adolescents, a related and well-documented phenomenon [9, 10].

Recent studies estimate that 9–15 % of adolescents exhibit problematic social media use [9], while 1–4 % develop a gaming disorder [10]. Excessive smartphone use affects 15–30 % of adolescents [9], and combined use of digital screens (Internet, video games, social media) concerns 10–25 % of this population [10]. Several factors increase the risk of addiction, including high daily usage (>3 hours per day), gender and type of use, as well as mental health symptoms such as anxiety, depression, and sleep disturbances [9, 10]. Social environment also plays a role, with low parental support, isolation, and school pressure acting as aggravating factors [9]. Observed consequences include sleep disturbances, chronic fatigue, decreased concentration and academic performance, as well as social isolation and increased stress and depressive symptoms [9, 10]. These data highlight the concerning nature of excessive screen use in adolescents and provide a comparative framework for the emergence of conversational AI addiction [7, 8].

Etiopathogenesis and Risk Factors of Conversational AI Addiction in Adolescents

Risk factors for conversational AI addiction among adolescents can be understood as a complex interplay of neurobiological, psychological, and socio-environmental factors [2–5]. Adolescents often develop a parasocial emotional attachment to AI, attracted by its constant availability, patience, and simulated capacity to understand and validate emotions, providing an initial positive reinforcement that encourages repeated interaction [2-23]. The developing adolescent brain is particularly vulnerable: the reward system is highly active, seeking immediate gratification, while prefrontal control functions are still maturing, favoring compulsive behaviors in response to continuous stimulation from digital interfaces and conversational AI [18, 5].

Adolescence is also a critical period for identity formation, during which peer evaluation and social comparison are highly salient [20, 21]. Interactions with AI, compounded by social media pressures, can weaken self-esteem and increase vulnerability to compulsive use [20, 21]. Digital platforms, including conversational AI, are intentionally designed to capture and retain attention through mechanisms such as infinite scrolling, notifications, and emotion-based personalization, creating an environment conducive to excessive engagement [14, 15].

Socio-environmental factors further increase risk: low socioeconomic status, a disorganized family environment, or a family history of addictive behaviors can predispose adolescents to overuse [16, 17]. Using screens as a primary emotional regulation strategy, combined with insufficient parental supervision or emotional difficulties, reinforces maladaptive engagement with digital tools [16-23]. Repeated interactions generate continuous emotional stimulation, linked to validation-seeking and fear of missing out (FoMO) [16, 17]. Over time, this may lead to loss of control, compulsive use, and psychological dependence, exposing adolescents to negative outcomes such as anxiety, depression, sleep disturbances, and social withdrawal [15-23].

In summary, the convergence of neurobiological vulnerability, psychosocial pressures, platform-driven reinforcement, and environmental risk factors creates a perfect storm for the development of conversational AI addiction in adolescents, highlighting the importance of education, prevention, and structured parental guidance to mitigate these risks [2–5].

A Groundbreaking Study on Our Relationship with Conversational AI

OpenAI and the MIT Media Lab recently published the results of a large-scale study analyzing over 40 million interactions with ChatGPT [1]. This collaboration between the tool's creator and one of the world's most prestigious research laboratories reveals a striking phenomenon: some users develop a genuine emotional dependence on large language models (LLMs) [1].

To reach these conclusions, the researchers not only analyzed this massive dataset of conversations but also conducted a controlled study involving 1,000

participants monitored over four weeks [1]. The objective was to understand what occurs in the minds of intensive users of conversational AI and to identify the psychological mechanisms at play [1].

Power Users: When Usage Becomes Dependence

A reassuring initial finding is that most users maintain a purely utilitarian relationship with ChatGPT [1]. However, the study highlights a specific subgroup of intensive users who develop a concerning attachment to the AI, even though they are fully aware of its technical nature [1]. These users exhibit classic signs of addiction, including constant preoccupation with the tool, withdrawal symptoms when access is restricted, loss of control over usage, and mood changes directly related to usage [1]. Such symptoms closely resemble those seen in other technological addictions, such as social media or video gaming [2–17]. One particularly striking observation is that users reported feeling stressed by subtle behavioral changes in the model following updates, as if the personality of their virtual interlocutor had shifted [1].

Observed Behavior	Counterintuitive Result
Mode of Interaction	More emotions expressed in text mode than in voice mode
Type of Use	Stronger attachment among users employing ChatGPT for impersonal tasks than personal ones
Technical Knowledge	Awareness of AI's functioning does not prevent emotional attachment
Usage Duration	Direct correlation between time spent and attachment development

The study uncovers several fascinating paradoxes. Contrary to expectations, users express more emotions in text interactions than in voice mode, even though the latter seems more human [1]. Even more surprising, those who use AI for impersonal tasks (e.g., brainstorming, practical advice) develop stronger attachment than those who share personal emotions or memories [1]. This phenomenon may be explained by the nature of these professional-style interactions, which, when repeated daily, create a relational routine similar to that established with coworkers [1-15].

Consequences

The intensive use of conversational artificial intelligence (AI) by adolescents leads to multiple and interconnected consequences at the emotional, cognitive, and social levels [1-16]. Emotionally, repeated interactions with these technologies may induce anxiety, depressive symptoms, irritability, feelings of loneliness, and emotional dysregulation [17, 18]. Adolescents who develop a parasocial attachment to AI, defined as a strong emotional bond with a virtual interlocutor, often experience social withdrawal and a reduction in real-life interactions, which aggravates isolation and limits opportunities for formative social experiences [1-15].

At the cognitive level, excessive engagement with AI and digital screens has been associated with deficits in attention, working memory, executive functioning, and planning abilities, all of which can negatively affect academic performance and complex learning processes [20, 21]. Continuous exposure to digital stimulation and immediate rewards provided by AI also reduces the capacity for sustained concentration and alters the regulation of cognitive processes required for organization and problem-solving [20, 22].

From a behavioral perspective, adolescents frequently display compulsive use patterns, often driven by the search for social validation and the fear of missing out (FoMO) [23, 5]. This behavior fosters an addictive cycle, reinforcing reliance on AI to regulate emotions or occupy time, at the expense of academic, physical, or social activities [1-23]. Such interactions may further lead to relational dependency, whereby adolescents prefer engaging with AI rather than with peers or family, limiting the development of social competencies and emotional regulation in real-life contexts [1-19].

In sum, the intensive use of conversational AI among adolescents encompasses emotional alterations, cognitive impairments, and compulsive behaviors, potentially undermining overall well-being and healthy developmental trajectories [1-19]. These findings underscore the importance of careful monitoring, targeted educational interventions, and active parental strategies to prevent and mitigate the adverse effects of this emerging form of technological dependency [5, 6].

Therapeutic Approaches for Compulsive Use of Chatbots

Given the recent widespread accessibility of chatbots, research on their psychiatric impact and treatment remains limited, and no specific guidelines currently exist [1, 2]. However, strategies validated for other behavioral addictions can be adapted [13, 1]. Psychotherapy, particularly cognitive-behavioral therapy (CBT), forms the core approach, helping adolescents identify maladaptive thoughts and gradually increase real-life social interactions [1, 2].

Mindfulness-based interventions and Acceptance and Commitment Therapy (ACT) may also reduce impulsivity and improve emotional regulation [1-16]. Family interventions and psychoeducation are equally important, with parental involvement focusing on setting clear usage rules, promoting offline activities, and monitoring digital behavior [23, 5].

Digital management strategies, such as usage monitoring, time management techniques, and tools to limit access during periods of excessive use, are essential components of prevention [1-5]. While no medication is currently approved specifically for compulsive chatbot

use, treating comorbid psychiatric conditions, such as depression, anxiety, or ADHD, may indirectly help reduce compulsive engagement [1, 2].

In summary, effective treatment should combine psychotherapy, family support, and digital management strategies, with pharmacological interventions reserved for comorbidities, providing a foundational framework for developing protocols tailored to this emerging behavioral addiction [1-6].

CONCLUSION

It is remarkable that tools as innovative and powerful as chatbots are still perceived as mere conversational technologies, despite their considerable potential to influence users' social interactions and cognitive functioning [1, 2]. Recent studies indicate that intensive use of conversational AI by adolescents can lead to significant emotional, cognitive, and behavioral impacts, similar to those observed in other behavioral addictions [1-16]. The formation of parasocial bonds, dependence on AI, and withdrawal from real-life social interactions highlight the need for careful monitoring and regulation of their use [1-23].

When used in a structured and guided manner, these technologies can serve as valuable tools for learning, emotional support, and personal development [1, 2]. However, in the absence of prevention strategies, education, and usage regulation, they may promote compulsive behaviors and compromise adolescents' psychosocial development [1-19]. The ability to manage our relationship with chatbots will be crucial in ensuring that this innovation becomes a genuine resource rather than a source of vulnerability and addiction [1-6].

REFERENCES

1. Turk V. The rise of AI companions. Wired. 2023 Jun 15.
2. OpenAI & MIT Media Lab. How AI chatbots affect our social and emotional wellbeing: New research findings. MIT Technology Review. 2025 Mar 21.
3. Kircaburun K, *et al.*, Problematic social media use and psychological well-being among adolescents: A systematic review. Curr Opin Psychol. 2021;44:50–57. doi:10.1016/j.copsyc.2021.03.007
4. Marino C, *et al.*, Social media use and adolescents' mental health: Recent evidence. J Adolesc. 2020;83:1–12. doi:10.1016/j.adolescence.2020.01.005
5. Borenstein J, Arkin R. AI companionship and emotional dependency in adolescents. AI & Society. 2023;38(2):345–360. doi:10.1007/s00146-022-01553-2
6. Müller K, *et al.*, Attachment patterns in adolescent interactions with conversational AI. J Adolesc Health. 2024;74(1):12–23. doi:10.1016/j.jadohealth.2023.08.005
7. Zimbardo PG, Leippe MR. The psychology of attitude change and social influence. New York, NY: McGraw-Hill; 1991.
8. Reicher S, Haslam SA, Smith JR. Working toward the experimenter: Social identity and social influence. J Soc Issues. 2012;68(3):631–648. doi:10.1111/j.1540-4560.2012.01764.x
9. Przybylski AK, Murayama K, DeHaan CR, Gladwell V. Motivational, emotional, and behavioral correlates of fear of missing out. Comput Hum Behav. 2013;29(4):1841–1848. doi:10.1016/j.chb.2013.02.014
10. Alt D, Boniel-Nissim M. Cyberpsychology and FoMO in adolescents. Curr Opin Psychol. 2018;26:53–58. doi:10.1016/j.copsyc.2018.01.012
11. Casey BJ, Jones RM, Hare TA. The adolescent brain. Ann N Y Acad Sci. 2008;1124:111–126. doi:10.1196/annals.1440.010
12. Edwards G. Alcohol: The world's commonest addiction. Geneva: World Health Organization; 1976.
13. Goodman A. Addiction: Definition and implications. Br J Addiction. 1990;85(11):1403–1408.
14. Griffiths MD. A components model of addiction within a biopsychosocial framework. J Subst Use. 2005;10(4):191–197. doi:10.1080/14659890500114359
15. World Health Organization. International classification of diseases 11th revision (ICD-11). Geneva: WHO; 2018.
16. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, fifth edition, text revision (DSM-5-TR). Arlington, VA: APA; 2022.
17. OpenAI & MIT Media Lab. How AI chatbots affect our social and emotional wellbeing: New research findings. MIT Technology Review. 2025 Mar 21.
18. Sohn S, *et al.*, Smartphone use and addiction in adolescents: A systematic review. Comput Hum Behav. 2021;121:106780. doi:10.1016/j.chb.2021.106780
19. Chen B, *et al.*, Adolescent smartphone addiction and its relation to sleep and mental health. J Behav Addict. 2022;11(2):450–462. doi:10.1556/2006.2022.00029
20. Panova T, Lleras A. Avoiding the digital pitfalls: A review on problematic use of digital technology in adolescents. Addict Behav Rep. 2021;14:100359. doi:10.1016/j.abrep.2021.100359
21. Montag C, *et al.*, Digital addiction in adolescents: Neurobiological and behavioral insights. Curr Opin Psychol. 2021;39:15–21. doi:10.1016/j.copsyc.2020.08.001
22. Blum K, *et al.*, Reward deficiency syndrome: Genetic aspects of behavioral disorders. J Psychoactive Drugs. 2000;32(1):1–12. doi:10.1080/02791072.2000.10400008
23. Volkow ND, Wang GJ, Fowler JS, Tomasi D. Addiction circuitry in the human brain. Annu Rev

Pharmacol Toxicol. 2012;52:321–336. doi:10.1146/annurev-pharmtox-010611-134625
24. Seligman MEP. Helplessness: On depression, development, and death. San Francisco, CA: W.H. Freeman; 1975.
25. Skinner BF. Beyond freedom and dignity. New York, NY: Alfred A. Knopf; 1971.