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SUBSTANCE USE DISORDERS IN ADOLESCENTS: A CASE REPORT

TRASTORNO POR CONSUMO DE SUSTANCIAS EN ADOLESCENTES: REPORTE DE UN CASO

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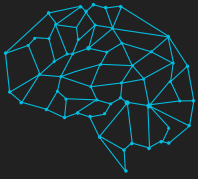
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The authors declare the absence of potential conflicts of interest.



ABSTRACT

Introduction: Adolescence is a critical period of development during which young people are vulnerable to engaging in risky behaviors, including drug use. Early use of psychoactive substances can interfere with normal development and have both short-term and long-term social and health problems.

Objectives: This case report aims to review important aspects of the substance abuse disorder treatment in teenage patients, based on the detailed description of a clinical case.

Methods: Description of a clinical case of an 18-year-old patient who began using psychoactive substances at the age of 13. The information used in the review was gathered from relevant publications found through a selective search in PubMed on substance use disorders in children and adolescents.

Results: This case report describes the substance use disorder of an 18-year-old female patient, who began using psychoactive substances at the age of 13. The patient had a history of loss of her mother, depressive symptoms and self-injurious behavior, which likely contributed to her increased risk for substance use. The patient's substance use began with tobacco and gradually progressed to cannabinoids, ecstasy, opioids, and cocaine.

Due to her continued substance use, she was referred for consultation at a specialized treatment team. The patient received a combination of psychotherapeutic interventions for substance use and individual therapy. The plan included also coordination with social work and psychology, and the involvement of the individual's family in the process. Despite these efforts, the patient was ultimately hospitalized for severe self-harm behaviors and entered a therapeutic community.

Discussion and Conclusion: This case highlights the complexity of substance use disorders in adolescents and the importance of addressing multiple individual and environmental factors in order to effectively prevent and treat these disorders. Additionally, it emphasizes the importance of early intervention and comprehensive treatment for adolescents struggling with substance use.

Keywords: Substance use; Adolescence particularities; Prevention; Mental health.

RESUMEN

Introducción: La adolescencia es un período crítico del desarrollo durante el cual los jóvenes son vulnerables a adoptar conductas de riesgo, incluyendo el consumo de drogas. El uso temprano de sustancias psicoactivas puede interferir con el desarrollo normal y tener problemas sociales y de salud, tanto a corto como a largo plazo.

Metas: Este reporte de caso tiene como objetivo revisar aspectos fundamentales del tratamiento del trastorno por abuso de sustancias en pacientes adolescentes, a partir de la descripción detallada de un caso clínico.

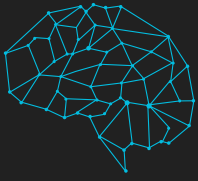
Métodos: Descripción de un caso clínico de una paciente de 18 años que empezó a consumir sustancias psicoactivas a partir de los 13 años. La información utilizada en esta revisión se obtuvo de publicaciones relevantes encontradas mediante una búsqueda selectiva, en la plataforma PubMed, sobre trastornos por consumo de sustancias en niños y adolescentes.

Resultados: Este reporte de caso describe el trastorno por consumo de sustancias de una paciente de sexo femenino de 18 años, que empezó a consumir sustancias psicoactivas a partir de los 13 años. La paciente tenía antecedentes de pérdida de su madre, síntomas depresivos y comportamiento autoagresivo, que probablemente contribuyó a su mayor riesgo de consumo de sustancias. El consumo de sustancias de la paciente empezó con el tabaco y progresó gradualmente a cannabinoides, éxtasis, opioides y cocaína.

Debido al consumo continuado de sustancias, fue derivada a consulta, a un equipo de tratamiento especializado. La paciente recibió una combinación de intervenciones psicoterapéuticas para el uso de sustancias y terapia individual. El plan incluía también la coordinación con trabajo social y psicología, y la participación de la familia en el proceso. A pesar de estos esfuerzos, la paciente finalmente fue hospitalizada por conductas autolesivas severas y ingresó a una comunidad terapéutica.

Discusión y conclusión: Este caso destaca la complejidad de los trastornos por uso de sustancias en los adolescentes y la importancia de abordar múltiples factores individuales y ambientales para prevenir y tratar estos trastornos de manera efectiva. Además, enfatiza la importancia de la intervención temprana y el tratamiento integral para los adolescentes que luchan contra el uso de sustancias.

Palabras clave: *Uso de sustancias; Particularidades de la adolescencia; Prevención; Salud mental*



INTRODUCTION

Adolescence is a critical period of cognitive, psychological and social development that constitutes a period of increased vulnerability to various types of risk behaviours that have a multifactorial character, resulting from the interaction of several individual and environmental factors (Pumariega, Rodriguez, & Kilgus, 2004).

The consumption of psychoactive substances at an early age is likely to interfere with normal development, with a great impact on the future of young people.

Recreational use of drugs in adolescence is a modifiable risk behaviour, with short and long-term social and health consequences, constituting one of the most prevalent psychiatric disorders between 9 and 21 years old. Data from the 2004 WHO Global Burden of Disease study indicate that more than 9% of disability-adjusted life years (DALYs) were lost to mental illness and neurological disorders due to abusive use of psychoactive substances in people under 24 years of age (Gore et al., 2011).

OBJECTIVES

This case report aims to review important aspects of the substance abuse disorder treatment in teenage patients, based on the detailed description of a clinical case.

METHODS

Description of a clinical case of an 18-year-old patient whose substance use began when she was 13 years old. This review is based on pertinent publications retrieved by a selective search in PubMed on substance use disorders in children and adolescents

RESULTS

1. CASE REPORT

1.1. Patient identification

We present the case of M., an 18-year-old female, who is currently in her 12th year of study, in a professional course for string and keyboard instrumentalists in Tomar. She resides with roommates during the weekdays in Tomar and spends her weekends with her father and sister in Lousã. She identifies herself as a pansexual woman.

There are no known complications in the peripartum period and her psychomotor development was normal. M.

had previously demonstrated good academic performance and positive interpersonal relationships with no significant complaints until the age of 13.

1.2. Problem history, analysis and description of problem behaviors

At the age of 13 years, she began to feel sadness and passive suicidal ideation. She believes these symptoms stem from her realising her sexual orientation and having unrequited romantic feelings for a close female friend. Additionally, in that same year, she found out her mother had been given a terminal cancer diagnosis. M. had a close relationship with her mother, and all of these events caused her to feel a deep sense of loss, exacerbating her depressive symptoms. She started to engage in self-injurious behaviours, including cutting her legs and arms, which she reported as providing temporary relief from emotional suffering.

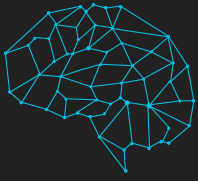
At the age of 13, M. also first tried smoking tobacco, which gradually increased in frequency. At the age of 15, M. started using Cannabinoids. This was initially carried out in a social context, and one month later she began to buy and consume it alone, daily, as another way to escape reality. At the same time, she reported a progressive decrease in academic performance.

At this point, she initiated therapy with a cognitive-behavioural psychotherapist, and started children and adolescent psychiatric follow-up with a diagnosis of Depressive Disorder, unstructured suicidal ideation, and anxiety symptoms.

At 16, she tried ecstasy with some friends for one week. At 17, she began using opioids prescribed for her mother's disease, which she found at home. She consumed fentanyl with cannabis for 4-5 days.

At this time, she was at Tomar during the week, she was consuming cannabis at a rate of about 5 doses per day. She also experimented cocaine with her boyfriend and later used ecstasy alone. She also engaged in new self-harm behaviours that consisted in burning herself with cigarette butts, stating it helped her "feel things." She began neglecting her academic responsibilities, staying up late, barely eating lunch, and sporadically attending driving lessons. Despite this, she showed initiative and energy while working part-time at a cafe from 5 pm to 8 pm.

Her mother passed away in December 2021. Her father was later notified, in January, by the school, about her frequent absences, cannabis use, and self-harm. He was ad-



vised to take her home and seek treatment. Her father only became aware of his daughter's struggles at this point. It appears that his wife had kept the reality from him.

In February 2022, her romantic relationship ended, she decided to stop taking her prescribed pharmacotherapy, and engaged in a voluntary medication ingestion, stating once more that she wanted to escape reality and ease her emotional pain. This led to her being hospitalized in a psychiatric facility for three weeks due to her depressive symptoms and suicidal thoughts. She remembered this period as "the first 3 weeks of sobriety since I was 16". After being discharged, she immediately resumed consuming cannabinoids and began receiving psychiatric treatment, including a prescription for venlafaxine 150 mg once a day, topiramate 50 mg three times a day and olanzapine 5 mg once a day.

As for her previous personality, an emotional instability, difficulties in self-regulation, impulsiveness, and little consideration for the consequences of her actions were observed, traits that are consistent with Cluster B personality.

There is no history of drug use among M.'s parents, although her sister has a history of using cannabinoids. M. mentions that she used to smoke with her sister, but since her mother's death, it has not happened again.

1.3. Selection of the most appropriate treatment and treatment application

Due to the continued use of substances, the patient was referred for consultation with a specialized team in Coimbra, held in June, 2022. Upon examination of her mental status, the patient had a cared appearance, initially showing little cooperation with the interview. Her facies tended to be expressionless/sad. Healed lesions were visible on the forearms. She was oriented in time and space, a low output speech, not very spontaneous, and aprosodic. There were no changes in rhythm, form, or content of thought, nor sensorimotor perception. She exhibited cognitive avoidance of themes with negative emotional charge and had difficulty naming emotions. Her mood was depressed and her attitude apathetic, with tearfulness and emotional lability, as well as feelings of hopelessness and difficulty in managing suffering. However, she was able to identify activities that might bring her pleasure and enjoyment. Appetite was reduced and sleep was reconciled due to her medication. She had partial insight about her problems and in the Prochaska & DiClemente precontemplation phase for stopping cannabinoid consumption.

As a therapeutic plan, M. has received support and validation. A brief psychodramatic intervention was used to promote insight, by confronting M. with the behaviors she has adopted and the consequences and impact on interpersonal relationships. The goal was to increase motivation for change and promote healthy activities that M. appreciated. Alternative coping mechanisms were identified to replace risky behaviours. Psychoeducation about the consequences of cannabinoid consumption was provided. The treatment plan also included coordination with social worker and psychologists, and the involvement of M.'s family in the process, including monitoring of symptoms and preventing access to medication. From a psychopharmacological point of view, venlafaxine 150 mg once a day was maintained, topiramate and olanzapine were progressively discontinued, and lamotrigine and quetiapine once a day were introduced. The patient started psychotherapeutic appointments at the same institution.

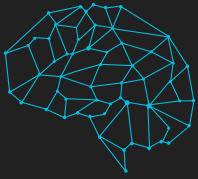
1.4. Evaluation of the efficacy of the treatment and follow-up

In September 2022, M. went to Tomar to start the new academic year, despite resistance and concerns from her father, due to the distance and lack of external control. The father accompanied her and spoke personally with the class director and her roommates in order to make them aware of M.'s behavior. Father and daughter made a contract that emphasized the importance of academic performance and appropriate behavior from M., and that she would return home if there were any indications to the contrary.

Two weeks after the start of classes, there were already signs of maladjusted behavior, such as complaints from her roommates about M. bringing strangers home to smoke marijuana. The landlord expressed his intention for M. to leave the house. The young woman continued to show a lack of critical thinking and disengagement that marked her last academic year.

On October 27th, she was found by a roommate with cuts on her skin from her face to her lower limbs, which she had made with blades and glass. M. relates the act to a conflict she had with her boyfriend. The father was called and M. was taken to the emergency service and later hospitalized for 1 month.

Due to the maintenance of cannabinoid consumption, despite the various approaches at a pharmacological, psy-



chotherapeutic, family, social and occupational level, the patient was referred for integration in a therapeutic community.

2. PARTICULARITIES OF SUBSTANCE USE IN ADOLESCENTS

2.1 Epidemiology

Adolescence is a critical period for the initiation of substance use. Most literature refers to two critical periods in adolescence for starting consumption: between 12–14 years old or between 15–17 years old. (Wang & Hoyte, 2018). With the exception of alcohol and tobacco, cannabis is considered the most commonly used drug among young people. A report from the United Nations based on available data from 130 countries in 2016, estimates that 13.8 million young people (mostly students) aged 15–16 years used cannabis at least once in the previous 12 months (UNODC, 2016).

Another recent study from the United States revealed a 4.5% 12-month prevalence of Substance use disorder among 12– to 17-year-olds for 2019 (Substance Abuse and Mental Health Services Administration., 2019).

Cannabis is often used with other substances and the use of other drugs is typically preceded by cannabis use (Aly, Omran, Gaulier, & Allorge, 2020).

Males tend to use psychoactive substances, aside from tobacco, more frequently than females during adolescence, with a sex of 2:1 for the prevalence of use of some illicit drugs (Thomasius, Paschke, & Arnaud, 2022).

2.2 Neurobiology

The comprehension of the development of the neurological system during adolescence is of great importance. During adolescence, different parts of the brain mature at different times. The areas of the brain that are involved in processing pleasure and rewards, such as the ventral striatum, develop first. This means that teenagers are more likely to act on their emotions without thinking things through (Somerville & Casey, 2010). However, the parts of the brain that help with decision-making, self-control, and executive functions, such as the prefrontal cortex, mature later. This can contribute to why some teenagers may engage in risky behaviors and start using substances during the early and middle teenage year (Aly et al., 2020).

Also, normal development during adolescence is characterised by heightened levels of impulsivity and novelty-seeking,

partly due to fluctuations in hormones that affect brain development and other systems.

On the other hand, the way the brain develops is affected by psychosocial experiences, which can have a direct impact on a child's ability to control themselves and their likelihood of using substances.

Mental health is also an important factor. Having mood or anxiety disorders increases the chance of developing a substance use disorder by two times. (Aly et al., 2020; UNODC, 2016).

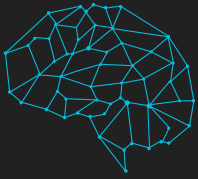
2.3 Consequences of substance use on the normal development of adolescents

The regular use of drugs among adolescents can have significant impacts on adolescent's growth and development, including negative effects on memory, attention, and executive functions, compromising their neurodevelopment (Aly et al., 2020).

Using multiple substances poses even greater risks and can lead to poor outcomes. Studies have shown that individuals who begin using cannabis before age 16 are at higher risk of developing substance use disorders (1:6 of those who initiate substance use in adolescence develop cannabis use disorders) and mental health issues such as personality disorders, anxiety and depression (Anglin et al., 2012; Volkow, Baler, Compton, & Weiss, 2014).

Also, there is a complex relationship between suicidal thoughts and psychoactive substance use (Crumley, 1990). Studies have shown that individuals who use psychoactive substances, such as alcohol and drugs, are at an increased risk of experiencing suicidal thoughts and attempting suicide (Spremo & Loga, 2005). One potential explanation for this relationship is that substance use can lead to changes in brain chemistry and function, which can affect mood and behavior, including an increased risk of suicidal thoughts. Substance use can also be a coping mechanism for individuals who are experiencing emotional distress, and as a result, they may be more likely to have suicidal thoughts. (Wesonga, Osingada, Nabisere, Nkemijika, & Olwit, 2021).

Excessive drug use can also lead to dropping out of school or vocational training. Additionally, individuals who engage in harmful drug use may become more likely to commit crimes or associate with others who also use drugs. (Thomasius et al., 2022).



However, it is important to note that for many adolescents, drug use is a temporary phase that tends to end as they grow older and their social demands change.(Wittchen et al., 2008).

2.4 The Impact of Parental Loss on Adolescent Development

Parental loss can deeply affect the life of an adolescent, especially as they are still developing their identity and relationships with others. During adolescence, there is a need for independence and detachment from parents, which can make grieving the loss of a parent more complicated.(Farella Guzzo & Gobbi, 2021).

According to psychoanalytic theories, the death of a parent during early adolescence may result in regression to a less mature state, while in older adolescence, it may lead to "parentification," where the adolescent becomes a surrogate parent, threatening their independence. Recent studies suggest that responses to parental loss in adolescents can range from accelerated maturity to a change in perception of the world.(Farella Guzzo & Gobbi, 2021).

The negative impacts of parental loss can manifest as physical, mental, and behavioral symptoms. Physical symptoms can include changes in appetite, fatigue, and sleep disturbances, while psychological symptoms may include depression, anxiety, and suicidal thoughts. Adolescents aged 12-15 and females are at higher risk of developing depressive symptoms compared to younger children and males. Therefore, age and gender are essential factors to consider when addressing grief and loss in adolescents. (Hamdan S, Melhem NM, Porta G, Song MS, 2013).

Behavioral symptoms may include addiction and a reduction in social activities, which can persist for years after the loss. Adolescent grief can significantly lead to lower academic achievement, reduced participation in courses, and fewer social activities. The loss of a parent during adolescence can also result in lower family cohesion, lower self-esteem, and increased feelings of hopelessness.(Hamdan S, Melhem NM, Porta G, Song MS, 2013).

Research on animals, from Bambico et al., has shown that the absence of a father in monogamous biparental species increases the risk of substance abuse and aggressive behavior, indicating the neurobiological consequences of parental loss during neurodevelopment. The study also revealed changes in prefrontal cortex neurodevelopment, responsible

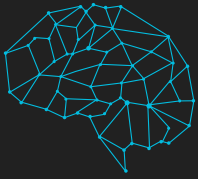
for decision-making and social behavior.(Bambico, Lacoste, Hattan, & Gobbi, 2015).

Other studies have focused on understanding the relationship between parental loss, disruptive behaviors and substance use in youth. Evidence suggests a positive correlation between parental loss and disruptive behaviors in children, as well as between disruptive behaviors and substance use. Theoretical pathways that could explain this relationship include increased rates of alcohol and drug use in parents who die prematurely, the consequences of parental loss, such as depression and post-traumatic stress disorder (PTSD), and surviving parents' difficulties in providing adequate supervision and monitoring.(Hamdan S, Melhem NM, Porta G, Song MS, 2013).

Despite the negative impacts, some studies have reported positive outcomes, such as increased resilience, personal growth, and maturity. Adolescents may report that the experience of loss has led to academic focus and performance and has helped them learn more about themselves, others, and life in general.(Hamdan S, Melhem NM, Porta G, Song MS, 2013).

Although research has provided some insights, there is still much to learn about the impact of parental death on adolescents, including the various responses and outcomes of adolescent grief, the factors that influence resilience and personal growth, and effective treatment strategies. Adolescents have unique and complex responses to grieving that require specialized attention, considering the psychological elaboration of the loss, the importance of peers, and intense emotions during this delicate time. Clinicians and experts must develop a deeper understanding of the adolescent bereavement process and find ways to support them.(Farella Guzzo & Gobbi, 2021).

Effective interventions that enhance the functioning of bereaved youth and prevent or reduce the development of disruptive behavior disorders have the potential to prevent substance abuse and addiction. To achieve this, it is important to consider implementing interventions that target potential risk factors associated with parental loss, such as grief counseling, trauma-focused cognitive-behavioral therapy, and family-based interventions that promote effective communication and parenting skills. Schools and communities can also offer support through mentoring programs, extracurricular activities, and peer support groups.(Farella Guzzo & Gobbi, 2021).



2.5 Treatment

The way to properly address a substance use disorder in a child or adolescent is dependent on the specific disorder and the patient's age. Factors such as the effects of psychoactive substance use and the unique developmental and psychological aspects of childhood and adolescence must be taken into account. Treatment methods that may be effective for adult patients may not be suitable for children and adolescents. (Thomasius et al., 2022).

Adolescents have unique needs when it comes to substance use treatment. Some particularities include: (Thomasius et al., 2022):

- Family members are more likely to initiate treatment for adolescent patients than the patients themselves and primary care physicians and pediatricians are often the first point of contact for these requests.
- Techniques such as motivational interviewing are highly beneficial in encouraging self-awareness and a willingness to change.
- Adolescents may be more resistant to treatment and may require different approaches than adults.
- The involvement of family and parents in treatment can be important for adolescents, as family dynamics and relationships can play a significant role in substance use and recovery.
- Children and adolescents with substance use disorder require additional support in terms of education and vocational training.
- The influence of peers plays a major role in the treatment engagement of adolescent patient.
- Adolescents may benefit from age-specific treatment programs that address the developmental and social issues specific to this age group.
- Adolescents may also benefit from therapy or counseling that addresses underlying emotional or mental health issues that may be contributing to their substance use.
- Due to their still-developing brains, adolescents may be more vulnerable to the negative effects of substance use and may require closer monitoring and more intense treatment than adults.

It is also important to keep in mind that the legal system and schools may be involved in the treatment process, and that the treatment should be tailored to the individual needs of the adolescent.

2.6 Prevention

Adolescents have unique needs and considerations when it comes to substance use prevention. Some of the main particularities include: (Thomasius et al., 2022).

- Developmental stage: adolescents are in a stage of development where they are exploring their identity and seeking independence, which can make them more susceptible to experimenting with substances. Therefore, prevention efforts must take into account their unique developmental needs and incorporate age-appropriate activities and interventions.
- Peer influence: adolescents are heavily influenced by their peers, and their social environment can play a significant role in their substance use. Therefore, prevention efforts should address the adolescent's relationships with their peers and provide them with the skills to navigate social situations without using substances.
- Trauma: adolescents who use substances might have experienced some form of trauma and they need specialized trauma-informed prevention.
- Family involvement: family dynamics and relationships play a critical role in the prevention of substance use problems in adolescents. Therefore, involving family members in prevention efforts is crucial for the adolescent's success.
- Addressing the root causes: substance use prevention efforts should address the underlying social, economic, and psychological factors that contribute to substance use in adolescents, such as poverty, lack of education, and mental health issues.
- Multi-component approaches: substance use prevention efforts are more effective when they include multiple components, such as school-based programs, parent education and support, and community-based interventions.
- Cultural sensitivity: prevention efforts should take into account the cultural background of the adolescents and their families and should be culturally sensitive and appropriate.

Furthermore, the window of opportunity for preventing harmful patterns related to substances, other than alcohol, during adolescence is limited. The rapid progression from substance use to abuse and dependence in adolescence may suggest a heightened vulnerability during this time (Wittchen et al., 2008). This highlights the need to take measures to stop young people from using drugs. The American Academy of Pediatrics places a significant emphasis on the crucial role of pediatricians in preventing and addressing substance abuse in young people (Kulig, 2005). During a consultation for monitoring the behavior of teenagers, a method for evaluating the presence of substance use can be employed. This assessment can take the form of various accepted surveys. Teenagers may choose to fill out these questionnaires electronically or on paper, rather than through verbal questioning.

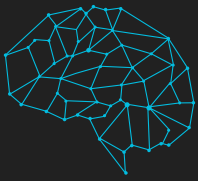


Table 1 - RAFFT is an acronym derived from words that indicate various contexts of use: "relax, alone, friends, family, trouble." If an adolescent aged 12 to 18 answers two or more of these questions affirmatively, a substance use disorder may be present.

RAFFT for drug use

- Do you ever use illicit drugs to relax or feel better about yourself?
- Do you ever use illicit drugs to fit in?
- Does anyone in your circle of friends use illegal drugs regularly (at least once a week)?
- Do you ever use illicit drugs while you are by yourself, or alone?
- Does anyone in your family have a problem with illegal drugs?
- Have you ever gotten into trouble because you were using illicit drugs (for example, bad grades, trouble with the law or your parents)?

A reliable tool for identifying substance use among individuals between the ages of 12 and 21, which can be utilized in these scenarios, is the RAFFT survey (Table 1). A score of two or more positive responses on this survey suggests a substance use issue, and the teenager should be directed to receive specialized guidance (Thomasius et al., 2022).

DISCUSSION AND CONCLUSION

Adolescent substance use disorders are multifaceted and influenced by various individual and environmental factors. This case report highlights the significant impact of bereavement on an adolescent's susceptibility to substance abuse. The loss of a parent is associated with an increased risk of substance abuse and addiction. Adolescents who experience parental loss may turn to drugs or alcohol as a way to cope with the intense emotional pain of their loss. This can lead to the development of substance use disorders, as seen in the case report discussed above.

The case also illustrates the negative impact of substance use on an adolescent's development, as seen through the patient's decline in academic performance.

Early intervention and treatment are crucial for addressing adolescent substance use disorders. As each person's experience of loss and grief is unique, counseling interventions must prioritize their uniqueness to effectively address their needs. Providing comprehensive and sustained support can prevent negative outcomes and ensure better long-term outcomes for these vulnerable patients. However, in this case, the patient did not receive help from a mental health team until at least two years after the onset of her symptoms and five years before being directed to a consultation with a specialized addiction team. This delay in treatment likely had a

negative impact on the patient's outcome and underscores the importance of early identification and intervention for adolescent substance use disorders.

In addition to substance abuse, the patient's depressive symptoms and parental loss were risk factors for suicidal thoughts and attempts, as seen in this patient.

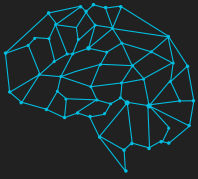
While the patient's therapy and psychiatric follow-up may have helped to mitigate some negative consequences of her substance use, more comprehensive and sustained treatment may have been necessary to prevent the patient's hospitalization. It is essential to provide early intervention and ongoing support for adolescents who have experienced parental loss to prevent the negative outcomes associated with this experience. Mental health professionals should be aware of the unique needs and experiences of each adolescent and tailor their interventions accordingly.

CONFLICTS OF INTEREST

The authors declare the absence of potential conflicts of interest.

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