International Journal of Research in Medical Sciences
Sukma DAA et al. Int J Res Med Sci. 2022 Mar;10(3):789-795
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20220540

Review Article

An aspect of personality disorder in substance use disorder

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Received: 24 January 2022
Accepted: 09 February 2022

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ABSTRACT

Substance use disorder (SUD) remains a health problem for a long time and the number of substance abuse was relatively the same every year. The prevalence of substance abuse in Indonesia in 2011 is about 2.23%, it was slightly decreased in 2014 become 2.18% and 1.77% in 2017. However, the prevalence was increased again in 2019 become 1.80%. Previous studies had shown a strong association between personality disorder (PD) and SUD. The result of the national comorbidity survey replication by Glantz et al in the United States (US) found that patients with PD tend to experience SUD (odd ratio=4.9). All types of PD had been reported in the patients with SUD, but antisocial and borderline personality disorder was the most commonly found. Antisocial, borderline, and paranoid personalities had a positive association with SUD, meanwhile, obsessive-compulsive personalities had a negative association with SUD.

Keywords: Substance addiction, Substance use disorder, Personality disorder

INTRODUCTION

Currently, narcotics, alcohol, psychotropic, and other addictive substance were not used only in the medical field but also had been abused by some irresponsible person. Drug abuse behavior was commonly found in people with high-risk personalities. Substance abuse is associated with various disorders in life aspects, including physical, psychological, and social, which is contributed to morbidity and mortality rate, as well as an economic burden in society.[1] Although drugs abuse had become one of the health problems since a long time ago, there was no significant decrease in prevalence every year. The prevalence of substance abuse in Indonesia in 2011 was 2.23%, becoming 2.18% in 2014 and 1.77% in 2017. However, its prevalence was increased in 2019 become 1.80%.[2]

Narcotics, alcohol, psychotropic, and other addictive substance belonged to a group of drugs that may affect the brain by disrupting normal neuronal communication and transmission. Some substances, such as marijuana and heroin, can activate neurons because their chemical structure mimics natural neurotransmitters. Other substances, such as cocaine or methamphetamine, can cause nerve cells to release large amounts of natural neurotransmitters (especially dopamine) or to prevent the normal recycling of these brain chemicals, which are needed to stop signalling between neurons. As a result, there will be excess dopamine, a neurotransmitter in the brain area that controls movement, emotion, motivation, and feelings of pleasure, in the brain. Overstimulation of this reward system, which normally responds to natural survival-related behaviours (eating, spending time with loved ones), produces a euphoric effect in response to psychoactive drugs. This reaction encourages people to repeat the pleasurable behaviour of drug abuse.[3] In general, the more risk factors a person has, the more likely they are to fall into a substance abuse condition. As with any disease, susceptibility to addiction varies from person

to person, and there is no single factor that determines whether a person will become dependent on a substance.[3]

Several studies have suggested a strong relationship between personality disorder (PD) and substance use disorder (SUD). The results of the national comorbidity survey replication study by Glantz et al in the United States (US) found that having a mental disorder tends to experience substance abuse. The study showed that the more psychiatric disorders they had, the higher the risk of becoming a drug abuser.[4] If a person has a psychiatric disorder, especially if more than one, it increases the relative risk of SUD.[5] Although there is ample evidence of co-occurrence between personality disorders and substance abuse, it is not clear how the various personality disorders relate to the degree of addiction. This literature review is expected to increase knowledge about the impact of personality disorders and help decide therapy for individual substance abusers appropriately.

PERSONALITY DISORDER

Definition

The "diagnostic and statistical manual of mental disorders 5th edition" (DSM-5) defines a personality disorder as a pattern of behaviour and inner experiences that deviates significantly from the individual's cultural standards, is highly pervasive, has onset in adolescence or early adulthood, is stable over time, is stable over time, causes unhappiness and disturbance, and is manifest in at least two of the following four: cognition (a way of viewing and defining self, other people, and events), affect (intensity and appropriateness of emotional responses), interpersonal functioning, and impulse control. When a personality trait is maladaptive and causes functional impairment or subjective distress, the disorder can be diagnosed as a personality disorder.[6]

Risk factors

Several factors such as genetic factors, biological factors, and psychosocial factors play a role in the development of personality disorders. Studies showed that genetic factors that play a role in personality disorders, such as cluster A personality disorder, are more common in families of patients with schizophrenia than in the control group. Schizotypal personality disorder was more common in a family history of schizophrenia than in the control group. Cluster B personality disorder also has a genetic basis. An antisocial personality disorder is associated with alcohol use disorder. Depression often occurs in the family background of patients with a borderline personality disorder. Cluster C personality disorder also has a genetic basis. Patients with an avoidant personality disorder often have high levels of anxiety. Obsessive-compulsive traits are more common in monozygotic twins than in dizygotic twins.[6]

The biological factors, such as high testosterone, 17-estradiol, and estrone levels, low platelet monoamine oxidase (MAO) levels, neurotransmitter levels, and changes in electrical conduction on the electroencephalogram (EEG), play a role in personality disorders. Psychosocial factors such as internal object relations factors and types of defence mechanisms also play a role in personality disorders.[6,7]

Classification

The personality disorder subtypes classified in the DSM-5 include schizotypal, schizoid, and paranoid (cluster A); narcissistic, borderline, antisocial, and histrionic (cluster B); and obsessive-compulsive, dependent, and avoidant anxiety (cluster C). These three groups are based on descriptive similarity.

Cluster A includes three personality disorders with peculiar, aloof characteristics (paranoid, schizoid, and schizotypal). Cluster B includes four personality disorders with dramatic, impulsive, and erratic characteristics (threshold, antisocial, narcissistic, and histrionic). Cluster C includes three personality disorders that have the characteristics of anxiety and fear (avoidance anxiety, dependence, and obsessive-compulsive disorder).[6,8]

Management

The four stages of management of patients with personality disorders include: crisis management and stabilization, building a positive perspective and personal values in life, others-oriented awareness, and integrated intelligence. The early stages of crisis management and stabilization are concerned with eliciting problems and stressors to help the patient come to a fairly calm state and establish a working relationship with a psychiatrist. This stage may use pharmacological therapy if indicated and the patient is willing to accept such management. Pharmacological therapy is often helpful, but not everyone wants such therapy because of the risk of side effects. The advantages and disadvantages must be carefully weighed to respect the patient's preferences, to calm down and organize, and to develop further self-awareness.[9]

Stage 2 is to change one's view of life so that one can experience the things he loves in life relaxed conditions. Stage 3 is metacognitive awareness involving increasing self-awareness and the ability for contemplation which improves one's thoughts, feelings, and relationships in various conditions. Stage 4 is to integrate reason and love into action which enables one to mature and be happy even under previously stressful conditions.

Patients with personality disorders can go through this stage on their own (spontaneous remission) or be guided through this stage in treatment facilitated by a series of scientifically designed physical, personal, social, cognitive, and spiritual exercises.[9]

SUBSTANCE USE DISORDER

Definition

Addiction is defined as a chronic, relapsing brain disorder characterized by compulsive drug seeking and use, even though it has harmful consequences.[3] Drugs, including narcotics, alcohol, psychotropic, and other addictive substance, is a substance that will affect the brain or the central nervous system, causing physical, psychological, and social functioning disorders due to habit, addiction, and dependence on drugs.[1]

Substance abuse is a chronic brain disorder and is characterized by compulsive drug seeking and use, even though it has dangerous consequences.[3] Drug abuse is a patterned substance use disorder in which the user consumes large amounts of the substance or uses harmful methods. Substance use patterns and substance use-related syndromes are described as follows.[10]

Substance intoxication

Substance intoxication is a reversible syndrome, a substance-specific syndrome after taking certain substances. The common signs of intoxication include confusion, impaired judgment, inattention, and impaired motor and spatial skills.

Tolerance

The condition of physical habituation to a drug, due to frequent use, so that a dose is needed to achieve the same effect.

Addiction

Addiction syndrome is characterized by a strong or compulsive desire to consume a substance, difficulty controlling drug use behaviour, withdrawal, tolerance, disregard for alternative pleasures, and continued use of the drug despite a clear impact on the harmful consequences of the substance.

Withdrawal syndrome

Withdrawal syndrome is a group of symptoms that occur when a dependent person suddenly stops using a certain substance after prolonged and prolonged use. Some withdrawal symptoms include anxiety and restlessness while some withdrawal symptoms are specific to certain drugs or drugs. Withdrawal symptoms vary from drug to drug.

Substance addiction and substance abuse on the DSM-5 is now under one category called substance use disorders. To determine the severity of the disorder, criteria 1-11 have been established. The presence of 2-3 of the 11 symptoms was defined as mild. The presence of 4-5 symptoms was defined as moderate. The presence of 6 or more symptoms is defined as severe.[10]

Epidemiology

The prevalence rate of substance abuse in Indonesia in 2017 was 1.77% and DKI Jakarta was the province with the highest prevalence of drug abuse. Marijuana, methamphetamine, and ecstasy are the most commonly abused substances. Types of drugs that are mostly consumed in the male group are marijuana, methamphetamine, ecstasy, analgesics, and dextro. In the female abuser group, marijuana, codeine, analgesics, and ecstasy are widely used.[11]

Pathophysiology

Narcotics and psychotropic drugs are chemical substances that affect the brain by exploiting its communication system and interfering with the normal way neurons receive, process, and send information. Some drugs, such as marijuana and heroin, can activate neurons because their chemical structure mimics natural neurotransmitters. This similarity in structure "tricks" the receptor and allows substances to attach to and activate neurons. Although these substances mimic the brain's neurotransmitters, they do not activate neurons in the same way as natural neurotransmitters and cause abnormal messages. Other substances, such as cocaine or methamphetamine, can cause nerve cells to release large amounts of natural neurotransmitters (especially dopamine) or to prevent the normal recycling of these brain chemicals, which are needed to stop signalling between neurons. As a result, the brain will be mostly dopamine, a neurotransmitter in the brain area that controls movement, emotion, motivation, and feelings of pleasure. Overstimulation of this reward system, which normally responds to natural survival-related behaviours (eating, spending time with loved ones), produces a euphoric effect in response to psychoactive drugs. This reaction encourages people to repeat the pleasurable behaviour of drug abuse.[3]

Long-term abuse causes changes in other brain chemical systems and circuits. Glutamate is a neurotransmitter that affects reward circuits and learning abilities. When optimal glutamate concentrations are altered by drug abuse, the brain attempts to compensate, which can impair cognitive function. Brain imaging studies of people who are addicted to drugs show changes in brain areas that play a role in judgment, decision making, learning and memory, and behavioural control. These changes can encourage abusers to seek and use drugs compulsively despite the detrimental, even devastating consequences – that's the nature of addiction.[3]

Risk factors

As with other diseases, susceptibility to addiction is different for each person, and there is no single factor that determines whether a person will become addicted to

substances as shown in Figure 1. Environmental factors that play a role in substance addiction are the home and family environment and the environment of friends and school. Having a parent or older family member who abuses alcohol or drugs, or who engages in criminal behaviour, can increase the risk of their child developing drug problems. Peers who use drugs can influence even those with no risk factors to try drugs for the first time. Academic failure or poor social skills can put a child at further risk for using or becoming addicted to drugs.[3]

The genetic factors account for 40 to 60 percent of a person's susceptibility to addiction; including the effects of environmental factors on a person's gene function and expression. Adolescents and people with psychiatric disorders are at greater risk of drug abuse and addiction than the general population (National Institute on Drug Abuse, 2014). The earlier a person uses a substance, the more likely he or she will experience serious problems due to the harmful effects drugs can have on the developing brain and result from social and biological vulnerability factors, including unstable family relationships, physical or sexual abuse, genetic susceptibility, or mental disorders.[3]

Certain methods of administration, such as smoking or intravenous injection, may increase the potential for addiction. Drugs that are inhaled and injected enter the brain within seconds, producing a more powerful pleasure effect. This intense "high" can disappear within a few minutes and drop to lower and above normal levels. Scientists believe this stark contrast is driving some people to repeat drug use in an attempt to recreate the same pleasing effect.[3]

Comorbid

Opioid dependence has a higher prevalence of mental disorders, research shows 50% of addicts have comorbid psychiatric disorders. Two large epidemiological studies showed, in a representative sample of the population, those who met the criteria for alcohol or drug abuse and dependence (excluding tobacco dependence) were much more likely to meet the criteria for a psychiatric disorder. Studies showed that approximately 35-60% of patients with substance abuse or dependence meet the diagnostic criteria for antisocial personality disorder. Depressive symptoms are common in patients with substance abuse or dependence. Approximately one-third to one-half of patients with opioid abuse or opioid dependence and approximately 40% of patients with alcohol abuse or alcohol dependence meet the criteria for the major depressive disorder during their lifetime.[6]

Treatment and rehabilitation

A good therapy program combines specific procedures and disciplines to meet individual patient needs. The government has recently categorized publicly funded treatment programs for drug dependence into: methadone maintenance therapy (which is mostly outpatient), outpatient drug-free programs, community therapeutics, or outpatient programs short term stay.[6]

Drug rehabilitation is an evidence-based intervention effort that includes medical, psychosocial, or a combination of medical and psychosocial treatment, either in the form of short-term or long-term hospitalization, to change the behaviour of addicts so that they can return to carrying out social functions in society.[12] The rehabilitation program aims to restore the physical, mental and social abilities of drug abuse sufferers as well as a treatment to recover from their addiction.[13] The stages of rehabilitation for drug addicts are the stage of medical rehabilitation (detoxification) in the form of physical and mental health examinations of addicts by a team of doctors who used as the basis for prescribing drugs to reduce withdrawal symptoms, the non-medical rehabilitation stage is carried out in drug rehabilitation centers spread throughout Indonesia and the advanced development stage is that the addict may return to the society.[14]

ASSOCIATION BETWEEN PERSONALITY DISORDER AND SUBSTANCE USE DISORDER

SUD and PD are common disorders in the general population and have a high impact on health, social and economic systems.[15] The national epidemiological survey on alcohol and related conditions (NESARC) study showed that low education and economic level variables were associated with a greater risk of substance abuse and dependence. However, patients with mental disorders, particularly psychotic disorders or personality disorders, were the best predictors of substance use disorders.[16] Consistently, data from the national comorbidity survey replication by Glantz et al found that having a psychiatric disorder was at high risk for substance addiction (OR=4.9). The risk of lifetime substance addiction on substance users who do not have a mental disorder is 1.0. Meanwhile, the risk of substance addiction in a person with one psychiatric disorder is 2.7, with two disorders is 3.9, and with three disorders was 9.1.[4] The presence of more than one psychiatric disorder increases the relative risk of experiencing lifetime substance addiction.[5]

The risk of substance abuse is not the same for every psychiatric disorder. Various psychiatric disorders show different levels of risk of substance abuse.[5] According to Compton, Thomas, Stinson, and Grant (in Sansone, 2011), personality disorder has a relatively higher risk compared to other psychiatric disorders such as affective and anxiety disorders.[5] In particular, cluster B personality disorders, especially antisocial personality and borderline personality, are associated with substance use disorders.[17]

Several studies have suggested a strong relationship between PD and SUD. Teixido et al suggest that from the point of view of personality traits, self-harm and impulsiveness play an important role in cluster B PD and SUD, and play a role in the relationship between the two

disorders.[18] Cacciola et al (in Sansone, 2011) stated that all personality disorders have been reported in patients with substance abuse, but antisocial personality disorder and borderline personality disorder (BPD) are the most common personality disorders.[5] A cross-sectional study by Trull et al (in Gonzáles, 2019) shows that between 30% and 50% of patients with BPD meet the criteria for concurrent SUD.[17]

Patients with BPD show higher susceptibility to SUD compared to other personality disorders.[17] BPD as a comorbid substance use disorder has an impulsive psychodynamic and has difficulty self-regulating.[5] James and Taylor (in Gonzáles, 2019) state that negative emotions are more relevant to understanding the concurrence of SUD and cluster B PD.[17] Impulsive borderline personality disorder, unstable moods, and deficits in self-control skills lead them to SUD.[19] From a neuroscientific perspective, BPD patients have lower endogenous opioid levels and a high prevalence of alcohol use in BPD patients is associated with attempts to regulate the opioid system.[20]

Sansone reviewed several studies on the prevalence of substance use disorders in patients with BPD. Sansone concluded that the overall rate of substance use disorders in BPD patients varied from 14% to 72%.[5] Another study conducted by Herbasaat (2018) also found that antisocial, borderline, and paranoid personality traits were positively associated with substance use disorders, while obsessive-compulsive personality traits were negatively associated with SUD. Bernstein, Stein and Handelsman (in Herbasaat, 2018) found that antisocial behaviour was very common among drug users and other substance abusers, where 25-50% of those diagnosed with SUD also met the criteria for antisocial personality disorder.[21] Antisocial PD (APD) tend to have more severe alcohol use disorders with earlier onset of consumption and more rapid development of dependent symptoms.[17] APD traits such as deficits in executive function and response regulation, and anxiety-impulsive personality traits also have a greater tendency to develop cocaine and amphetamine use disorders.[20] Verhuel (in Gonzáles, 2019) mentions that antisocial and BPD have an earlier onset of substance use and a higher relapse rate.[17]

The NESARC study shows that paranoid PD has a higher prevalence of alcohol use disorder than patients with other PD.[22] Gonzáles (2019) found that paranoid personality disorder has a higher prevalence of alcohol and cocaine use disorders than other PDs, excessive alertness to the environment, and hypersensitivity, these symptoms can trigger unpleasant internal tension. Herbasaat (2018) linked the characteristics of these PD to SUD to reduce internal tension.[21]

Based on sex distribution, the prevalence of SUD between men and women with a BPD is similar. However, in the treatment sample, men were over-represented which indicated men had more severe substance use difficulties than women as shown in Table 1.[5] Another study by Herbasaat (2018) regarding gender differences in the relationship between PD and SUD traits in adolescents found that female adolescent self-defeating personality traits had a lower risk of SUD. The study was divided into four groups, namely boys with SUD, boys without SUD, girls with SUD, and girls without SUD. On the severity of the offense, boys with SUD experienced the category of "serious offense." Meanwhile, girls with SUD commit more serious offenses than girls without SUD but are almost equal to boys without SUD. Based on the moderating analysis, gender only had a moderate effect on the relationship between self-defeating traits and SUD. The higher the self-defeating girls, the lower their risk of developing SUD. In contrast, the self-defeating rate of male adolescents did not effect on SUD. This suggests that the self-defeating personality trait helps adolescents to overcome social exclusion and prevents them from SUD. Adolescent girls with self-defeating personality traits will not feel like being involved in drug use in order not to be rejected by their peer group because the personality of adolescent girls is adapted to face social exclusion.[21]

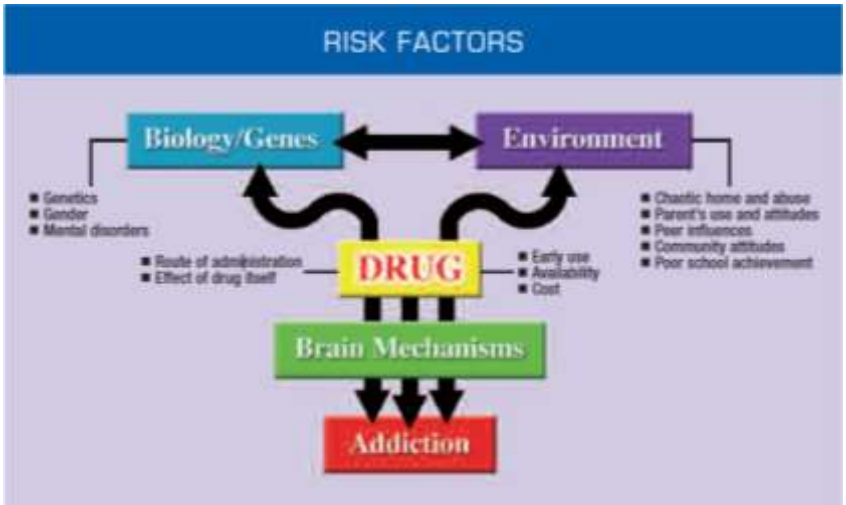

Figure 1: Risk factors of drug addiction.[3]

Table 1: Sex distribution in the substance use disorder at 12 months in patients with borderline personality disorder (N=2.045) in the community sample.[5]

Substance use disorder	Percentage of men with BPD	Percentage of women with BPD
Any substance use disorder	12.2	16.9
Any substance abuse	10.6	14.6
Any substance dependence	23.4	29.8
Any alcohol use disorder	13.6	17.6
Alcohol abuse	6.6	7.6
Alcohol dependence	22.6	27.6
Any drug use disorder	28.3	39.5
Any drug abuse	22.8	34.9
Any drug dependence	42.7	50.5
Nicotine dependence	13.6	17.6

BPD: Borderline personality disorder

CONCLUSION

Drug abuse was not a new problem in society and is often associated with disturbances in various aspects of life, which is associated with morbidity, mortality, and economic burden in society. Low levels of education and economic status are at greater risk of substance abuse. Someone who has a mental disorder is at risk for experiencing the same thing, the more mental disorders suffered, the higher the risk of substance abuse in someone. Psychotic disorders and PDs are common disorders in the general population and are known to be associated with substance abuse disorders. Personality disorders have a relatively high risk compared to other psychiatric disorders such as affective and anxiety disorders, especially cluster B PDs, namely antisocial personality and borderline personality.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Sholihah Q. Efektivitas Program P4Gn Terhadap Pencegahan Penyalahgunaan Napza. J Kesehat Masy. 2015;10(2):153.
2. Badan Narkotika Nasional Republik Indonesia (BNN). Daftar Tempat Rehabilitasi Narkoba di Indonesia. 2019.
3. National Institute on Drug Abuse. Drugs, Brains, and Behaviour : The Science of Addiction. USA: NIH Publication. 2014;9-14.
4. Glantz MD, Anthony JC, Berglund PA, Degenhardt L, Dierker L, Kalaydjian A, et al. Mental disorders as risk factors for later substance dependence: estimates of optimal prevention and treatment benefits. Psychol Med. 2009;39(8):1365-77.
5. Sansone RA, Sansone LA. Substance use disorders and borderline personality: Common bedfellows. Innov Clin Neurosci. 2011;8(9):10-3.
6. Sadock B, Sadock V, Ruiz P. Kaplan & Sadock's Synopsis of Psychiatry Behavioral Sciences/Clinical Eleventh Edition. 11th ed. Pataki C, Sussman N, editors. Philadelphia: Wolters Kluwer. 2015;3230.
7. Carvalho L de F, Reis AM, Pianowski G. Investigating Correlations Between Defence Mechanisms and Pathological Personality Characteristics. Rev Colomb Psiquiatr. 2019;48(4):232-43.
8. American Psychiatric Association (APA). Diagnostic and statistical Manual of Mental Disorders. 5th ed. Arlington (VA): American Psychiatric Association. 2013.
9. Sadock B, Sadock V, Ruiz P. Kaplan & Sadock's Comprehensive Textbook of Psychiatry Tenth Edition. 10th ed. Akiskal H, Jeste D, Krystal J, LEwis-Fernandez R, Merikangas K, Nemeroff C, et al., editors. Philadelphia: Wolters Kluwer. 2017.
10. Singh J, Gupta P. Drug addiction: Current Trends and Management. Int J Indian Psychol. 2017;5(1):187-92.
11. Badan Narkotika Nasional RI. Survei Nasional Penyalahgunaan Narkoba di 34 Provinsi Tahun 2017. BNN RI. 2017.
12. Pusat Data dan Informasi Kemenkes RI. Buletin Jendela Data dan Informasi. Vol. 2, Kesehatan Penyakit Tidak Menular. Jakarta. 2012.
13. Psychologymania. Pengertian Rehabilitasi Narkoba. Psychologymania. 2012.
14. Humas BNN. Daftar Tempat Rehabilitasi Narkoba di Indonesia. Badan Narkotika Nasional Republik Indonesia. 2019.
15. Hasin D, Fenton MC, Skodol A, Krueger R, Keyes K, Geier T, et al. Personality disorders and the 3-year course of alcohol, drug, and nicotine use disorders. Arch Gen Psychiatry. 2011;68(11):1158-67.
16. Lev-Ran S, Imtiaz S, Rehm J, Le Foll B. Exploring the association between lifetime prevalence of mental illness and transition from substance use to substance use disorders: results from the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC). Am J Addict. 2013;22(2):93-8.
17. González E, Arias F, Szerman N, Vega P, Mesias B, Basurte I. Coexistence between personality disorders and substance use disorder. Madrid study about

prevalence of dual pathology. Actas Esp Psiquiatr. 2019;47(5):218-28.
18. Teixidó-Compañó E, Espelt A, Sordo L, Bravo MJ, Sarasa-Renedo A, Indave BI, et al. Diferencias entre hombres y mujeres en el consumo de sustancias: el rol del nivel educativo y la situación laboral. Gac Sanit. 2018;32(1):41-7.
19. Nakar O, Brunner R, Schilling O, Chanen A, Fischer G, Parzer P, et al. Developmental trajectories of self-injurious behavior, suicidal behavior and substance misuse and their association with adolescent borderline personality pathology. J Affect Disord. 2016;197:231-8.
20. Szerman N, Peris L. Personality Disorders and Addiction Disorders. In: el-Guebaly N, Carrà G, Galanter M, editors. Textbook of Addiction Treatment: International Perspectives. Milano: Springer Milan. 2015;2063-83.
21. Habersaat S, Ramain J, Mantzouranis G, Palix J, Boonmann C, Fegert JM, et al. Substance-use disorders, personality traits, and sex differences in institutionalized adolescents. Am J Drug Alcohol Abuse. 2018;44(6):686-94.
22. Hasin DS, Saha TD, Kerridge BT, Goldstein GB, Chou SP, Zhang H, et al. Prevalence of Marijuana Use Disorders in the United States Between 2001-2002 and 2012-2013. JAMA psychiatry. 2015;72(12):1235-42.

Cite this article as: Sukma DAA, Ardani GAI, Wahyuni AAS. An aspect of personality disorder in substance use disorder. Int J Res Med Sci 2022;10:789-95.