Review

Relapse After Rehabilitation Among Substance Use Disorder: A Literature Review Analysis by Philosophy

Dhian Ririn Lestari *, Moses Glorino Rumambo Pandin, Ah. Yusuf

Posted Date: 26 December 2024

doi: 10.20944/preprints202412.2288.v1

Keywords: Relapse; Factor; Substance Use Disorder; After Rehabilitation

Review

Relapse After Rehabilitation Among Substance Use Disorder: A Literature Review Analysis by Philosophy

Dhian Ririn Lestari [1,2,*], Moses Glorino Rumambo Pandin [3] and Ah.Yusuf [4]

[1] Doctoral Nursing Program, Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
[2] Departement of Nursing Science, Faculty of Medicine and Health Science, Lambung Mangkurat University, Banjarbaru, Indonesia
[3] Faculty of Humanities, Universitas Airlangga, Surabaya, Indonesia
[4] Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
* Correspondence: dhian.ririn.lestari-2024@fkp.unair.ac.id

Abstract: Background: Substance use disorder is a global problem concern. Substance use disorders have a negative impact on individuals, family and societies. Many interventions have been carried out to overcome addiction. Rehabilitation is one of the measures to eliminate drug addiction, but relapse conditions are still high in drug users. Various recent studies explain factor causes drug use addiction and relapse substance use after rehabilitation. The purpose of this study was to analyze factor contribution for relapse substance use disorder after rehabilitation. **Method:** This study is a type of literature review research related to relapse substance use disorder obtained from databases: Sciencedirect, SAGE, Proquest, Scopus with keywords and booleans: *"relapse prevention" AND group AND "substance use disorder", "self awareness" AND "substance use disorder", "self regulation" AND relapse AND "substance use disorder", "locus of control" AND relapse AND "substance use disorder"*. The articles in this review are limited to English - language articles from 2019-2024. PRISMA guidelines are used as a reference protocol and literature review evaluation. **Result:** The results of the search found 11 articles that have been carried out by *Literature Review* with PICOS analysis, there are several factors that cause drug use disorders to become relapses, including internal and external risk factors, type of stimulant narcotic substances that have been used. The existence of risk factors and the protection obtained are categorized into three main domains: individual, family, and community factors. **Conclusion:** The high recurrence rate in drug user disorders is influenced by factors that exist in individual users and external factors that influence drug users to become relapses after the rehabilitation period. Further studies and alternative specific interventions are needed to inhibit the factors that cause drug user disorder relapse and strengthening protection factors so that they can remain in a healthy condition and abstain from using drugs after the rehabilitation period.

Keywords: relapse; factor; substance use disorder; after rehabilitation

Introduction

Drug use is a problem that requires special attention to date to be solved and stopped. Substance use disorder *(Substance Use Disorder)* is a major contributor to the global burden of disease and continues to grow into a health problem around the world (Yamada *et al.*, 2021). Drug abuse is a major problem for individuals, families, and communities, as its impacts can be cumulative and contribute to adverse social, physical, and mental health problems (Das Et Al. , 2016).

Drug use during adolescence can have effects that last into adulthood (Gray and Squeglia, 2018). Adolescents who abuse drugs report having higher rates of physical and mental illness and a decline in overall health and well-being (Nawi et al., 2021). According to prevalence studies, 13.1% of people involved in drug abuse in India are under the age twenty. A clinic-based survey revealed that 63.6%

 doi:10.20944/preprints202412.2288.v1

of drug users seeking treatment were introduced to drugs at a young age, i.e. when they were 15 years old or younger (Jiloha , 2017) . Ages between 13 and 21, the likelihood of lifelong drug abuse and dependence drops by 4–5% each year if drug use initiation is delayed, further suggesting that early drug use poses the greatest risk (Deshpande, Karulkar and Lavalekar, 2024). The majority of adults who have a substance use disorder start using drugs before the age of 18 and begin to experience the disorder by the age of 20, thus highlighting the need to delay drug use for as long as possible, because adolescents who are already in remission from alcohol and drug use have similar performance to those who continue to meet the criteria for drug use disorder. This suggests that drug use during adolescence can have effects that last into adulthood (Gray & Squeglia , 2018). Adolescents who abuse drugs are also reported to have higher rates of physical and mental illness and a decline in overall health and well-being (Nawi et al., 2021).

Those who use drugs will be in a state of addiction. Addiction is a major health problem worldwide that results in maladaptive behavior changes, and some of them can last a lifetime (Gunes Kutlu & Gould, n.d., 2024). Addiction conditions can be given treatment interventions, one of which is rehabilitation. Relapse is defined as a condition in which the old pattern of drug abuse (addiction) recurs that occurs regularly. Drug relapse is an inseparable challenge from a long process towards full recovery. The recurrence rate of drug users who have been treated at various therapy and rehabilitation centers is 60-80% (Monitasari Puspa, n.d ., 2017). A large recurrence rate (85.6%) among participants within 12 months of discharge from a rehabilitation center (Vuong *et al.*, 2021). It is known that the number of relapses from drug users is still high as a disorder of drug use after rehabilitation, so it is necessary to conduct research.

This literature survey-based research was conducted to find out what factors affect or contribute to the occurrence of relapse based on the literature review.

Methods

This literature review examined the results of research related to relapse factor substance use disorder The articles reviewed come from data bases with search engine *Sciencedirect, SAGE, Proquest, Scopus*. The article search in this review was used keywords and booleans: "*relapse prevention" AND group AND "substance use disorder", "self awareness" AND "substance use disorder", "self regulation" AND relapse AND "substance use disorder", "locus of control" AND relapse AND "substance use disorder"*. Articles in this review was limited to English articles that published in the last 5 years (2019- 2024). This study used the PRISMA flow- chart for selecting and recording articles. The articles that met the inclusion criteria: population of substance use disorder, were included in this study. The articles were excluded using the exclusion criteria: non- substance use disorder, did not discussed relapse, review articles (systematic review, scoping review, narrative review, literature review, etc), not used English language, and not full text article and not open access journal. The processes of identification, screening, and exclusion are ilustrated in the PRISMA flow chart below (Figure 1).

 doi:10.20944/preprints202412.2288.v1

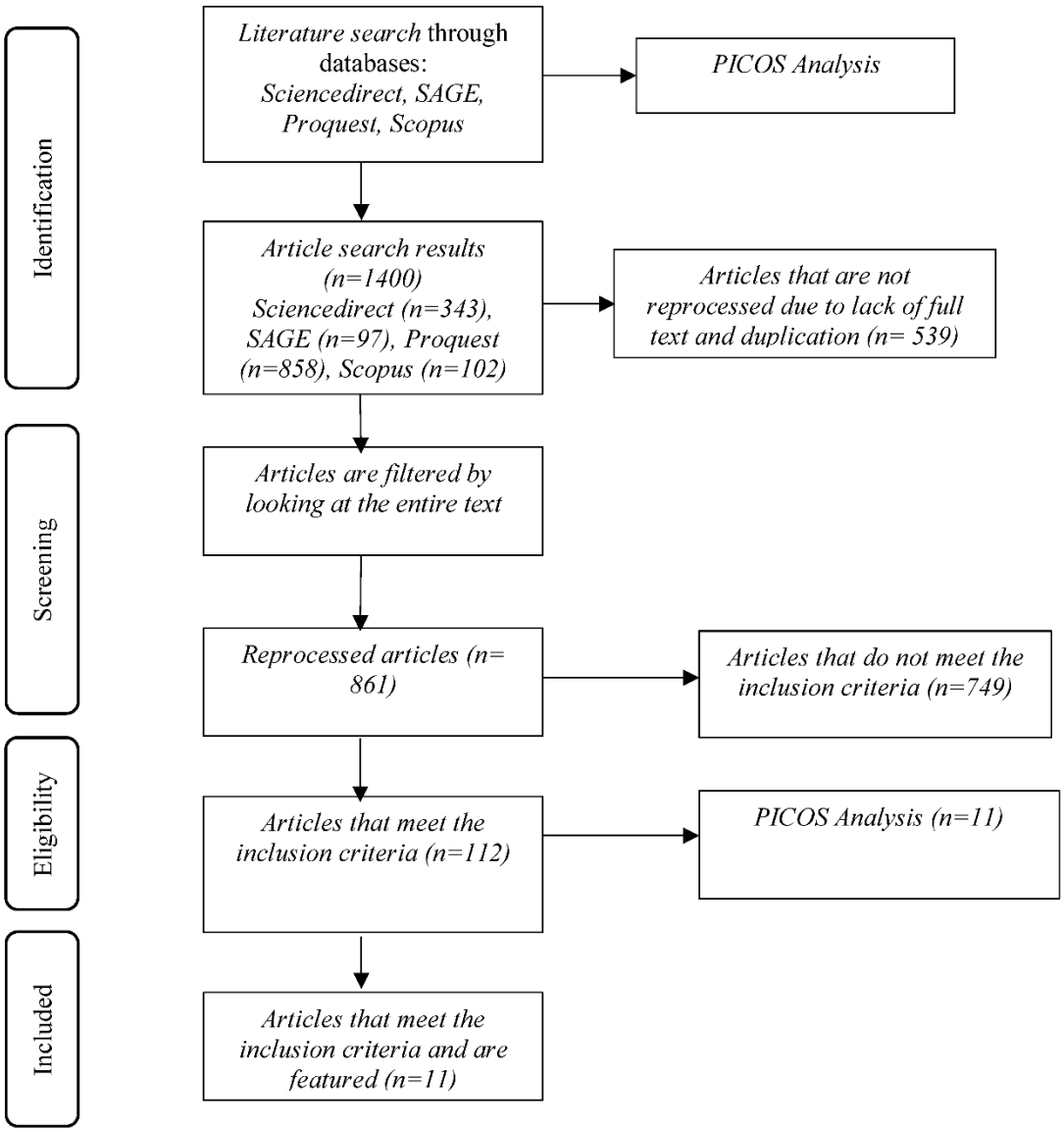

Figure 1. PRISMA flow chart.

Table 1. Summary of Study Characteristics.

Author/Year	Article Title	Method	Result
Zareei Mahmood Abadi et al., 2020	Investigating the Relation between Religious Orientation and Locus of Control with Tendency toward Substance Abuse, Case study: Addicts and Non-	**Design:** Quantitative case-control **Sample:** 200 men, Cases selected from drug dependence using cluster sampling method **Variables:** Religious Orientation, Locus of Control Rotter, and	Poor religious orientation and lack of internal locus of control are the causes of drug abuse tendencies. Differences in religious orientation (t= 5.40, p<0.003), and locus of control (t= 4.37, p<0.001) between addicts and normal individuals. There was a significant relationship between religious orientation

 doi:10.20944/preprints202412.2288.v1

	Addicts Men, Isfahan, 2018	Drug Abuse Tendency Scale **Instruments:** The research instruments consist of the Allport Religious Orientation Scale, the Locus of Control Rotter Scale, and the Drug Abuse Tendency Scale.	(r=-0.328, p<0.04) and locus of control (r= -0.365, p<0.01) in addicts and drug abuse propensity.
Ghoochani Et al., 2022	Investigating the relationship between locus of control, emotional intelligence and resilience among young male opium abusers in shiraz	**Design:** Cross-sectional **Sample:** 40 male opium addicts selected through convenience sampling technique **Variables:** Locus of Control, Emotional Intelligence, and Resilience **Instruments:** Rotter, Shrink, Connor-Davidson, and demographic questionnaires	People with low resilience tended to have more relapses after quitting (r=-0.424, P=0.006). People with higher social awareness used psychological therapy to break free from addiction (r=0.337, P=0.033). Longer addictions were reported in people who consumed opium more often during the day (r=0.433, P=0.005). Higher frequency of daily consumption and long-term consumption were positively associated with an increase in the number of smoking cessations and relapses (r=0.323, P=0.042; r=0.362, P=0.022). Addiction treatment centers should evaluate and improve the level of resilience, emotional intelligence, and internalization of locus of control in addicts to prevent addiction relapse
Vuong et al., 2021	Quality of life as a predictor of time to heroin relapse among male	**Design:** Prospective and retrospective cohort studies	The study found a large recurrence rate (85.6%) among participants within 12 months of discharge from the CCT center; the average number of

 doi:10.20944/preprints202412.2288.v1

	residents following release from compulsory rehabilitation centres in Vietnam	**Sample:** 385 male residents from three CCT centers in Hai Phong City, Vietnam **Variables:** QOL, relapse **Instrument:** EQ- 5D	days for relapse was 57.7 (SD = 31.6). There was no statistically significant change over time in the mean value of health-related quality of life (P = 0.11). Although the total index score (across the five predefined EQ-5D domains) had no significant influence on predicting cumulative recurrence, a lower score on the EQ-5D Visual Analog Scale significantly (P <0.05) predicted cumulative recurrence. relapse, with an adjusted hazard ratio for relapse of 0.987 (P = 0.013).
Nawi et al., 2021	Risk and protective factors of drug abuse among adolescents: a systematic review	**Sample:** 425 articles identified, 22 quantitative articles and one qualitative article included in the review **Variable:** Protective factors and risk of drug abuse **Instrument:** Meta-Analysis (PRISMA)	The risk factors and protections obtained are categorized into three main domains: individual, family, and community factors. The identified individual risk factors are the characteristics of high impulsivity; insurrection; impaired emotional regulation, low religiosity, pain, homework completeness, total screen time and alexithymia; experience of persecution or negative upbringing; have psychiatric disorders such as behavioral problems and major depressive disorder; previous exposure to e-cigarettes; behavioral addiction; perceived risk is low; high perceived accessibility of drugs; and a

 doi:10.20944/preprints202412.2288.v1

			high attitude to using synthetic drugs. Family risk factors are the mother smoking before giving birth; poor psychological control of the mother; low parental education; negligence; poor supervision; uncontrollable allowance; and the presence of family members who use drugs. One of the reported community risk factors is having peers who abuse drugs. The determined protective factors are characteristic of individual optimism; high level of awareness; have a social phobia; have a strong belief in substance abuse; desire to maintain health; high paternal awareness of drug abuse; school connectivity; activities are structured and have strong religious beliefs.
Sun Et Al., 2024	Self-control as mediator and social support as moderator in stress-relapse dynamics of substance dependency	**Design:** Cross sectional **Sample:** Convenience sampling method, 420 male individuals with FOAMA were recruited from a detoxification center in Guangxi, China. **Variables:** Relapse, self-control, stress, social support **Instrument:** *Chinese version of perceived*	This study emphasizes the importance of learning stress management strategies, improving self-control, and receiving comprehensive social support in the prevention and treatment of substance dependence. By strengthening self-control and social support as internal and external resources, the likelihood of relapse among individuals with SUD can be reduced, contributing to more

 doi:10.20944/preprints202412.2288.v1

		stress scale (Chinese 14-item PSS) *Self-control scale (SCS)* *Relapse inclination questionnaire (RIQ)*	effective and comprehensive drug rehabilitation strategies.
Dennise et al., 2024	A Concurrent Analysis of Drug Relapse Risk, Drug Avoidance Self-Efficacy, and Aftercare Experiences among Aftercare Program Clients	**Design:** Mix methode design **Sample:** In the qualitative phase, interviews were conducted with five participants who met the inclusion criteria of the study. Purposive sampling is used to select the participants. **Variables:** Drug user experience after exiting the Aftercare program, Risk of relapse, Self efficacy **Instrument:** Advance Warning of Relapse (AWARE) Questionnaire Drug Avoidance Self-Efficacy Scale (DASES) Qualitative instrument using semi-structured interview form	Qualitative results reveal client experiences in the After Care Program. Six themes emerged from their experiences, such as the various reasons they used drugs, the effects of drug use, their effective coping mechanisms, their treatment of their community, the achievement of their recovery goals, and overcoming challenges in their recovery. This strong self-efficacy, combined with factors such as family support, community acceptance, and constant reminders of the consequences of substance abuse, reduces their vulnerability to drug use in high-risk situations
Anwar et Al., 2023	Personality Traits, Psychological Distress, and Locus of Control among Drug Abusers and Non-Drug users.	**Design:** cross-sectional questionnaire-based survey **Samples:** A sample of 200 male participants subdivided into two groups, drug users (n=100) and non-drug users (n=100) from age	There was a significant negative relationship between personality traits (extraversion, openness to experience, emotional stability, friendliness, awareness) and psychological pain. The findings showed a positive correlation between personality traits and internal control locus. Personality

 doi:10.20944/preprints202412.2288.v1

		groups ranging from 16 to 40 years (late teens and young adults) were taken from various drug rehabilitation centers and general populations located in the twin cities of Pakistan **Variables:** Personality traits, psychological distress (Depression, Anxiety, Stress), LOC (Locus of Control) **Instruments:** TIPI (Personality traits), DASS-21 (Depression, Anxiety, Stress), and LOC (Locus of Control)	traits and external control locus have a pronounced inverse relationship. Positive results of the signi ficant were found in the relationship between psychological distress and the external Locus of control. There is a noticeable inverse relationship between psychological discomfort and the locus of internal control. Drug addicts show personality traits that are less likable than non-users. Psychological distress is more common among drug users than among non-users. Drug users have lower internal control loci and more vital external control loci than non-users
Castine , 2019	Self-awareness deficits associated with lower treatment motivation in cocaine addiction.	**Design:** Qualitative **Sample:** Sixty-five outpatients with coccain addiction (57 males) and their informants (those who know the patient well) **Variables:** Self-awareness, motivation, craving **Instrument:** University of Rhode Island Change Assessment Scale. Self report craving. Frontal system behaviour scale	People with lower insight into their disinhibition problems (e.g., impulsivity, mood instability) had more problems maintaining motivation when starting treatment. The findings suggest that self-awareness interventions can be useful to prevent early discontinuation of treatment and improve addiction treatment outcomes
Van Malderen et al., 2024	Self-regulation profiles in addictive	**Design:** Retrospective cohort	Three profiles that mean: 'impulsive/uncontrollable',

 doi:10.20944/preprints202412.2288.v1

	behaviors among adolescents: A transdiagnostic approach.	**Sample:** Community sample of 341 adolescents (54.5% female; 13-17 years) **Variable:** Self regulation, addictive behaviors **Instrument:** Behavioral Inhibition/Activation Scales' (BISBAS), Self report of addictive behavior (type of substance of addictive behavior, severity)	'anxious', and 'protective'. The 'impulsive/poorly controlled' profile is characterized by the prevalence and severity of the highest cannabis use and the most severe alcohol use. The 'impulsive/poorly controlled' and 'protective' profiles showed the highest prevalence and severity of tobacco use, while the 'impulsive/poorly controlled' and 'anxious' profiles showed the highest binge eating scores. Adolescents who report more than three types of addictive behaviour generally fall into the 'impulsive/poorly controlled' profile. The profile is no different for gaming, gambling and pathological purchases. The 'impulsive/poorly controlled' profile emerged as the most vulnerable profile in the context of addictive behaviour (especially for binge eating and drug use).
Yang et al., 2019	The Relationship Between Self-Control and Self-Efficacy Among Patients With Substance Use Disorders: Resilience and Self-Esteem as Mediators	**Design:** cross-sectional study **Sample:** 298 patients with drug use disorder from Shifosi rehabilitation in China **Variables:** Demographic information, addiction severity, self-control, self-esteem, self-resilience and self-efficacy	Correlations between all dimensions and total scores on self-control, resilience, self-esteem, and self-efficacy were significantly positive ($p < 0.01$), suggesting that they could predict patients' self-efficacy. Self-control through resilience and self-esteem and self-efficacy was significant among patients with substance use

 doi:10.20944/preprints202412.2288.v1

		Instrument: Diagnostic and Statistical Manual of Mental Disorders (5th Edition) a diagnostic questionnaire-based questionnaire is used to collect demographic information and assess the severity of addiction. The Dual Mode Self-Control Scale (DMSC-S) is applied to measure self-control, while self-esteem is measured using the Self-Esteem Scale (SES). The Connor-Davidson Resilience Scale (CD-RISC) is used to measure resilience, and self-efficacy is measured by the regulatory emotional self-efficacy scale (RESE).	disorder, suggesting that increased self-control, resilience, and self-esteem may improve self-efficacy among patients with substance use disorder.
Kabisa et al., 2021	Determinants and prevalence of relapse among patients with substance use disorders: case of Icyizere Psychotherapeutic Centre.	**Design:** Retrospective cross-sectional survey **Sample:** 391 drug users at Icyizere Psychotherapeutic Centre (IPC) **Variable:** Factors associated with relapse among drug users **Instrument:** Secondary data from patient records in five consecutive years from 2014 to 2018.	The majority (84.1%) of participants were men. More than half (54.1%) of them were between 18 and 30 years old with an average age of 33 years (SD = 11.9 years). The results showed a higher prevalence of recurrence among patients with SUD (59.9%). Multivariate analyses showed that people with SUD living only with the mother had a greater risk of relapse compared to those with both

 doi:10.20944/preprints202412.2288.v1

	biological parents [OR = 1.9, 95% CI (1.02-3.6), p = 0.04]. Patients hospitalized for between one and three months were more likely (11.2 times) to relapse after treatment compared to those who spent more than three months in hospital [OR = 9.2, 95% CI (1.1-77.6), p = 0.02]. Furthermore, people who use more than two substances have a 1.5 greater risk of relapse than those who consume one substance. Participants were more likely to relapse if they lived with their peers [OR = 2.4, 95% CI: (1.2-7.8), p = 0.01] or if they lived in a family with conflict [OR = 2.1, 95% CI (1.05-9.7), p = 0.02].

Result and Discussion

Result

Analysis of the factors that cause relapse in drug use disorders can be known by poor religious orientation and lack of internal locus of control are the causes of drug abuse tendencies (Zareei Mahmood Abadi *et al.*, 2020) where there is a significant relationship between religious orientation ($r=-0.328$, $p<0.04$) and locus of control ($r= -0.365$, $p<0.01$) in addicts and drug abuse tendencies. (Ghoochani *et al.*, 2022), mentioned that people with low resilience tend to have more relapses after quitting, people with higher social awareness use psychological therapy to break free from addiction. Longer addictions are reported to occur in people who consume opium more often during the day (Vuong *et al.*, 2021), found that there was no statistically significant change over time in the mean value of health-related quality of life, whereas the average number of days for relapse was 57.7 (SD = 31.6).

The risk factors and protections obtained are categorized into three main domains: individual, family, and community factors (Nawi et al., 2021). Nawi et al., 2021; identified individual risk factors are the characteristics of high impulsivity; insurrection; impaired emotional regulation, low religiosity, pain, homework completeness, total screen time and alexithymia; experience of persecution or negative upbringing; have psychiatric disorders such as behavioral problems and major depressive disorder; previous exposure to e-cigarettes; behavioral addiction; perceived risk is low; high perceived accessibility of drugs; and a high attitude to using synthetic drugs. Family risk factors are the mother smoking before giving birth; poor psychological control of the mother; low parental education; negligence; poor supervision; uncontrollable allowance; and the presence of family members who use drugs. One of the reported community risk factors is having peers who abuse drugs. The determined protective factors are characteristic of individual optimism; high level

 doi:10.20944/preprints202412.2288.v1

of awareness; have a social phobia; have a strong belief in substance abuse; desire to maintain health; high paternal awareness of drug abuse; school connectivity; activities are structured and have strong religious beliefs (Nawi et al., 2021).

Stress management strategies, improve self-control, and receive comprehensive social support in the prevention and treatment of substance dependence. By strengthening self-control and social support as internal and external resources, the likelihood of relapse among individuals with substance use disorder can be reduced, contributing to more effective and comprehensive drug rehabilitation strategies (Sun et al., 2024). The qualitative results reveal the various reasons they use drugs, the effects of drug use, their effective coping mechanisms, the treatment of their community, the achievement of their recovery goals, and overcoming challenges in their recovery. This strong self-efficacy, combined with factors such as family support, community acceptance, and constant reminders of the consequences of substance abuse, reduces their vulnerability to drug use in high-risk situations (Dennise *et al.*, 2024).

Personality traits (extraversion, openness to experience, emotional stability, friendliness, awareness) and psychological pain. The findings showed a positive correlation between personality traits and internal control locus. Personality traits and external control locus have a pronounced inverse relationship (Anwar *et al.*, 2023). Drug addicts show personality traits that are less likable than non-users. Psychological distress is more common among drug users than among non-users. Drug users have a lower internal control locus and a higher external control locus than non-users (Anwar et al., 2023). People with lower insight into their disinhibition problems (e.g., impulsivity, mood instability) had more problems maintaining motivation when starting treatment. The findings suggest that self-awareness interventions can be useful to prevent early discontinuation of treatment and improve addiction treatment outcomes (Castine *et al.*, 2019). Three profiles that mean: 'impulsive/uncontrollable', 'anxious', and 'protective'(Van Malderen *et al.*, 2024) The 'impulsive/poorly controlled' profile is characterized by the prevalence and severity of the highest cannabis use and the most severe alcohol use. The 'impulsive/poorly controlled' and 'protective' profiles showed the highest prevalence and severity of tobacco use, while the 'impulsive/poorly controlled' profiles emerged as the most vulnerable profiles in the context of addictive behaviour (especially for binge eating and drug use). (Van Malderen *et al.*, 2024).

Self-control, resilience, self-esteem, and self-efficacy can significantly positively predict a patient's self-efficacy (Yang et al., 2019). Self-control through resilience and self-esteem and self-efficacy is significant among patients with substance use disorder, suggesting that increased self-control, resilience, and self-esteem may improve self-efficacy among patients with substance use disorder (Yang et al., 2019). Multivariate analyses showed that people with substance use disorder living only with the mother had a greater risk of relapse compared to those with both biological parents [OR = 1.9, 95% CI (1.02-3.6), p = 0.04]. Patients hospitalized for between one and three months were more likely (11.2 times) to relapse after treatment compared to those who spent more than three months in hospital [OR = 9.2, 95% CI (1.1-77.6), p = 0.02]. Furthermore, people who use more than two substances have a 1.5 greater risk of relapse than those who consume one substance. Participants were more likely to relapse if they lived with their peers [OR = 2.4, 95% CI: (1.2-7.8), p = 0.01] or if they lived in a family with conflict [OR = 2.1, 95% CI (1.05-9.7), p = 0.02]. The high rate of relapse of drug users after rehabilitation requires intervention and establishing a consistent program to prevent relapse to reduce the high prevalence of relapse; and organized several sensitization campaigns for awareness of the burden of drug use, relapse after treatment and its impact on public health but also the community (Kabisa Et al., 2021).

Discussion

Addiction treatment centers should evaluate and improve the level of resilience, emotional intelligence, and internalization of locus of control in addicts to prevent addiction relapse. Further studies should be conducted on the prevalence of relapses and the factors associated with relapse in drug use disorders. Factors found in individual drug users or substance use disorders can be

 doi:10.20944/preprints202412.2288.v1

categorized in two conditions as the cause of relapse. Individual factors or factors that exist in the user as a cause of relapse events and factors outside the individual as external factors (environment, family, community, type of substance used) as a possible cause of relapse events or relapse reusing drugs post-rehabilitation. Special interventions are needed to improve individual factors and improve prevention on external factors. The existence of a form intervention with involvement between the reinforcement of the individual, the reinforcement of the family concerned with the condition of the user and the supportive community makes it possible to lower the incidence of relapse in drug users.

Conclusion

The existence of risk factors and the protection obtained are categorized into three main domains: individual, family, and community factors. Drug users have a lower internal control locus and a higher external control locus than non-users. Stress management strategies, improve self-control, and receive comprehensive social support in the prevention and treatment of substance dependence. By strengthening self-control, religious orientation, resilience, high social awareness as internal resources and social support as external resources, the likelihood of relapse among individuals with substance use disorders can be reduced.

Self-efficacy, self-control, resilience, self-esteem combined with various factors such as family support, community acceptance, and being constantly reminded of the consequences of substance abuse, reduce their vulnerability to drug use in high-risk situations. The long term patients who were hospitalized for more than three months in the hospital can reduce relapse among substance use disorder. The findings suggest that self-awareness interventions can be useful to prevent early discontinuation of treatment and improve addiction treatment outcomes

Conflicts of Interest: None of conflict of interest is in this study.

References

1. Anwar, Z. *et al.* (2023) 'Personality Traits, Psychological Distress, and Locus of Control among Drug Abusers and Non-Drug users', *Pakistan Journal of Health Sciences*, pp. 135–139. Available at: https://doi.org/10.54393/pjhs.v4i05.289.
2. Castine, B.R. *et al.* (2019) 'Self-awareness deficits associated with lower treatment motivation in cocaine addiction', *American Journal of Drug and Alcohol Abuse*, 45(1), pp. 108–114. Available at: https://doi.org/10.1080/00952990.2018.1511725.
3. Castine, B.R., A.-U.N., L.-R.O., M.-G.J.M., H.J., & V.-G.A. (2019) 'Self-awareness deficits associated with lower treatment motivation in cocaine addiction', *The American Journal of Drug and Alcohol Abuse*, 45(1), pp. 108–114. Available at: https://doi.org/10.1080/00952990.2018.1511725.
4. Das, J.K. *et al.* (2016) 'Interventions for Adolescent Substance Abuse: An Overview of Systematic Reviews', *Journal of Adolescent Health*. Elsevier USA, pp. S61–S75. Available at: https://doi.org/10.1016/j.jadohealth.2016.06.021.
5. Dennise, M.D. *et al.* (2024) 'A Concurrent Analysis of Drug Relapse Risk, Drug Avoidance Self-Efficacy, and Aftercare Experiences among Aftercare Program Clients', *Technium Social Sciences Journal*, 57, pp. 134–182. Available at: www.techniumscience.com.
6. Deshpande, S., Karulkar, P. and Lavalekar, A. (2024) *Effect of Educational Intervention for Adolescents on Awareness about Attitude towards Addiction and Sexuality*, *Journal of the Indian Academy of Applied Psychology*.
7. Ghoochani, B.Z. *et al.* (2022) *Investigating the Relationship between Locus of Control, Emotional Intelligence, and Resilience among Young Male Opium Abusers in Shiraz*, *JRSR*.
8. Gray, K.M. and Squeglia, L.M. (2018) 'Research Review: What have we learned about adolescent substance use?', *Journal of Child Psychology and Psychiatry and Allied Disciplines*. Blackwell Publishing Ltd, pp. 618–627. Available at: https://doi.org/10.1111/jcpp.12783.

9. Gunes Kutlu, M. and Gould, T.J. (no date) 'Effects of drugs of abuse on hippocampal plasticity and hippocampus-dependent learning and memory: contributions to development and maintenance of addiction'. Available at: https://doi.org/10.1101/lm.042192.
10. Jiloha, R.C. (2017) 'Prevention, early intervention, and harm reduction of substance use in adolescents', *Indian Journal of Psychiatry*, 59(1), pp. 111–118. Available at: https://doi.org/10.4103/0019-5545.204444.
11. Kabisa, E. *et al.* (2021a) 'Determinants and prevalence of relapse among patients with substance use disorders: case of Icyizere Psychotherapeutic Centre', *Substance Abuse Treatment, Prevention and Policy*, 16, pp. 1–12. Available at: https://doi.org/https://doi.org/10.1186/s13011-021-00347-0.
12. Kabisa, E. *et al.* (2021b) 'Determinants and prevalence of relapse among patients with substance use disorders: case of Icyizere Psychotherapeutic Centre', *Substance Abuse: Treatment, Prevention, and Policy*, 16(1). Available at: https://doi.org/10.1186/s13011-021-00347-0.
13. Van Malderen, E. *et al.* (2024) 'Self-regulation profiles in addictive behaviors among adolescents: A transdiagnostic approach', *Appetite*, 192. Available at: https://doi.org/10.1016/j.appet.2023.107128.
14. Monitasari Puspa, K.I.D. (no date) 'Faktor resiko Relaps'.
15. Nawi, A.M. *et al.* (2021a) 'Risk and protective factors of drug abuse among adolescents: a systematic review', *BMC Public Health*, 21(1). Available at: https://doi.org/10.1186/s12889-021-11906-2.
16. Nawi, A.M. *et al.* (2021b) 'Risk and protective factors of drug abuse among adolescents: a systematic review', *BMC Public Health*, 21(1). Available at: https://doi.org/10.1186/s12889-021-11906-2.
17. Sun, C. *et al.* (2024a) 'Self-control as mediator and social support as moderator in stress-relapse dynamics of substance dependency', *Scientific Reports*, 14(1). Available at: https://doi.org/10.1038/s41598-024-70884-8.
18. Sun, C. *et al.* (2024b) 'Self-control as mediator and social support as moderator in stress-relapse dynamics of substance dependency', *Scientific Reports (Nature Publisher Group)*, 14(1), p. 19852. Available at: https://doi.org/https://doi.org/10.1038/s41598-024-70884-8.
19. Vuong, T. *et al.* (2021) 'Quality of life as a predictor of time to heroin relapse among male residents following release from compulsory rehabilitation centres in Vietnam', *Drug and Alcohol Review*, 40(2), pp. 296–306. Available at: https://doi.org/10.1111/dar.13176.
20. Yamada, C. *et al.* (2021) 'Relapse prevention group therapy via video-conferencing for substance use disorder: protocol for a multicentre randomised controlled trial in Indonesia', *BMJ Open*, 11(9). Available at: https://doi.org/https://doi.org/10.1136/bmjopen-2021-050259.
21. Yang, C. *et al.* (2019) 'The relationship between self-control and self-efficacy among patients with substance use disorders: Resilience and self-esteem as mediators', *Frontiers in Psychiatry*, 10(JUN). Available at: https://doi.org/10.3389/fpsyt.2019.00388.
22. Zareei Mahmood Abadi, H. *et al.* (2020) 'Investigating the Relation between Religious Orientation and Locus of Control with Tendency toward Substance Abuse, Case study: Addicts and Non-Addicts Men, Isfahan, 2018', *Journal of Community Health Research* [Preprint]. Available at: https://doi.org/10.18502/jchr.v9i4.4976.