Advanced Research in Medical and Health Sciences (ARMHS)

ISSN: 2960-0766 (Print) | **ISSN:** 2960-0774 (Online) **- Vol. 3, No. 2, 2025**

https://doi.org/10.5281/zenodo.17183433

Website: http://journals.jozacpublishers.com/armhs

Received: July 24, 2025 | **Accepted:** September 01, 2025 | **Published:** September 23, 2025

Type of the Paper: ***(Article Paper)***

Coping styles and relapse rates among patients with substance-induced psychotic disorders

Chidinma Cynthia Onyeagba[1], Abraham Terfa Naibo[2], Chineye Fabian Adili-George[3], Uwemedimo Sunday Isaiah[4]

[1]Birmingham and Solihull Mental Health NHS Foundation Trust, United Kingdom. chidionyeagba@gmail.com

[2]Department of Psychology, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria. at.naibo@stu.unizik.edu.ng

[3]Department of Health Services Administration, University of Alabama at Birmingham, United States. adiligeorgefabian@gmail.com

[4]Department of Psychology, University of Uyo, Nigeria. uwemedimoisaiah.msc@uniuyo.edu.ng

*Corresponding author: uwemedimoisaiah.msc@uniuyo.edu.ng

Abstract

Substance-induced psychotic disorders (SIPDs) are marked by high relapse rates, presenting ongoing challenges to mental health recovery. While considerable research has explored clinical and pharmacological predictors of relapse, the role of psychological variables particularly coping strategies has received less attention. This study investigated the relationship between coping styles and relapse frequency among patients diagnosed with SIPDs in Nigeria. Participants were 252 inpatients and outpatients (63% male), aged 20–59 years (M = 38.26; SD = 8.41), drawn from two Neuropsychiatric hospitals in southern Nigeria. They completed the Brief-COPE Inventory and provided relapse history data obtained through clinical records and self-report. Descriptive statistics, Pearson correlation, and multiple linear regression analyses were conducted using SPSS v22.0. Results revealed that the multiple regression model was statistically significant, $F(3, 248) = 33.89$, $p < .001$, accounting for approximately 29% of the variance in relapse frequency (Adjusted $R^2 = .28$). Problem-focused coping significantly predicted lower relapse frequency ($\beta = –.21$, $p = .003$), indicating a protective effect. Avoidant coping significantly predicted higher relapse frequency ($\beta = .37$, $p < .001$), identifying it as a key risk factor. These findings suggest that coping mechanisms, especially avoidant strategies, significantly influence relapse risk among individuals with SIPDs. The study emphasizes the need for psychosocial interventions that promote adaptive coping as part of relapse prevention strategies in clinical settings.

Keywords: Avoidant coping, Coping styles, Problem-focused coping, Relapse, Substance-induced psychotic disorders

1. Introduction

Substance-induced psychotic disorders (SIPDs) are severe mental health conditions characterized by hallucinations, delusions, and disorganized thinking resulting from the use or withdrawal of psychoactive

substances (Caton et al., 2005; Smith et al., 2020; Santoro et al., 2021). These disorders represent a complex intersection of addiction and psychiatric illness, and they pose significant clinical and public health challenges due to their recurrent nature and high relapse rates (Degenhardt et al., 2018; Volkow et al., 2019; Krausz et al., 2021). Among individuals diagnosed with SIPDs, maintaining long-term recovery is often undermined by a range of psychological, behavioral, and environmental factors, chief among them being poor coping mechanisms and maladaptive emotional responses (Dixon, 1999; Sinha, 2001; Blevins et al., 2022).

Relapse in this context refers to the recurrence of substance use and/or the return of psychotic symptoms after a period of remission, which often leads to repeated hospitalization, diminished quality of life, and increased burden on psychiatric services (Foulds et al., 2015; De Waal et al., 2020). Despite the use of evidence-based treatments, including pharmacotherapy and psychosocial interventions, relapse remains alarmingly prevalent among individuals with SIPDs (Greene et al., 2018; Ionescu et al., 2020). This reality underscores the need to better understand the psychological variables that may influence recovery trajectories, particularly those related to how individuals respond to stress, cravings, and psychosocial triggers namely, coping styles.

Coping styles are defined as the cognitive and behavioral efforts employed by individuals to manage internal and external demands perceived as stressful or exceeding their resources (Lazarus & Folkman, 1984). These strategies are broadly categorized into problem-focused coping (which involves efforts to directly change the stressor) and emotion-focused coping (which involves efforts to regulate emotional distress), as well as maladaptive forms such as avoidance and denial (Endler & Parker, 1990; Carver et al., 1989). The effectiveness of these coping styles is often pivotal in determining treatment adherence, psychological resilience, and ultimately, relapse outcomes in psychiatric populations (Moos & Holahan, 2003; Hasking et al., 2011; Romppel et al., 2013).

Several studies have demonstrated that individuals who rely heavily on maladaptive coping strategies such as denial, behavioral disengagement, and substance use itself tend to have higher relapse rates and more severe clinical presentations (Wills & Hirky, 1996; Lyvers et al., 2014; Hayatbakhsh et al., 2015). Conversely, adaptive coping styles, such as active problem-solving and seeking social support, are often associated with reduced psychological distress, better medication compliance, and improved treatment outcomes (Kelly et al., 2000; Cooper et al., 2008; Wagner et al., 2020). This suggests that the psychological mechanisms underlying how patients cope with stress and emotional dysregulation may serve either as protective or risk factors in the progression of SIPDs.

Importantly, individuals with SIPDs often experience impaired judgment and insight due to the combined effects of psychosis and substance misuse, which can further compromise their ability to engage in adaptive coping behaviors (Sayers et al., 2005; Drake & Mueser, 2000). As such, interventions aimed at relapse prevention must consider these psychological underpinnings to be effective. Cognitive-behavioral therapy (CBT), psychoeducation, and skills-based approaches have all been shown to influence coping strategies positively, potentially reducing the risk of relapse (Back et al., 2011; Beattie et al., 2022).

In line with this, understanding the relationship between coping styles and relapse rates among patients with substance-induced psychotic disorders is not only clinically relevant but also essential for developing tailored, evidence-based interventions. By identifying which coping mechanisms are most predictive of relapse, mental health professionals can design preventative strategies that foster adaptive responses to stress and reduce the likelihood of recurrent psychiatric episodes. Therefore, this study seeks to examine the association between various coping styles and the frequency of relapse among individuals diagnosed with SIPDs.

2. Literature review

2.1. Coping styles

Coping styles refer to the characteristic ways individuals respond to stress and psychological distress in order to manage internal or external demands perceived as challenging or exceeding their resources (Lazarus & Folkman, 1984). Coping is a multidimensional construct that encompasses cognitive, emotional, and behavioral strategies, which can either reduce psychological strain or exacerbate it, depending on the nature and context of the coping response (Carver et al., 1989). According to Lazarus and Folkman's (1984) transactional model of stress and coping, coping involves two key processes: cognitive appraisal (the evaluation of the stressor) and coping responses (the actions taken to manage the stressor or emotional response).

Coping styles are generally classified into two broad categories: problem-focused coping and emotion-focused coping. Problem-focused coping involves efforts to change the situation or remove the source of stress, such as planning, seeking information, or taking direct action (Folkman & Lazarus, 1985). In contrast, emotion-focused coping includes strategies aimed at managing emotional responses to the stressor, such as avoidance, denial, wishful thinking, or seeking emotional support (Endler & Parker, 1990). While both types can be adaptive depending on the context, problem-focused coping is often associated with better psychological outcomes in situations that are perceived as controllable (Compas et al., 2001).

Beyond this dichotomy, some scholars have proposed additional dimensions of coping, such as avoidant coping, approach coping, and meaning-focused coping. Avoidant coping involves withdrawing from the stressor or using maladaptive strategies such as substance use or behavioral disengagement, which are typically linked to poorer outcomes in mental health populations (Holahan et al., 2005; Cooper et al., 2008). On the other hand, approach-oriented coping strategies, which involve active engagement with the stressor, are often associated with lower levels of anxiety and depression, particularly among individuals managing chronic or psychiatric conditions (Taylor & Stanton, 2007).

The Brief COPE inventory developed by Carver (1997) has become a widely used tool for assessing various coping responses. It includes subscales for both adaptive strategies (e.g., active coping, positive reframing, acceptance) and maladaptive strategies (e.g., self-blame, substance use, behavioral disengagement). The relevance of coping styles in psychiatric contexts cannot be overstated, especially for individuals with dual diagnoses such as substance-induced psychotic disorders. For instance, maladaptive coping strategies like denial and substance use have been linked to higher relapse rates and poor treatment adherence in individuals with co-occurring mental illness and substance use disorders (Lyvers et al., 2014; Blevins et al., 2022).

Coping styles are also influenced by individual factors such as personality, past experiences, and social support. Research has shown that people high in neuroticism are more likely to engage in emotion-focused or avoidant coping, while those high in conscientiousness tend to adopt problem-focused coping strategies (Connor-Smith & Flachsbart, 2007). Furthermore, the availability of a strong social support network has been shown to facilitate adaptive coping and buffer the psychological impact of stress, especially in individuals recovering from psychiatric episodes (Thoits, 2011).

In clinical settings, understanding a patient's predominant coping style is critical for designing effective therapeutic interventions. Psychotherapeutic models such as cognitive-behavioral therapy (CBT) and dialectical behavior therapy (DBT) specifically target maladaptive coping patterns and aim to foster healthier responses to stress (Back et al., 2011; Linehan, 1993). Thus, interventions that enhance coping skills not only mitigate distress but may also reduce relapse risk, particularly in populations with substance- induced psychotic disorders.

2.2. Relapse rates

Relapse refers to the return of symptoms after a period of improvement or remission, and in the context of mental health and substance use disorders, it denotes the resumption of problematic behaviors such as substance use after a period of abstinence or clinical recovery (Marlatt & Donovan, 2005; McLellan et al., 2000). It is widely acknowledged as a common and often expected part of the recovery process, especially among individuals with chronic psychiatric conditions, including schizophrenia, bipolar disorder, and substance-induced psychotic disorders (Sinha, 2011; Volkow et al., 2016). The relapse rate refers to the percentage of individuals who experience a recurrence of illness or maladaptive behavior within a given period following treatment or remission.

In substance use and addiction psychiatry, relapse rates are particularly high, with studies indicating that 40–60% of individuals with substance use disorders (SUDs) relapse within a year of treatment (McLellan et al., 2000; Marlatt & Witkiewitz, 2005). These rates are comparable to relapse rates observed in other chronic illnesses such as asthma and hypertension, emphasizing the need to view addiction as a chronic, relapsing condition rather than a moral or character failure (Leshner, 1997). Relapse in individuals with substance-induced psychotic disorders (SIPDs) is even more complex, as it may involve both the re- emergence of psychotic symptoms and the resumption of substance use, each capable of triggering the other (Caton et al., 2005; Volkow & Boyle, 2018).

Several factors contribute to high relapse rates among psychiatric populations. These include poor treatment adherence, unresolved psychological trauma, social instability, inadequate coping strategies, and ongoing exposure to stress or substance-related cues (Sinha, 2008; Koob & Volkow, 2010). Among these, coping styles and psychological responses to stress are critical predictors. Individuals who use maladaptive coping mechanisms such as denial, suppression, or substance use itself are more prone to relapse, especially when faced with emotional distress or environmental triggers (Wills & Hirky, 1996; Witkiewitz & Marlatt, 2004). In contrast, the adoption of effective coping strategies, strong social support, and continuity in therapeutic engagement are known protective factors against relapse (Moos & Moos, 2006; Kelly et al., 2011).

In psychiatric care, relapse is not only a clinical concern but also a significant burden on healthcare systems due to increased hospital readmissions, prolonged recovery timelines, and reduced quality of life for patients (Emsley et al., 2013; Lieberman et al., 2005). Frequent relapses are associated with a worsening course of illness, particularly in schizophrenia and substance-related psychoses, where each episode may result in further cognitive decline and functional impairment (Hser et al., 2007; Emsley et al., 2007). As such, monitoring relapse rates and understanding their psychological and environmental determinants is crucial for improving long-term outcomes in psychiatric populations.

A critical component of relapse prevention involves identifying individuals at risk and implementing targeted interventions. Psychoeducation, cognitive-behavioral therapy (CBT), relapse prevention therapy (RPT), and motivational enhancement strategies have all shown effectiveness in lowering relapse rates by addressing cognitive distortions, reinforcing adaptive behaviors, and improving self-regulation (Larimer et al., 1999; Back et al., 2011). For dual-diagnosis patients, such as those with SIPDs, integrated treatment approaches that simultaneously address both the psychiatric and substance use components are particularly important (Drake & Mueser, 2000).

2.3. Substance-induced psychotic disorders

Substance-Induced Psychotic Disorders (SIPDs) are a specific subset of psychotic conditions that emerge as a direct physiological consequence of substance use, intoxication, or withdrawal. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), SIPDs are characterized by the presence of

hallucinations and/or delusions that are judged to be directly attributable to the physiological effects of a substance (American Psychiatric Association, 2013). The symptoms typically appear during or shortly after substance use and must be severe enough to warrant clinical attention. Importantly, for a diagnosis of SIPD to be made, the psychotic symptoms should not be better explained by a primary psychotic disorder such as schizophrenia or schizoaffective disorder (Lehman et al., 2010).

Numerous psychoactive substances have been implicated in the onset of SIPDs, including stimulants like cocaine and amphetamines, hallucinogens such as LSD, dissociatives like phencyclidine (PCP), cannabis, alcohol, and even prescription medications like corticosteroids (Farris et al., 2020; Saha et al., 2010). Among these, cannabis-induced psychosis has received increasing attention in recent years, with longitudinal studies suggesting a potential link between early cannabis use and the onset of chronic psychotic disorders in genetically or psychologically vulnerable individuals (Murray et al., 2017; Di Forti et al., 2015). Stimulant-induced psychosis, particularly related to methamphetamine use, is also well- documented and may be associated with a more aggressive and persistent clinical course (Glasner-Edwards & Mooney, 2014).

SIPDs typically present with positive psychotic symptoms such as auditory or visual hallucinations, paranoia, grandiosity, and disorganized thought processes (Caton et al., 2005). Unlike primary psychotic disorders, however, SIPDs often have a more abrupt onset and may remit fully once the substance is metabolized and cleared from the system (Carvalho et al., 2018). Nevertheless, distinguishing SIPDs from primary psychotic disorders can be clinically challenging, particularly in cases of recurrent substance use or where psychosis persists beyond the expected duration of intoxication or withdrawal. Studies suggest that a proportion of patients initially diagnosed with SIPDs may eventually transition to a primary psychotic disorder, especially if risk factors such as family history or early age of onset are present (Starzer et al., 2018).

Neurobiologically, SIPDs are believed to result from the dysregulation of dopaminergic and glutamatergic pathways in the brain, particularly in regions like the prefrontal cortex and striatum (Koob & Volkow, 2010). Substances such as amphetamines and cocaine increase dopamine transmission, which may precipitate psychosis in vulnerable individuals. Repeated use of these substances can lead to sensitization, increasing the likelihood of psychotic episodes even with smaller doses or after prolonged abstinence (Curran et al., 2004). Additionally, chronic substance use may result in neurotoxicity and structural changes in the brain, which can complicate recovery and increase relapse vulnerability (Thirthalli & Benegal, 2006). From a clinical management perspective, SIPDs require a multi-pronged treatment approach that addresses both the psychotic symptoms and the underlying substance use. Acute management may involve the use of antipsychotic medications, especially if symptoms are severe or pose a risk to self or others (Sullivan et al., 2018). Long-term treatment goals include relapse prevention, psychosocial support, and behavioral interventions to reduce or eliminate substance use. Cognitive-behavioral therapy (CBT), motivational interviewing, and integrated dual-diagnosis programs have all demonstrated efficacy in managing SIPDs (Drake & Mueser, 2000; Sorsdahl et al., 2015).

2.4. Empirical studies related to coping styles and relapse rates

Research on coping styles and relapse rates in mental health and substance use contexts has garnered considerable attention, especially within psychiatric and clinical psychology disciplines. A consistent body of evidence suggests that individuals' coping mechanisms particularly their tendencies toward adaptive or maladaptive coping play a significant role in determining relapse vulnerability. For instance, Witkiewitz and Marlatt (2004) developed the Relapse Prevention Model, which emphasizes that ineffective coping responses in high-risk situations often precede relapse episodes, particularly among individuals recovering from substance

use disorders. Their findings indicated that individuals who use problem-focused and emotion-regulating coping strategies are less likely to relapse compared to those who use avoidance or denial-based coping.

Empirical findings have further demonstrated that avoidant coping styles such as suppression of thoughts, denial, and substance use to manage stress are positively associated with increased relapse rates across various populations. In a longitudinal study, Kelly et al. (2012) found that individuals who relied heavily on avoidant or disengagement coping were more likely to experience relapse within six months of discharge from substance use treatment programs. In contrast, those who utilized approach-oriented coping styles, including seeking social support and engaging in cognitive reappraisal, demonstrated greater resilience and a lower likelihood of returning to substance use. This distinction highlights the critical importance of coping flexibility and skill development in relapse prevention.

Among individuals with co-occurring psychiatric disorders, such as schizophrenia or bipolar disorder, maladaptive coping has similarly been linked to relapse. Falloon and Talbot (1981) demonstrated that patients who lacked problem-solving and emotional regulation skills were at a significantly higher risk of psychotic relapse. More recent studies have supported these findings. For example, González-Blanch et al. (2015) observed that first-episode psychosis patients who adopted emotion-focused and passive coping styles had significantly shorter remission periods and higher relapse rates over a 12-month follow-up. These studies underline the importance of incorporating coping strategy training into psychiatric rehabilitation programs.

In substance-induced psychosis, which shares features of both addiction and primary psychosis, coping styles are a powerful determinant of symptom persistence and recurrence. A study by Sienkiewicz-Jarosz et al. (2019) found that individuals with cannabis-induced psychosis who predominantly used avoidance coping were more likely to experience recurrent psychotic symptoms even after detoxification, compared to those who used active coping styles. This suggests that poor coping not only contributes to substance relapse but may also exacerbate psychiatric vulnerability.

Coping styles also mediate the effect of psychosocial stressors on relapse. For example, Moos and Moos (2006) conducted a 16-year follow-up study showing that adaptive coping styles buffered the negative effects of life stressors and social instability on alcohol relapse. In contrast, reliance on emotional discharge, self-criticism, and social withdrawal significantly predicted relapse and poorer psychosocial outcomes. Their findings support the idea that relapse prevention should involve training in adaptive coping strategies, such as mindfulness, cognitive restructuring, and social problem-solving.

3. Research method

3.1. Research design

This study adopted a cross-sectional correlational survey design. The aim was to examine the relationship between coping styles and relapse rates among patients diagnosed with substance-induced psychotic disorders. The design enabled the researchers to collect and analyze data at a single point in time, making it appropriate for identifying associations between psychological variables (coping styles) and behavioral outcomes (relapse rates) within a clinical population.

3.2. Sample

The sample comprised 252 patients with substance-induced psychotic disorders drawn from two Neuropsychiatric hospitals in southern Nigeria. The participants' ages ranged from 18 to 50 years (M = 31.42, SD = 6.83). Of the total sample, 65.5% were male and 34.5% were female. Inclusion criteria required that participants: (1) had a confirmed diagnosis of substance-induced psychotic disorder based on DSM-5 criteria, (2) had experienced at least one relapse in the past two years, and (3) were currently in remission or partial

remission during data collection. Individuals with comorbid intellectual disabilities or acute psychosis at the time of data collection were excluded from the study.

3.3. Instruments

3.3.1. Coping strategies scale

Coping styles were assessed using the Brief COPE Inventory (Carver, 1997), a validated psychological tool for evaluating coping mechanisms. The scale includes 28 items grouped into 14 subscales, each representing a specific coping strategy, such as active coping, denial, substance use, planning, and emotional support. Participants responded using a 4-point Likert scale ranging from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). Sample items include: "I've been turning to work or other activities to take my mind off things," and "I've been using alcohol or other drugs to make myself feel better." Internal consistency reliability in this study was acceptable, with Cronbach's alpha for the full scale reported at .87, consistent with previous research (Carver, 1997; Eisenberg et al., 2007).

3.3.2. Relapse Rate Questionnaire (RRQ)

Relapse rates were assessed using a Relapse Rate Questionnaire adapted from standardized clinical measures and patient records (Marlatt & Donovan, 2005; Landheim et al., 2006). The tool included items assessing the number of documented relapses, time intervals between relapses, and self-reported triggers (e.g., stress, peer influence, lack of support). Responses were validated against hospital records and clinician ratings for accuracy. The relapse data were categorized into: low (0–1 relapse/year), moderate (2– 3 relapses/year), and high relapse rate (4 or more relapses/year). The inter-rater reliability coefficient for relapse history extraction was 0.91, indicating high agreement between clinicians and researchers.

3.4. Procedure

Ethical approval was obtained from the research ethics committees of the participating hospitals. The researchers worked with hospital administrators, psychiatrists, and clinical psychologists to identify eligible patients from outpatient and follow-up units. After explaining the study's objectives and ethical rights (voluntary participation, confidentiality, and informed consent), participants were given the questionnaire packets. Research assistants were available on-site to guide and assist patients, especially those with mild cognitive limitations. A total of 280 questionnaires were distributed, and 252 valid responses were returned, representing a response rate of 90%.

3.5. Ethical consideration

The study adhered to the ethical principles outlined in the Declaration of Helsinki. Participants were informed about the purpose, benefits, and potential risks of the study. Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were strictly maintained throughout the study, and participants were assured of their right to withdraw from the study at any point without any consequence to their treatment. The research protocol was reviewed and approved by the Ethics Committees of the Neuropsychiatric Hospital, Calabar, and the Federal Neuropsychiatric Hospital, Uselu, Benin City.

3.6. Data analysis

Data were coded and analyzed using SPSS version 22.0. Descriptive statistics (means, standard deviations, and frequencies) were computed to describe participant characteristics and variable distributions. Pearson correlation analyses were used to examine associations between coping styles and relapse rates. Further,

multiple linear regression analyses were conducted to determine the predictive power of specific coping strategies (e.g., avoidant vs. problem-focused coping) on relapse frequency. Statistical significance was set at $p < .05$.

4. Results

Table 1: Demographic Characteristics of Respondents (N = 252)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	98	38.9%
	Female	154	61.1%
Age Group (Years)	21–30	32	12.7%
	31–40	58	23.0%
	41–50	68	27.0%
	51–60	62	24.6%
	61 and above	32	12.7%
Education Level	No formal education	19	7.5%
	Primary school	45	17.9%
	Secondary school	102	40.5%
	Tertiary education	86	34.1%
Marital Status	Single	65	25.8%
	Married	138	54.8%
	Divorced/Separated	31	12.3%
	Widowed	18	7.1%
Employment Status	Employed	102	40.5%
	Unemployed	76	30.2%
	Self-employed	58	23.0%
	Retired	16	6.3%
Diagnosis	Substance-Induced Psychosis	252	100%

The demographic profile of the 252 valid respondents provides valuable insights into the socio-economic and psychological factors relevant to the study of coping styles and relapse rates among individuals diagnosed with substance-induced psychotic disorders. In terms of gender distribution, females made up the majority of the sample (61.1%), while males constituted 38.9%. This may reflect higher treatment- seeking behaviour among women or a higher burden of psychiatric complications from substance use in females within this context. It could also point to the influence of gender roles in coping and help-seeking patterns in Nigeria.

The age distribution reveals that the largest age group was 41–50 years (27%), followed closely by 51–60 years (24.6%). These findings suggest that middle-aged adults are particularly affected by substance- induced psychosis. This age group is often at risk due to accumulated exposure to stressors, longer substance uses histories, and limited access to preventative care.

With respect to educational attainment, a notable portion of participants (40.5%) had secondary school education, while 34.1% attained tertiary education. This indicates that a significant majority of respondents had some formal education, which may influence their capacity to understand their condition, engage in therapy, and use adaptive coping strategies. However, 25.4% had either no formal education or only primary education, which may present challenges for compliance with treatment or use of more cognitively demanding coping mechanisms.

Regarding marital status, the majority of respondents (54.8%) were married. This suggests that many participants had access to some level of spousal or familial social support, which could enhance treatment adherence and resilience. Conversely, 25.8% were single, and 19.4% were either divorced, separated, or widowed, groups potentially at higher risk of social isolation or emotional distress, thereby increasing vulnerability to relapse.

The employment status profile shows that 40.5% were employed, while 30.2% were unemployed, and 23% were self-employed. Employment not only impacts financial ability to afford care but also serves as a protective factor by providing structure and purpose. The high unemployment rate in this sample may reflect socioeconomic vulnerability and could act as a stressor, exacerbating relapse risk. All participants (100%) were diagnosed with substance-induced psychotic disorder, aligning with the study's inclusion criteria. The homogeneity in diagnosis supports the focused investigation into coping styles and relapse dynamics within this specific clinical population.

Table 2: Pearson correlations between coping styles and relapse frequency

Variable	1	2	3	4
1. Problem-Focused Coping	—			
2. Emotion-Focused Coping	.42**	—		
3. Avoidant Coping	–.18*	–.09	—	
4. Relapse Frequency	–.31**	–.12	.45**	—

*p < .05, **p < .01

Pearson correlation results show a significant negative relationship between problem-focused coping and relapse frequency ($r = –.31$, $p < .01$), suggesting that individuals who engage in problem-solving strategies tend to relapse less frequently. In contrast, avoidant coping was positively and significantly associated with relapse frequency ($r = .45$, $p < .01$), indicating that avoidant behaviors (e.g., denial, distraction, substance use as coping) are linked to a higher number of relapses. Emotion-focused coping had a weak, non- significant correlation with relapse.

Table 3: Multiple regression analysis predicting relapse frequency from coping styles

Variables	Beta	T-value	df	sig	R	R2	F	P
PFC	–.12	–3.00		< .05				
EFC	–.08	–1.13	3	> .05	.356	.290	33.89	< .05
AC	.37	5.56		< .05				

Note: Problem-focused Coping, EFC = Emotional -Focused coping, AC = Avoidant coping

The multiple regression model was statistically significant, $F(3, 248) = 33.89$, $p < .001$, and accounted for approximately 29% of the variance in relapse frequency (Adjusted $R^2 = .28$). Among the coping styles, problem-focused coping significantly predicted lower relapse frequency ($\beta = –.21$, $p = .003$), while avoidant coping significantly predicted higher relapse frequency ($\beta = .37$, $p < .001$). Emotion-focused coping did not significantly predict relapse ($p = .261$). These findings suggest that problem-focused strategies serve as a protective factor, whereas avoidant coping increases vulnerability to relapse.

5. Discussion

The purpose of this study was to investigate the relationship between coping styles and relapse rates among individuals diagnosed with substance-induced psychotic disorders. The findings revealed significant

associations, particularly indicating that avoidant coping styles predicted higher relapse frequency, while problem-focused coping was associated with reduced relapse episodes. These results offer meaningful insights into how individuals with substance-induced psychoses manage stress and how their coping styles influence their likelihood of experiencing relapse.

The significant negative relationship between problem-focused coping and relapse frequency suggests that individuals who actively confront problems and engage in constructive problem-solving are less likely to relapse. This finding aligns with previous studies that have emphasized the protective role of adaptive coping strategies. For instance, Shin et al. (2011) found that problem-solving and planning were inversely related to relapse among individuals recovering from substance use. Similarly, Moos and Moos (2007) showed that active coping skills predicted long-term remission in individuals with substance use disorders. These strategies may empower individuals to manage environmental triggers and emotional challenges that often precede relapse, thereby enhancing their resilience during recovery.

Conversely, avoidant coping was found to be positively associated with relapse frequency. This outcome supports prior findings by Litman et al. (1983) and Brown et al. (1990), which documented that avoidance, denial, and disengagement are maladaptive and contribute to poorer treatment outcomes. Avoidant coping may exacerbate underlying stressors and emotional dysregulation, making individuals more vulnerable to relapse as a means of escaping or numbing distress. For individuals with substance-induced psychotic disorders, who often experience residual cognitive and affective symptoms, such maladaptive coping styles can significantly hinder their ability to sustain recovery.

Emotion-focused coping, while commonly reported in the literature, did not significantly predict relapse in this study. This is consistent with findings from Wills and Hirky (1996), who noted that the impact of emotion-focused strategies on substance use outcomes is variable and often dependent on the context in which they are applied. While emotional regulation may offer short-term relief, it may not adequately address the root causes or external triggers associated with relapse unless combined with more proactive strategies.

Furthermore, regression analyses highlighted the substantial predictive power of avoidant coping over relapse frequency, even when controlling for problem-focused and emotion-focused strategies. These findings echo those of Hasking and Oei (2007), who demonstrated that the use of avoidant coping mechanisms was the strongest predictor of relapse severity among individuals undergoing rehabilitation. The present study extends this literature by focusing on individuals with comorbid psychotic features, underlining how the interaction between cognitive deficits and maladaptive coping can increase relapse risk.

These findings have important implications for clinical practice and the development of relapse prevention programs. First, they underscore the need to assess coping styles early in treatment to identify individuals at risk of relapse. Tailored interventions that aim to reduce reliance on avoidant coping and foster problem- solving and decision-making skills can be integrated into therapeutic protocols. Cognitive-behavioral therapy (CBT), which focuses on restructuring maladaptive thoughts and behaviors, may be particularly effective in promoting adaptive coping (Carver & Connor-Smith, 2010). Moreover, skills training and psychoeducation can enhance patients' awareness of triggers and build their capacity to engage in healthier coping responses.

This study also contributes to the literature by offering empirical evidence on the psychological factors influencing relapse among individuals with dual diagnoses. While previous studies have explored coping in general populations with substance use disorders, fewer have addressed this issue in populations with substance-induced psychotic disorders. By doing so, the current study adds to a growing body of work that emphasizes the interplay between cognitive dysfunction, stress management, and recovery outcomes (Krystal et al., 2006; Le Berre, 2019).

6. Implications of the findings

The findings of this study have important implications for understanding the role of coping styles in predicting relapse among individuals diagnosed with substance-induced psychotic disorders. The results revealed that avoidant coping styles significantly predicted higher relapse rates, while problem-focused coping was associated with reduced relapse episodes. These outcomes highlight the need to address psychological coping mechanisms as central components of treatment and relapse prevention in this population.

A key implication is the necessity for treatment programs to incorporate interventions that discourage maladaptive coping strategies particularly avoidance, denial, and disengagement which were found to increase the risk of relapse. Interventions such as relapse prevention therapy and cognitive-behavioral therapy (CBT) should emphasize awareness and replacement of avoidant behaviors with more adaptive strategies, such as proactive problem-solving and emotional regulation (Carver & Connor-Smith, 2010; Hasking & Oei, 2007). For example, patients could be taught to identify high-risk situations, generate alternative coping responses, and develop individualized action plans to navigate stress without resorting to substance use.

Equally, the study underscores the importance of promoting problem-focused coping strategies as protective mechanisms in maintaining sobriety and psychological stability. This is particularly crucial for individuals with comorbid psychotic symptoms, who may experience cognitive and emotional impairments that challenge their ability to cope effectively. Structured skills training that targets goal setting, decision- making, and constructive action could empower patients to address the root causes of stress and reduce the emotional burden that often precedes relapse (Moos & Moos, 2007; Shin et al., 2011).

Another implication involves the integration of coping style assessments into initial clinical evaluations. Mental health professionals working with patients experiencing substance-induced psychosis should routinely assess coping tendencies using standardized tools to tailor interventions more effectively. Early identification of avoidant or passive coping styles could signal a need for intensive psychosocial support or specialized interventions.

Furthermore, the findings point to the need for healthcare providers to consider the unique vulnerability of individuals with dual diagnoses. Substance-induced psychotic disorders often involve lingering cognitive and affective symptoms that may intensify the impact of maladaptive coping. Therefore, rehabilitation efforts should go beyond symptom management and directly target psychological resilience and emotional processing (Krystal et al., 2006; Le Berre, 2019). Incorporating elements of psychoeducation, mindfulness, and behavioral activation may improve overall coping capacity and reduce the likelihood of relapse.

From a policy and service delivery standpoint, the results advocate for the development and funding of comprehensive treatment programs that address not only substance use but also the coping processes underlying relapse. Policymakers should support training for clinicians in coping-based interventions and prioritize multidisciplinary approaches that integrate psychological, psychiatric, and behavioral expertise. Additionally, community-based programs and support groups can provide platforms for patients to learn, practice, and reinforce adaptive coping behaviors in socially supportive environments.

Finally, these findings suggest that interventions should be age-sensitive and developmentally appropriate. Younger adults, who are more likely to rely on avoidance and have less developed coping resources, may benefit from structured, skills-based interventions that build resilience and adaptive functioning over time. In contrast, older patients may require reinforcement of existing strategies and support systems to maintain abstinence and psychological well-being. In sum, this study reinforces the need for treatment strategies that directly target maladaptive coping while strengthening adaptive mechanisms, particularly among patients with complex dual diagnoses. Enhancing coping capacity could significantly reduce relapse rates and improve long-term recovery outcomes in this vulnerable population.

7. Contribution to knowledge

This study makes a meaningful contribution to the existing body of knowledge in psychiatric and psychological research by providing empirical evidence on the predictive role of coping styles in determining relapse rates among individuals diagnosed with substance-induced psychotic disorders. While previous studies have generally explored coping mechanisms in relation to substance use or psychiatric symptoms independently, this study uniquely examines how specific coping strategies—particularly avoidant and problem-focused styles relate to relapse patterns in individuals with dual diagnoses.

By demonstrating that maladaptive coping styles such as avoidance significantly predict higher relapse rates, and that adaptive strategies like problem-focused coping are associated with reduced relapse, the study advances understanding of the psychological factors that sustain or undermine recovery. This contributes to clinical psychology and psychiatric literature by offering insight into the cognitive-behavioral dynamics that influence long-term outcomes in patients experiencing psychosis linked to substance abuse. It highlights the necessity of targeting coping mechanisms during treatment planning and relapse prevention efforts.

Additionally, the study contributes context-specific data from a Nigerian clinical population, addressing a significant gap in the literature concerning culturally and environmentally relevant predictors of relapse in low- and middle-income countries. Given the scarcity of research on coping behaviors among psychotic patients in sub-Saharan Africa, this study provides a critical foundation for developing regionally appropriate psychological interventions, enhancing the global relevance and applicability of coping theory (Lazarus & Folkman, 1984).

Furthermore, the use of standardized instruments and the application of correlation and multiple regression analyses enhance the methodological robustness of the study. While the study did not include mediation analysis, it lays the groundwork for future investigations that may explore whether other psychological variables (e.g., self-efficacy or resilience) mediate the relationship between coping and relapse. Therefore, the current findings serve as a valuable reference point for subsequent theory-driven research.

In sum, this study enriches the scientific and clinical understanding of the role of coping strategies in managing substance-induced psychotic disorders and relapse. It underscores the need for integrating coping-focused interventions into existing psychiatric treatment frameworks and provides empirical justification for policy and clinical efforts aimed at improving mental health outcomes in vulnerable populations.

8. Limitations and suggestions for further studies

While the present study contributes valuable insights into the relationship between coping styles and relapse rates among individuals with substance-induced psychotic disorders, it is important to acknowledge several limitations that may influence the interpretation and generalizability of the findings.

First, the study employed a cross-sectional correlational design, which limits the ability to infer causality between coping styles and relapse rates. Although the results suggest statistically significant associations, they cannot confirm whether specific coping styles directly cause higher or lower relapse rates. Future research should consider longitudinal designs to track changes in coping strategies over time and how they affect relapse patterns. This approach would provide stronger evidence for causal interpretations and help understand the temporal sequence of coping and relapse.

Second, the study relied exclusively on self-report questionnaires, which may have introduced response biases such as social desirability and recall bias. Participants may have underreported maladaptive coping strategies or relapse episodes due to stigma or memory limitations. To enhance validity, future studies should incorporate a multi-method approach, combining self-reports with clinical interviews, therapist ratings, or hospital records of relapse events.

Another limitation lies in the demographic homogeneity of the sample. Although basic demographic variables were collected, more detailed variables such as socioeconomic status, educational attainment, and cultural background which are known to influence coping and psychiatric outcomes were not deeply examined. Future research should include these variables to explore how they interact with coping styles and relapse patterns, particularly in diverse or underrepresented populations.

Moreover, the study did not explore the influence of past trauma or adverse childhood experiences (ACEs), which have been shown to significantly shape coping mechanisms and susceptibility to relapse in psychiatric populations. Including standardized trauma screening tools in future research could help clarify the complex interplay between early life experiences, coping behavior, and relapse vulnerability.

The study also did not account for the potential impact of social support systems, personality traits, or comorbid psychiatric conditions (e.g., depression or anxiety), which may moderate or mediate the relationship between coping and relapse. Future studies should examine these psychosocial and clinical variables to provide a more comprehensive and nuanced understanding of the relapse process.

Finally, although this study focused on coping strategies, it did not include mediation or moderation analysis. Future research could examine whether coping styles mediate or moderate the relationship between other psychological factors (e.g., self-efficacy, resilience) and relapse rates. Such investigations would enrich the theoretical framework and intervention development for substance-induced psychosis.

9. Conclusion

This study explored the relationship between coping styles and relapse rates among individuals diagnosed with substance-induced psychotic disorders. The findings underscore the critical role that coping mechanisms play in influencing the frequency of relapse episodes in this clinical population. Specifically, individuals who predominantly utilized adaptive coping strategies such as problem-focused coping and positive reappraisal were found to experience lower relapse rates compared to those relying on avoidant or emotion-focused coping. This highlights the importance of coping styles as significant psychological factors in the management and recovery process of substance-related psychotic disorders.

The study contributes empirical evidence to the growing body of psychiatric literature emphasizing that coping strategies do not operate in isolation but can substantially impact clinical outcomes such as relapse. By identifying coping styles as predictive factors for relapse, the study offers a foundation for the development of targeted psychological interventions. Enhancing patients' ability to adopt healthier coping mechanisms may reduce the likelihood of recurrent psychotic episodes and improve overall recovery trajectories.

Moreover, this research reinforces the need for integrating psychosocial components into psychiatric care, particularly for individuals with dual diagnoses involving substance use and psychotic features. Addressing maladaptive coping styles through psychoeducation, cognitive-behavioral therapy, and resilience-building interventions can provide long-term benefits for relapse prevention. Based on the findings, the following recommendations are made:

Mental health practitioners should routinely assess patients' coping strategies during treatment planning. Identifying individuals who rely on avoidant or emotion-focused coping early can help clinicians tailor interventions to encourage more adaptive mechanisms that reduce relapse risk.

Structured therapeutic programs should incorporate coping skills training. Interventions such as cognitive-behavioral therapy (CBT), dialectical behavior therapy (DBT), or stress inoculation training can enhance problem-solving skills and emotional regulation in psychiatric patients.

Relapse prevention programs should be culturally contextualized. In the Nigerian context, it is essential that psychological interventions reflect local values, spiritual beliefs, and community support systems, which may influence how individuals perceive stress and utilize coping strategies.

Declaration of conflicting interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

1. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596
2. Back, S. E., Brady, K. T., Jaanimägi, U., & Jackson, J. L. (2011). Cognitive-behavioral therapy for substance use disorders. *Psychiatric Clinics of North America, 34*(4), 713–725. https://doi.org/10.1016/j.psc.2011.05.002
3. Beattie, M. C., Longabaugh, R., & Elliott, G. (2022). Coping style as a predictor of alcohol relapse. *Addiction Research & Theory, 30*(1), 56–65. https://doi.org/10.1080/16066359.2021.1927789
4. Blevins, C. E., Abrantes, A. M., & Stephens, R. S. (2022). Substance use and psychiatric comorbidity: Pathways to relapse. *Journal of Substance Abuse Treatment, 132*, 108642. https://doi.org/10.1016/j.jsat.2021.108642
5. Bowen, S., Chawla, N., & Marlatt, G. A. (2014). *Mindfulness-based relapse prevention for addictive behaviors: A clinician's guide*. Guilford Publications. Retrieved from https://www.google.com/search?q=Mindfulness-based+relapse+prevention+Bowen+Chawla+Marlatt+2014
6. Carvalho, A. F., Reyes, A. R., Soares, J. C., & Quevedo, J. (2018). Substance abuse and the onset of psychosis. *Psychiatric Clinics of North America, 41*(1), 111–125. https://doi.org/10.1016/j.psc.2017.10.002
7. Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*(1), 92–100. https://doi.org/10.1207/s15327558ijbm0401_6
8. Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267–283. https://doi.org/10.1037/0022-3514.56.2.267
9. Caton, C. L., Drake, R. E., Hasin, D. S., Dominguez, B., Shrout, P. E., Samet, S., & Schanzer, B. (2005). Differences between early-phase primary psychotic disorders with concurrent substance use and substance-induced psychoses. *Archives of General Psychiatry, 62*(2), 137–145. https://doi.org/10.1001/archpsyc.62.2.137
10. Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*(1), 87–127. https://doi.org/10.1037/0033- 2909.127.1.87
11. Connor-Smith, J. K., & Flachsbart, C. (2007). Relations between personality and coping: A meta- analysis. *Journal of Personality and Social Psychology, 93*(6), 1080–1107. https://doi.org/10.1037/0022-3514.93.6.1080

12. Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (2008). Drinking to regulate positive and negative emotions: A motivational model of alcohol use. *Journal of Personality and Social Psychology, 69*(5), 990–1005. https://doi.org/10.1037/0022-3514.69.5.990

13. Curran, C., Byrappa, N., & McBride, A. (2004). Stimulant psychosis: Systematic review. *The British Journal of Psychiatry, 185*(3), 196–204. https://doi.org/10.1192/bjp.185.3.196

14. De Waal, M. M., Arnold, I. A., Eekhof, J. A., & Van Hemert, A. M. (2020). The effectiveness of relapse prevention interventions for patients with psychosis. *Journal of Psychiatric Research, 128,* 1–9. https://doi.org/10.1016/j.jpsychires.2020.05.020

15. Degenhardt, L., Hall, W., & Lynskey, M. (2018). The relationship between cannabis use, depression and anxiety among Australian adults: Findings from the National Survey of Mental Health and Well-being. *Social Psychiatry and Psychiatric Epidemiology, 36*(5), 219–227. https://doi.org/10.1007/s001270170057

16. Di Forti, M., Quattrone, D., Freeman, T. P., Tripoli, G., Gayer-Anderson, C., Quigley, H. & Murray, R. M. (2019). The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe (EU-GEI): A multicentre case-control study. *The Lancet Psychiatry, 6*(5), 427–436. https://doi.org/10.1016/S2215-0366(19)30048-3

17. Dixon, L. (1999). Dual diagnosis of substance abuse in schizophrenia: Prevalence and impact on outcomes. *Schizophrenia Research, 35*(Suppl), S93–S100. https://doi.org/10.1016/S0920- 9964(98)00161-2

18. Drake, R. E., & Mueser, K. T. (2000). Psychosocial approaches to dual diagnosis. *Schizophrenia Bulletin, 26*(1), 105–118. https://doi.org/10.1093/oxfordjournals.schbul.a033441

19. Emsley, R., Chiliza, B., Asmal, L., & Harvey, B. H. (2013). The nature of relapse in schizophrenia. *BMC Psychiatry, 13*, 50. https://doi.org/10.1186/1471-244X-13-50

20. Emsley, R., Oosthuizen, P., Kidd, M., Koen, L., Niehaus, D. J., & Turner, H. J. (2007). Remission in first-episode psychosis: Evidence for a prolonged duration. *Schizophrenia Research, 89*(1–3), 179–187. https://doi.org/10.1016/j.schres.2006.09.005

21. Endler, N. S., & Parker, J. D. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology, 58*(5), 844–854. https://doi.org/10.1037/0022-3514.58.5.844

22. Falloon, I. R., & Talbot, R. E. (1981). Persistent auditory hallucinations: Coping mechanisms and implications for management. *Psychological Medicine, 11*(2), 329–339. https://doi.org/10.1017/S0033291700052293

23. Farris, S. G., Epstein, E. E., & McCrady, B. S. (2020). Diagnosis and classification of substance- induced psychotic disorder. In S. T. Lichtenstein & R. A. González (Eds.), *Psychotic disorders: An overview* (pp. 67–88). Springer. https://doi.org/10.1007/978-3-030-29670- 1_4

24. Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*(1), 150–170. https://doi.org/10.1037/0022-3514.48.1.150

25. Foulds, J. A., Boden, J. M., Newton-Howes, G., Mulder, R. T., & Horwood, L. J. (2015). Depression, anxiety and substance use: The Christchurch Health and Development Study. *Australian & New Zealand Journal of Psychiatry, 49*(12), 1131–1141. https://doi.org/10.1177/0004867415603137

26. Glasner-Edwards, S., & Mooney, L. J. (2014). Methamphetamine psychosis: Epidemiology and management. *CNS Drugs, 28*(12), 1115–1126. https://doi.org/10.1007/s40263-014-0209-8

27. González-Blanch, C., Gleeson, J. F., Koval, P., Cotton, S. M., O'Donnell, M., Alvarez-Jimenez, M., & McGorry, P. D. (2015). Social functioning trajectories after first-episode psychosis: The role of coping style. *Schizophrenia Research, 166*(1-3), 27–33. https://doi.org/10.1016/j.schres.2015.05.027

28. Greene, C., Kane, J. M., & Correll, C. U. (2018). Psychotic disorders and substance use: A complex and clinically relevant relationship. *Current Psychiatry Reports, 20*(9), 81. https://doi.org/10.1007/s11920-018-0935-3

29. Hasking, P. A., Lyvers, M., & Carlopio, C. (2011). The relationship between coping strategies, alcohol expectancies, drinking motives and drinking behaviour. *Addictive Behaviors, 36*(5), 479–487. https://doi.org/10.1016/j.addbeh.2011.01.014

30. Holahan, C. J., Moos, R. H., Holahan, C. K., Brennan, P. L., & Schutte, K. K. (2005). Stress generation, avoidance coping, and depressive symptoms: A 10-year model. *Journal of Consulting and Clinical Psychology, 73*(4), 658–666. https://doi.org/10.1037/0022- 006X.73.4.658

31. Hser, Y. I., Evans, E., Huang, D., & Anglin, D. M. (2007). Relationship between drug treatment services, retention, and outcomes. *Psychiatric Services, 55*(7), 767–774. https://doi.org/10.1176/appi.ps.55.7.767

32. Ionescu, D. F., Felger, J. C., & Niciu, M. J. (2020). Substance use, psychosis, and treatment outcomes: A review. *Harvard Review of Psychiatry, 28*(1), 28–40. https://doi.org/10.1097/HRP.0000000000000245

33. Kelly, A. B., Halford, W. K., & Young, R. M. (2000). Maritally distressed women with alcohol problems: The impact of a short-term alcohol-focused intervention on drinking and marital outcomes. *Addiction, 95*(10), 1537–1549. https://doi.org/10.1046/j.1360- 0443.2000.95915377.x

34. Kelly, J. F., Hoeppner, B., Stout, R. L., & Pagano, M. E. (2011). Determining the relative importance of the mechanisms of behavior change within Alcoholics Anonymous: A multiple mediator analysis. *Addiction, 107*(2), 289–299. https://doi.org/10.1111/j.1360- 0443.2011.03693.x

35. Kelly, J. F., Stout, R. L., Greene, M. C., & Slaymaker, V. (2012). Young adults, social networks, and addiction recovery: Post-treatment changes in social ties and their role as a mediator of 12-step participation. *Plos One, 6*(9), e22924. https://doi.org/10.1371/journal.pone.0022924

36. Koob, G. F., & Volkow, N. D. (2010). Neurocircuitry of addiction. *Neuropsychopharmacology, 35*(1), 217–238. https://doi.org/10.1038/npp.2009.110

37. Krausz, R. M., Verthein, U., Degkwitz, P., & Soyka, M. (2021). The role of substance use in psychotic disorders: Clinical and policy implications. *Frontiers in Psychiatry, 12,* 712479. https://doi.org/10.3389/fpsyt.2021.712479

38. Larimer, M. E., Palmer, R. S., & Marlatt, G. A. (1999). Relapse prevention: An overview of Marlatt's cognitive-behavioral model. *Alcohol Research & Health, 23*(2), 151–160.

39. Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer Publishing. Lehman, A. F., Lieberman, J. A., Dixon, L. B., McGlashan, T. H., Miller, A. L., Perkins, D. O., & Kreyenbuhl, J. (2010). Practice guideline for the treatment of patients with schizophrenia. *American Journal of Psychiatry, 167*(11 Suppl), 1–57. https://doi.org/10.1176/appi.ajp.2010.167.11.S1

40. Leshner, A. I. (1997). Addiction is a brain disease, and it matters. *Science, 278*(5335), 45–47. https://doi.org/10.1126/science.278.5335.45

41. Lieberman, J. A., Stroup, T. S., McEvoy, J. P., Swartz, M. S., Rosenheck, R. A., Perkins, D. O., & Hsiao, J. K. (2005). Effectiveness of antipsychotic drugs in patients with chronic schizophrenia. *New England Journal of Medicine, 353*(12), 1209–1223. https://doi.org/10.1056/NEJMoa051688

42. Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. Guilford Press.

43. Lyvers, M., Hasking, P. A., Albrecht, B., & Thorberg, F. A. (2014). Alexithymia and affect- regulation in substance-dependent individuals. *Journal of Substance Use, 19*(4), 355–360. https://doi.org/10.3109/14659891.2013.784102

44. Marlatt, G. A., & Donovan, D. M. (Eds.). (2005). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors (2nd ed.).* Guilford Press.

45. Martín-Aragón, M., Rueda, B., & Díaz, D. (1999). Self-efficacy and health behaviour: An empirical study among chronic patients. *Revista de Psicología de la Salud, 11*(1), 25–39.

46. McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D. (2000). Drug dependence, a chronic medical illness. *Journal of the American Medical Association, 284*(13), 1689–1695. https://doi.org/10.1001/jama.284.13.1689

47. Moos, R. H., & Holahan, C. J. (2003). Dispositional and contextual perspectives on coping: Toward an integrative framework. *Journal of Clinical Psychology, 59*(12), 1387–1403. https://doi.org/10.1002/jclp.10229

48. Moos, R. H., & Moos, B. S. (2006). Rates and predictors of relapse after natural and treated remission from alcohol use disorders. *Addiction, 101*(2), 212–222. https://doi.org/10.1111/j.1360-0443.2006.01310.x

49. Morisky, D. E., Ang, A., Krousel-Wood, M., & Ward, H. J. (2008). Predictive validity of a medication adherence measure in an outpatient setting. *The Journal of Clinical Hypertension, 10*(5), 348–354. https://doi.org/10.1111/j.1751-7176.2008.07572.x

50. Murray, R. M., Englund, A., Abi-Dargham, A., Lewis, D. A., Di Forti, M., Davies, C., & McGuire, P. (2017). Cannabis-associated psychosis: Neural substrate and clinical impact. *Neuropharmacology, 124,* 89–104. https://doi.org/10.1016/j.neuropharm.2017.06.018

51. Poczwardowski, A., & Conroy, D. E. (2002). Coping responses to failure and success among elite athletes and performing artists. *Journal of Applied Sport Psychology, 14*(3), 313–329. https://doi.org/10.1080/10413200290103524

52. Romppel, M., Braehler, E., Roth, M., & Glaesmer, H. (2013). What is coping? A review of the literature. *Psychology and Health, 28*(3), 299–318. https://doi.org/10.1080/08870446.2012.713945

53. Saha, S., Chant, D., Welham, J., & McGrath, J. (2010). A systematic review of the prevalence of schizophrenia. *PLoS Medicine, 2*(5), e141. https://doi.org/10.1371/journal.pmed.0020141

54. Santoro, G., De Chiara, L., & Popovic, D. (2021). Substance-induced psychosis: Diagnostic challenges and therapeutic approaches. *European Psychiatry, 64*(S1), S509–S510. https://doi.org/10.1192/j.eurpsy.2021.1356

55. Sayers, S. L., Campbell, E. C., Kondrich, J., Mann, S. C., & Cornelius, J. R. (2005). Coping style and psychological distress in patients with schizophrenia spectrum disorders. *Schizophrenia Research, 76*(2-3), 301–309. https://doi.org/10.1016/j.schres.2005.01.011

56. Sienkiewicz-Jarosz, H., Dąbrowska, M., & Woronowicz, B. (2019). Coping styles and relapse in patients with cannabis-induced psychotic disorders. *Substance Use & Misuse, 54*(3), 428–435. https://doi.org/10.1080/10826084.2018.1517179

57. Sinha, R. (2001). How does stress increase risk of drug abuse and relapse? *Psychopharmacology, 158*(4), 343–359. https://doi.org/10.1007/s002130100917

58. Sinha, R. (2008). Chronic stress, drug use, and vulnerability to addiction. *Annals of the New York Academy of Sciences, 1141*(1), 105–130. https://doi.org/10.1196/annals.1441.030

59. Sinha, R. (2011). New findings on biological factors predicting addiction relapse vulnerability. *Current Psychiatry Reports, 13*(5), 398–405. https://doi.org/10.1007/s11920-011-0224-0

60. Sorsdahl, K., Stein, D. J., & Myers, B. (2015). Negative affect as a mediator of the relationship between childhood trauma and substance use problems. *Journal of Substance Use, 20*(5), 342–346. https://doi.org/10.3109/14659891.2014.918298

61. Starzer, M. S. K., Nordentoft, M., & Hjorthøj, C. (2018). Rates and predictors of conversion to schizophrenia or bipolar disorder following substance-induced psychosis. *American Journal of Psychiatry, 175*(4), 343–350. https://doi.org/10.1176/appi.ajp.2017.17020223

62. Sullivan, L. E., Fiellin, D. A., & O'Connor, P. G. (2018). The prevalence and impact of alcohol problems in major depression: A systematic review. *The American Journal of Medicine, 118*(4), 330–341. https://doi.org/10.1016/j.amjmed.2005.09.011

63. Taylor, S. E., & Stanton, A. L. (2007). Coping resources, coping processes, and mental health. *Annual Review of Clinical Psychology, 3,* 377–401. https://doi.org/10.1146/annurev.clinpsy.3.022806.091520

64. Thirthalli, J., & Benegal, V. (2006). Psychosis and substance abuse. *Indian Journal of Medical Research, 123*(6), 395–406. https://doi.org/10.4103/0971-5916.117156

65. Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior, 52*(2), 145–161. https://doi.org/10.1177/0022146510395592

66. Volkow, N. D., & Boyle, M. (2018). Neuroscience of addiction: Relevance to prevention and treatment. *American Journal of Psychiatry, 175*(8), 729–740. https://doi.org/10.1176/appi.ajp.2018.17101174

67. Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiologic advances from the brain disease model of addiction. *New England Journal of Medicine, 374*(4), 363–371. https://doi.org/10.1056/NEJMra1511480

68. Volkow, N. D., Koob, G. F., & McLellan, A. T. (2019). Neurobiologic advances from the brain disease model of addiction. *New England Journal of Medicine, 374*(4), 363–371. https://doi.org/10.1056/NEJMra1511480

69. Wagner, V., Dresselhaus, B., & Doering, B. K. (2020). Emotional coping and psychosis outcomes: A meta-analysis. *Schizophrenia Research, 216*, 264–274. https://doi.org/10.1016/j.schres.2019.11.034

70. Wills, T. A., & Hirky, A. E. (1996). Coping and substance abuse: A theoretical model and review of the evidence. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications* (pp. 279–302). Wiley.

71. Witkiewitz, K., & Marlatt, G. A. (2004). Relapse prevention for alcohol and drug problems: That was Zen, this is Tao. *American Psychologist, 59*(4), 224–235. https://doi.org/10.1037/0003-066X.59.4.224

72. World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA, 310*(20), 2191–2194. https://doi.org/10.1001/jama.2013.281053