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The role of attachment, coping style and reasons for substance use in substance users with psychosis

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Abstract

Seventy substance users with psychosis who were participating in a clinical trial of a psychological therapy for psychosis were additionally assessed for attachment, coping styles and self-reported reasons for substance use in order to test a hypothesized sequential mediation model. In this model the relationship between insecure attachment and problematic substance use was assumed to be sequentially mediated by dysfunctional coping and the use of substances to cope with distress. Hypothesized associations between insecure-avoidant attachment and substance use were not supported, but the relationship between insecure-anxious attachment and problematic substance use was confirmed and found to be fully mediated by dysfunctional coping and coping reasons for use. Findings suggest that fostering secure attachments in people with psychosis might promote more successful coping and could prevent or reduce substance use related problems in this group.

KEYWORDS
emotional regulation, mediation, mental illness, schizophrenia

1 | INTRODUCTION

Substance misuse is common in people experiencing psychosis and is typically associated with worse outcomes (Hunt et al., 2018; NICE, 2011). People use substances for different reasons. Self-reported reasons for using substances in people with psychosis have been understood in terms of three key factors: coping with distressing emotions and symptoms (including feelings of shame, boredom and depression), social enhancement and intoxication (i.e., to fit in, feel good and get high) and improvement of internal emotional and physical states (such as feeling more sexy, creative and confident) (Gregg et al., 2009). People with psychosis who report using substances for coping reasons are more likely to report greater negative consequences as a result of that use, including substance dependence and greater psychopathology (Gregg et al., 2009; Spencer et al., 2002).

Research has suggested that people with psychosis tend to employ a relatively limited range of coping strategies to regulate negative affect and may utilize less adaptive coping strategies in comparison to healthy controls (Phillips et al., 2009). Arguably, people with psychosis may use substances to cope with their symptoms and other negative affective states which consequently leads to increases in psychopathology. Research in non-clinical samples also suggests that the relationship between substance use and psychopathology is mediated by both reasons for use and dysfunctional coping (Gregg et al., 2014), suggesting that interventions to enhance coping repertoires could reduce problematic substance use.

In light of the key roles that both affect regulation strategies and interpersonal processes appear to play in the aetiology and maintenance of problematic substance use, researchers have drawn on attachment theory to develop understanding (Shindler, 2019). Attachment theory is a key theory of human relationships that provides a useful framework for studying how individuals cope. Bowlby (1969) proposed that the attachment system is the individual's homeostatic mechanism for regulating negative affect, and although attachment

theory was first formulated in relation to infants and primary caregivers, the system is hypothesized to continue to influence emotional regulation and functioning in adulthood. According to Bowlby, if early caregivers are responsive and sensitive to distress, the individual develops a secure attachment style, which is associated with a positive self-image, a capacity to manage distress, comfort with autonomy, an ability to form close relationships with others and seeking help from others when needed. Conversely, if caregivers are insensitive or unresponsive to distress, the individual develops alternative methods of regulating affect. If caregivers are inconsistently available, the individual develops an anxious attachment pattern. This is associated with hypervigilence to signs of rejection or separations and a tendency to be overwhelmed by negative affect or exaggerate distress in order to elicit a helping response in others (Shaver & Mikulincer, 2002). If caregivers are consistently rejecting or unavailable, the individual develops an avoidant attachment pattern. This is associated with the deactivation of the attachment system, resulting in low levels of overt negative affect and an avoidance of close relationships (Shaver & Mikulincer, 2002). Insecure-anxious and insecure-avoidant attachment patterns may be functional in the context of earlier caregiver relationships. However, these methods of affect regulation have been shown to have a detrimental impact on the individual's mental health and cognitive, emotional and social development (Lopez & Brennan, 2000).

Research with non-clinical samples has shown that individuals with secure attachment are able to confront life stressors without being overwhelmed, seek support in times of distress and use a more diverse range of coping strategies (Lopez & Brennan, 2000). Attachment anxiety and avoidance have been associated with specific types of maladaptive or dysfunctional coping strategies, consistent with theoretical attachment-related goals and needs. For example, attachment anxiety has been associated with extreme distress in response to stressors and the ineffective use of emotion-focused coping; whereas attachment avoidance has been associated with low levels of support seeking and suppression of negative emotions (Mikulincer & Florian, 1998; Owens et al., 2013). Both avoidant and anxious forms of insecure attachment have also been associated with substance misuse. Avoidant individuals who attempt to detach themselves from psychological distress, can also use alcohol and drugs as a means of avoiding painful emotions and self-awareness. Attachment-anxious individuals who have problems with emotional control, can use alcohol and drugs to pacify or tranquillize their distress and block the uncontrollable spread of anxious ruminations and memories (Shaver & Mikulincer, 2007). In support of these theories, studies assessing motives for drinking in non-clinical samples have found that anxiously attached people report using alcohol to cope with anxiety, tension and distress (Brennan & Shaver, 1995; McNally et al., 2003), whereas people with avoidant attachment are more likely to say that they drink to avoid emotional dependence (Magai, 1999).

Attachment theory may be particularly pertinent in helping understand the relationships between coping and reasons for use in people with psychosis as previous research has found that this group have disproportionally high levels of insecure attachment (Gumley et al., 2013) which is attributed to the high levels of childhood adversity found in this group (Varese et al., 2012). Not surprisingly, both types of insecure attachment have been associated with increased levels of problematic substance misuse in people with psychosis (Berry et al., 2016), but the role that coping and reasons for use play in influencing or mediating these relationships has not previously been explored. We therefore aimed to explore the relationship between insecure attachment, coping styles, self-reported reasons for substance use and problematic substance use in a sample of people with both a diagnosis of schizophrenia or related psychosis and substance use. We hypothesized that dysfunctional coping and the use of substances to cope would be sequential mediators of the relationship between insecure attachment and problematic substance misuse.

Key practitioner message

- There was no relationship between avoidant attachment and substance misuse.
- Anxious attachment was associated with more problematic substance misuse.
- Dysfunctional coping and reasons for use are important mediators.
- Fostering secure attachment might reduce problematic substance use in psychosis.

2 | METHODS

2.1 | Participants and procedure

The sample comprised 70 participants from the MIDAS trial (Motivational Interventions for Drug and Alcohol misuse in Schizophrenia or psychosis, Barrowclough et al., 2010). Participants were randomized into the intervention arm of the trial, or the monitoring and assessment arm, and followed up at 12 months (end of treatment for those in the treatment arm of the trial) and 24 months. Inclusion criteria for the trial were as follows: able to provide informed consent; over 16 years of age; current contact with mental health services; current diagnosis of non-affective psychotic disorder (International Classification of Diseases, 10th revision [ICD-10], Diagnostic and Statistical Manual of Mental Disorders, fourth edition [DSM-IV], or both); DSM-IV diagnosis of dependence on or abuse of drugs, alcohol, or both; minimum level of weekly alcohol use (exceeding 28 units for males and 21 units for females on at least half the weeks in the past 3 months) or illicit drug use (use on at least two days a week in at least half the weeks in the past 3 months); no significant history of organic factors implicated in the aetiology of psychotic symptoms; English speaking; and of a fixed abode. Data for this study were collected as part of the 12-month follow-up assessment. All data were collected by research assistants blind to treatment allocation.

2.2 | Measures

2.2.1 | Substance use

Data on current substance use behaviour (type and frequency of use over the preceding 30 days) was collected using the timeline follow back interview (Sobell & Sobell, 1992). The TLFB is administered by the researcher and uses an annotated calendar that is personalized for each participant. Significant events or regular patterns (e.g., 'pay day') are recorded on the calendar and the calendar serves as a memory cue for participants as they try to recall daily alcohol and drug use. The researcher records, for each of the 30 days, the number of drinks consumed; the quantity (millilitres) and the strength of alcohol (which is later converted into alcohol units) and the type, amount (grammes) and cost of the drugs consumed. Several variables can be derived from completed calendar, for the current study days abstinent from the main substance (most problematic substance [MPS]) was used.

The TLFB is the most well-researched method of collecting retrospective self-reports of daily substance use in both alcohol and drug using populations and was demonstrated to corroborate with both collateral reports and hair sample testing (Barrowclough et al., 2010).

The structured clinical interview (SCID-IV) substance use disorders module was used to differentiate substance abuse and dependence disorders. Where participants met DSM-IV abuse or dependence criteria for more than one substance, the main substance was identified as that perceived by the participant to be the MPS or, if the person did not make such a distinction, the most frequently used. Substance use was evaluated in terms of both the patient's main substance and all substances consumed by using measures of frequency (percentage days abstinent) and severity (percentage change from baseline in average amount per using day), as calculated from participants' timeline followback reports.

The degree to which substance use was considered to be problematic was assessed using the Short Inventory of Problems (SIP, Blanchard et al., 2003), this 15-item scale is a brief version of the Inventory of Drug use Consequences and assesses recent negative consequences of substance use in five domains: physical (e.g., weight loss), interpersonal (e.g., damaged family relationships), intrapersonal (e.g., loss of interest in hobbies), impulse control, (e.g., taking risks) and social responsibility (e.g., money problems as a result of substance use). Respondents indicate how often each consequence has occurred in the previous three months (from 0 [*never*] to 3 [*daily or almost daily*]) and items are totalled to produce a total SIP score (range 0–45). The SIP has demonstrated good internal consistency, sensitivity to change, correspondence with other measures of consequences in primary substance abusers and predictive validity (Kiluk et al., 2013). Cronbach's alpha in the current study was 0.92, indicating excellent internal consistency.

2.2.2 | Reasons for substance use

The reasons for substance use scale (ReSUS, Gregg et al., 2009) was used to assess the situations in which participants were using their most problematic substance. The questionnaire consists of 38 items describing situations in which people drink alcohol or use drugs. Participants indicated whether their main substance was used in that situation *never*, *sometimes*, *often* or *almost always*. Three subscales are derived: 'coping with distressing emotions and symptoms', 'social enhancement and intoxication' and 'individual enhancement' (incorporating expansion motives). Coping reasons for use indicate the use of substances in order to alleviate dysphoria and symptoms of psychosis (depression, anger, guilt, anxiety, paranoia and hallucinations) and to 'escape'. Social reasons for use include the use of substances to relax, to have a good time with friends and to fit in with others. Individual enhancement or 'expansion' reasons for use describe the use of substances to enhance individual experience: to feel more confident, aware, energetic, creative and motivated. The mean of each subscale is used in analyses. Internal consistency of the three subscales is good with Cronbach's alphas of 0.87, 0.80 and 0.81 in the current study.

2.2.3 | Coping

Coping was examined using the brief COPE (Carver, 1997). The brief COPE is a shortened version of the original 60-item self-report inventory developed by Carver et al. (1989). It yields 14 distinct coping strategies. Respondents indicate the degree to which they typically utilize each coping strategy when faced with everyday stress on a 4-point scale (from 1 [*I don't do this at all*] to 2 [*I do this a lot*]). Three subscales can be derived: (1) problem-focused coping, including active coping, planning and use of instrumental support; (2) emotion-focused coping, including positive reframing, acceptance and use of emotional support, humour, and religious coping; and (3) dysfunctional coping, including behavioural disengagement, venting of emotions, denial, self-distraction, and self-blame. Alphas in the current study were 0.75, 0.73 and 0.65, respectively. Subscale scores are used in all analyses.

2.2.4 | Attachment

Attachment was assessed using the Psychosis Attachment Measure (PAM; Berry et al., 2008). The PAM has 16 items, with eight items assessing the construct of anxiety and eight items assessing the construct of avoidance. Items were derived from existing self-report attachment measures, but there were no items referring specifically to romantic relationships. The measure has advantages over existing attachment measures, as items are rated on simple and anchored, four-point Likert scales, and unlike the majority of other self-report attachment questionnaires it can be used by people who do not currently have or have not recently had a romantic partner. The fact that it assesses attachment in terms of the two dimensions of attachment anxiety and avoidance also facilitates comparisons with previous and future studies. Total scores were calculated for each dimension by averaging individual item scores, with higher scores reflecting higher levels of anxiety and avoidance. The PAM has been shown to have

good psychometric properties in people with psychosis (Berry et al., 2008). Alphas for the current study were 0.67 for avoidance and 0.52 for anxiety.

2.2.5 | Symptoms

Symptoms and functioning measures were included to assess key confounds in the models we were aiming to test. The Positive and Negative Syndrome Scale (PANSS) was used to assess overall severity of symptoms (Kay et al., 1987). The PANSS is a 30-item, semi-structured interview with positive, negative and general psychopathology symptom subscales. A total symptom score can also be derived by summing subscale scores, and this was used as a measure of severity of psychiatric symptoms. The PANSS is well validated, and it has been used extensively in previous research with people with a diagnosis of schizophrenia. It has good psychometric properties, including good construct validity, criterion validity and reliability (Kay et al., 1987, 1988). Alphas in the current study were 0.64, 0.75 and 0.70, respectively.

The Global Assessment of Functioning Scale (GAF) is an observer-rated measure which has two subscales assessing severity of symptoms and deficits in functioning (Hall, 1995). Both subscales range from 0 (severe symptoms and severe lack of functioning) to 100 (no symptoms and extremely high level of functioning). The lowest out of the two scores is used as the overall total GAF score. High levels of inter-rater reliability were obtained with experienced raters on all symptom measures throughout the study (all ICC > 0.70).

2.3 | Data analysis

Data were analysed using SPSS version 25. Pearson's correlation was used to confirm expected associations between key study variables (attachment subscales, coping and reasons for use subscales and substance use) and to identify potential confounding variables to be included in the planned mediation models. The impact of demographic variables on study variables was assessed using correlation, *t* test and ANOVA tests. Sequential mediation analyses using the Process macro (SPSS Release 3.5) and procedure developed by Hayes (2017) was used to determine whether the subscales of dysfunctional coping and coping reasons for use mediated the relationship between attachment and problematic substance use. The indirect effect was tested using a bootstrap estimation approach with 5000 samples as recommended by Hayes. When the 95% bias corrected confidence interval (CI) does not include zero, the null hypothesis is rejected.

3 | RESULTS

3.1 | Participant characteristics

Participants were largely male (61, 87.1%); unemployed (63, 90%) and of White British origin (63, 90%). The majority (54, 77.1%) had a diagnosis of schizophrenia. Other diagnoses included schizoaffective disorder (9, 12.9%), delusional disorder (3, 4.3%); schizophreniform disorder (2, 2.9%) and psychosis not otherwise specified (2, 2.9%). Average illness duration was 12.77 years (*SD* 9.05). On average, participants had been using their 'most problematic substance' (MPS) for 12.16 years (*SD* 8.89). The majority (57, 81.4%) met DSM IV criteria for substance use dependence. For more than half (41, 58.6%), the MPS was alcohol. Cannabis was the next most frequent MPS (18, 25.7%) with the remaining 10 participants (14.3%) identifying other drugs (amphetamine; cocaine; ecstasy/MDMA) as their MPS. On average, participants had used their MPS on 18 days of the previous 30 days.

Means, standard deviations and ranges for study variables (attachment, symptoms, coping, reasons for use and substance use) are presented in Table 1.

Demographic variables (age, sex, ethnicity and employment status) were not significantly related to key study variables.

3.2 | Relationships between insecure attachment and substance use

Neither avoidant nor anxious attachment were associated with substance use frequency (days abstinent from most problematic substance as assessed by the TLFB method). However, attachment anxiety was significantly related to negative consequences of substance use as measured by the SIP (see Table 2). Attachment anxiety was also related to substance use dependence—those who were classed as dependent on their most problematic substance demonstrated more severe attachment anxiety than those who were not (means = 1.32 and 0.88, respectively, $t = 2.37$, $p = .021$).

TABLE 1 Descriptive statistics for study variables

	Range	Mean (*SD*)
Avoidant attachment (PAM)	0.38–3.00	1.56 (0.59)
Anxious attachment (PAM)	0–2.50	1.24 (0.52)
Positive symptoms (PANSS)	7.0–27.0	15.13 (5.04)
Negative symptoms (PANSS)	7.0–29.0	13.17 (4.56)
General symptoms (PANSS)	17.0–44.0	29.64 (6.91)
Global functioning (GAF)	21.0–61.0	33.91 (7.21)
Days abstinent (TLFB)	0–30.0	12.70 (10.55)
Drug use consequences (SIP)	0–42.0	12.55 (10.46)
Coping reasons for use (ReSUS)	.17–2.83	1.11 (0.53)
Social reasons for use (ReSUS)	.18–3.00	1.40 (0.57)
Enhancement reasons for use (ReSUS)	0–2.78	0.92 (0.63)
Problem-focused coping (brief COPE)	6.0–24.0	16.03 (4.12)
Emotion-focused coping (brief COPE)	10.0–37.0	25.06 (5.82)
Dysfunctional coping (brief COPE)	20.0–37.0	24.93 (5.20)

TABLE 2 Associations between substance use, attachment, coping style, and reasons for use

	Drug use consequences	Days abstinent	Avoidant attachment	Anxious attachment	Coping reasons for use	Social reasons for use	Enhancement reasons for use	Problem-focused coping	Emotion-focused coping
Days abstinent	0.089								
Avoidant attachment	0.068	0.179							
Anxious attachment	0.251*	0.036	0.109						
Coping reasons for use	0.479***	0.020	0.104	0.419***					
Social reasons for use	0.325**	0.050	0.163	0.368**	0.382**				
Enhancement reasons for use	0.316**	0.056	0.182	0.383**	0.519***	0.529***			
Problem-focused coping	0.056	−0.152	−0.185	0.077	−0.011	0.190	0.111		
Emotion-focused coping	0.142	0.138	−0.028	0.259*	0.183	0.335**	0.282*	0.618***	
Dysfunctional coping	0.300**	0.006	0.134	0.412***	0.475**	0.387**	0.329**	0.425***	0.516***

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

3.3 | Relationships between insecure attachment, coping strategies and reasons for use

Insecure-avoidant attachment was not related to coping or to reasons for use (see Table 2). However, anxious attachment was significantly positively correlated with reasons for use (all ReSUS subscales); emotion-focused coping and dysfunctional coping.

3.4 | Hypothesized sequential mediation models

To test whether dysfunctional coping and coping reasons for use sequentially mediated the relationship between insecure attachment and problematic substance use regression analysis using the procedure developed by Hayes (2017) was conducted. Since the expected associations between avoidant attachment and the hypothesized mediators were not significant (see Table 2), only one sequential mediation analysis was performed. In this model, anxious attachment was the independent variable, and problematic substance use (as measured by the SIP) was the dependent variable (See Figure 1). A 95% bias-corrected confidence interval based on 5000 bootstrapped samples indicated that the indirect effect ($ab_1b_2 = 1.14$) was above zero (95% CI [0.19, 2.37]). In contrast, the direct effect was not different to zero ($c' = 0.82$, 95% CI [−3.30, 4.94]) indicating that dysfunctional coping and coping reasons for use fully mediate the relationship between insecure-anxious attachment and problematic substance use. See Figure 1 for the effects associated with pathways. The mediation analysis was repeated controlling for symptoms (entering GAF and PANSS total scores as covariates, since these had been found to be related to anxious attachment), and the model was not substantially different.

4 | DISCUSSION

This study aimed to explore the relationship between insecure attachment, coping styles, self-reported reasons for substance use and problematic substance use in a sample of people with both a diagnosis of schizophrenia or related psychosis and substance use. Contrary to predictions, neither anxious attachment nor avoidant attachment were associated with frequency of substance use. However, attachment anxiety was related to negative consequences of use and to substance use dependence. Insecure-anxious attachment, but not avoidant attachment, was related to dysfunctional coping strategies and the use of substances to cope with distressing states and symptoms. In line with our hypothesis, dysfunctional coping and coping reasons for use were found to sequentially mediate the relationship between insecure-anxious attachment and problematic substance use.

The lack of significant findings in relation to attachment avoidance is surprising as previous research has found associations between attachment avoidance and both substance misuse (Schindler, 2019) and problematic coping (Owens et al., 2013).

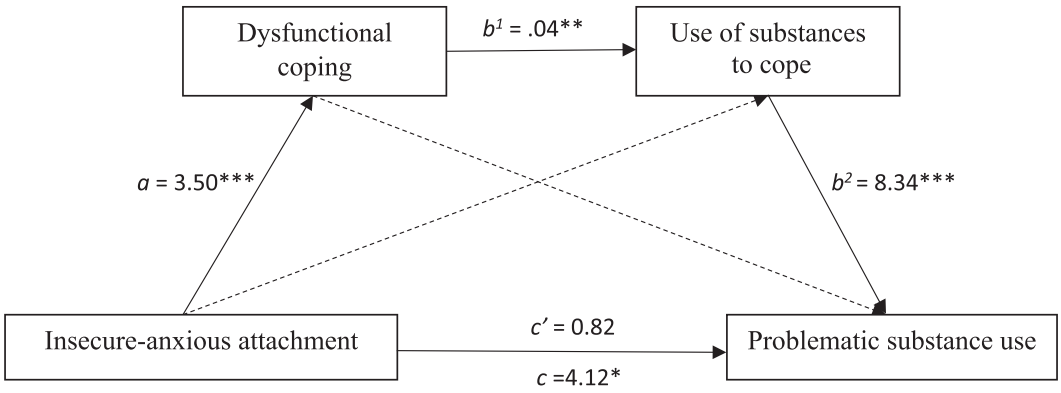

FIGURE 1 The sequential mediating effect of dysfunctional coping and the use of substances to cope in the relationship between insecure-anxious attachment and problematic substance use. Notes: Unstandardized regression coefficients are presented. The effects on the direct path from anxious attachment to problematic substance use depict the total effect (*c*) and the direct effect (*c′*). A dotted line indicates a non-significant pathway. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

However, previous research has found that anxiously attached individuals in particular may experience greater alcohol-related problems as a result of drinking-to-cope compared to their avoidant counterparts, and that is not attributable to their quantity consumed (Cooper et al., 1998; Molnar et al., 2010). Individuals with attachment anxiety experience difficulties in down regulating affect and therefore substances may become an effective strategy for managing difficult emotions. Given a substance's capacity to regulate an individual's emotional state (e.g., reduce anxiety and improve mood) continued use can be encouraged and the potential for a more dependent pattern of use can emerge. We confirmed the relationship of attachment anxiety to negative affect in post hoc exploratory analyses utilizing an 'affect' subscale of the PANSS (Shafer & Dazzi, 2019). Analyses revealed that anxious attachment, but not avoidant, was positively correlated with the affective symptoms of anxiety, depression, tension, guilt and somatic concern. Avoidant attachment is associated with a tendency to underreport distress and problems (Dozier & Lee, 1995), thus meaning that self-report measures may not be sufficiently sensitive to detect negative consequences of use or problems with coping. It is also important to note that there are two subtypes of avoidant attachment which are not distinguished on the PAM, the measure used to assess attachment in this study. Bartholomew (1997) distinguished between two types of avoidant attachment (dismissing-avoidant and fearful-avoidant attachment). Dismissing-avoidant attachment is associated with a compulsive need for self-reliance at the expense of relationships. Fearful-avoidant attachment is associated with a lack of confidence in the ability to manage problems alone, but a fear of seeking support from others due to mistrust. Individuals with dismissing avoidant attachment may possess coping strategies that are effective in deactivating distress, whereas those with fearful avoidant attachment do not; thus, increasing the likelihood that they will seek to regulate their emotional state through substances.

A failure to find associations between avoidant attachment and dysfunctional coping might also be that dysfunctional coping includes the subcategory of 'focusing on and venting emotions'. Individuals who report high levels of attachment avoidance would be more likely to suppress rather than be overwhelmed by negative affect. Any associations between attachment avoidance and dysfunctional coping may therefore be obscured by the inclusion of this subcategory of coping within the dysfunctional coping subscale (Berry & Kingswell, 2012).

Attachment anxiety was associated with all types of reasons for use including not only coping with distressing emotions and symptoms but also social and individual enhancement (expansion). People with high levels of anxious attachment are more likely to have a low self-worth and social anxiety so arguably might use substances in order to fit in socially and to feel more confident in social situations. It was, nonetheless, surprising that attachment anxiety was related to problematic substance use and substance dependence, but was not related to reported frequency of use. Frequency of use is an important correlate of problematic use and dependence. A previous meta-analysis of associations between substance misuse and attachment relationships also found that both frequency of use and problematic use were related to attachment insecurity (Fairbairn et al., 2018). However, in the present study, individuals had to be using substances above a certain threshold to be eligible for the trial, unlike other studies, which have tended to explore associations between attachment and substance misuse in people with both high and low frequency of use.

Mediation analysis showed that the use of dysfunctional coping strategies, and the use of substances as a strategy to cope with distress sequentially mediated the relationship between anxious-attachment and problematic substance use. Higher levels of attachment anxiety were associated with greater use of dysfunctional coping strategies more generally leading to the use of substance of substances as a specific coping strategy.

Associations between insecure anxious attachments and less functional coping and more problematic substance misuse suggests that fostering secure attachments in people with severe mental health problems might promote more successful coping and reductions in

substance use related problems. This could be achieved through conceptualizing the therapeutic relationship as an attachment relationship and helping clients to try out alternative ways of relating to others; a process that is facilitated by therapists who are attuned, sensitive and responsive to the client's needs, showing empathy, acceptance and unconditional positive regard in relation to distressing thoughts and feelings. More specifically, therapists should assess clients' attachment styles and use this knowledge to develop psychological formulations about the impact of attachment difficulties on current relationships and how their attachment histories might influence their use of substances. For example, the ways in which substances might be used to regulate emotions due to a limited capacity to tolerate distress or use adaptive means of coping such as effectively seeking support from others. Such formulations would then guide therapists and clients in generating ideas about therapeutic interventions. For example, clients with more anxious attachment styles in particular may benefit from psychological interventions that help them to develop self-efficacy and consequently reduce sensitivity to rejection from others (Berry & Danquah, 2016; Danquah & Berry, 2013). Increasing resilience in this way may reduce triggers for distressing emotions and the need to use substances as a coping strategy. Psychological interventions which enhance distress tolerance and explore alternative methods of self-regulation may also help reduce problematic substance misuse in people with anxious attachment styles.

Although sequential mediation implies causality, this was a cross-sectional study and causality has not been established. The direction of the hypothesized model is plausible but would need to be confirmed in longitudinal research. Future studies should also include more comprehensive measures of attachment patterns which specifically distinguish between dismissing and fearful attachment. Future studies would also benefit from observer measures of problematic use which would overcome some of the problems inherent in assessing problems and distress in those with defensive avoidant attachment patterns.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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