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Family Maladjustment and Narcissistic Personality Traits as Predictors of Methamphetamine Use Severity: Mediating Role of Craving and Moderating Role of Social Isolation

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ABSTRACT

Methamphetamine use disorder has come to be an ever-growing public health problem because of its significant psychological, behavioral and social effects, especially in young adults. The present study focused on exploring the predictive power of family maladjustment and narcissistic personality traits on the severity of

methamphetamine use with craving as a mediator and social isolation as a moderator. The research design was quantitative and was of cross-sectional type. The subjects of the study were 200 people with methamphetamine use disorder who were selected using purposive sampling as clients of rehabilitation centers. Standardized questionnaires were administered to them, namely the Family Assessment Device (FAD), Narcissistic personality inventory (NPI-16), Brief substance craving scale (BSCS), UCLA Loneliness scale and Drug abuse screening test (DAST-10). The SPSS was used to analyze the data and the PROCESS Macro to analyze the mediation and moderation analysis. Results showed that family maladjustment ($\beta = .32, p < .001$) and narcissistic personality traits ($\beta = .25, p = .002$) were significant predictors of MUS severity, accounting for 54% of the variance ($R^2 = .54$). Craving significantly mediated the relationship between predictors and substance use severity (indirect effects: $\beta = .18$; 95% CI [.10, .27]) and social isolation significantly moderated the relationship between craving and methamphetamine use severity (interaction: $\beta = .15$; $p < .001$), with greater moderation at higher levels of social isolation. The results indicate that it is a combination of familial, personality and social factors that are involved in the severity of addiction. It accentuates, from a practical standpoint, the role of family-oriented interventions, personality-oriented therapy, craving management strategies, and strategies for social re-integration. Some limitations are cross-sectional design, self-report measures and limited generalizability. Longitudinal design and wider community samples should be used in future research. Finally, severity of methamphetamine use can be explained by a holistic psychosocial model in which all these variables family dysfunction, narcissistic traits, craving, social isolation—individually and together play a role in addiction outcomes.

Keywords: Methamphetamine use severity, family maladjustment, narcissistic personality traits, craving, social isolation

INTRODUCTION

The use of methamphetamine, because of its high addictive potential and severe psychological, behavioral and social effects, has become a very important public health problem worldwide. The effects of methamphetamine, a potent central nervous system stimulant, are immediate, as the user feels euphoric, energetic, and alert; chronic use has also been found to be associated with neurotoxicity, cognitive impairments, emotional regulation and psychotic symptoms (Glasner-Edwards & Mooney, 2014). An estimated 27 million people around the world use amphetamine-type stimulants and methamphetamine are one of the most used stimulants (United Nations Office on Drugs and Crime [UNODC], 2023). As the use of methamphetamine (MA) has risen, especially among young people, it is imperative to better understand the psychosocial mechanisms associated with high levels of MA use.

Methamphetamine (popularly referred as “ice” in Pakistan) has become a popular drug in recent years, particularly among the youth population of Pakistan. However, there have been reports of a considerable increase in stimulant use

disorders, with many of these cases also being associated with psychological disorders like depression, anxiety and suicidal ideation (Ali et al., 2021). Although there is rising concern, very little research has been done on the psychosocial determinants of severity of methamphetamine use in Pakistan. To create culturally appropriate interventions, the impacts of family environment, personality characteristics and psychological mechanisms must be understood. Substance use disorders can be best conceptualized by a multifactorial approach, meaning biological, psychological, and social factors act in a dynamic fashion (Engel, 1977). Of these factors, family maladjustment and personality are important factors determining vulnerability to substance use. Secondly, craving is a key factor in drug seeking and social isolation leads to increased drug use due to lack of social support. Hence, the aim of this study is to examine the role of family maladjustment as well as the role of narcissistic personality traits in predicting the severity of the methamphetamine use with craving as the mediator and social isolation as the moderator.

Family maladjustment is the way the family system is working like they don't communicate well, they fight, or the parents don't offer emotional support, or they are ineffective at parenting. This type of setting can hinder emotional development and make vulnerable to unhealthy coping mechanisms, including the use of drugs and alcohol (Repetti et al., 2011). People who come from dysfunctional families tend to suffer from stress and lack of emotional security and stability, and this can make them susceptible to addiction. People with narcissistic personality traits tend to be grandiose, feel entitled, need admiration and are lacking in empathy (American Psychiatric Association [APA], 2022). Current studies have identified two types of narcissism: grandiose and vulnerable, both of which can lead to emotional dysfunction and interpersonal issues (Miller et al., 2017). These traits can make people more vulnerable to substance use as they try to manage their self-image and self-esteem and deal with psychological distress. The use of methamphetamine is often associated with several impairments, and the severity of the use of the drug is determined by the amount of impairment, frequency of use, how much methamphetamine is used and its level of dependence. It includes behavioral, psychological and social effects that include compulsive drug-seeking, tolerance, withdrawal and functional impairment (Glasner-Edwards & Mooney, 2014).

Craving is the intense urge or desire to engage in using a substance and plays a major role in addiction (Tiffany & Wray, 2012). It can be caused by internal factors (such as stress, negative affect) and external factors (such as drug-related environment). Craving is an important factor in predicting relapses and degree of substance use. Social isolation is the lack of social relationships and the lack of social interaction. It is linked to greater psychological distress and unhealthy coping mechanisms, such as substance abuse (Holt-Lun's tad et al., 2015). Among people with substance use, there is a strong possibility that interpersonal issues and stigma contribute to social isolation. It is consistently found that a bad family environment is linked to a rise in the risk of drug and alcohol addiction. Family conflict, neglect and lack of support can result in emotional and behavioral dys-regulation and

unhealthy coping mechanisms (Repetti et al., 2011). Those who grow up in these types of environments are more likely to start using drugs and alcohol and to create more problematic drug and alcohol use. Family maladjustment can be a risk factor for drug abuse because it can contribute to stress and over-dependence on drugs as coping mechanisms for the user of methamphetamine. Narcissism has been associated with substance use via factors like emotional instability, impulsivity, and sensation-seeking (Miller et al., 2017). High narcissists may resort to drug abuse to feel better about themselves and/or to avoid feelings of failure. Moreover, studies suggest that narcissistic personality characteristics are related to more substance-related issues, despite controlling for frequency of drug use (Hill et al., 2018).

Craving is a key element in the association of psychological vulnerabilities with substance use behavior. People who have emotional problems because of familial problems or feelings of narcissism can end up developing strong cravings as a coping mechanism. It is when a person craves a drug that they will go to greater lengths to get it and use it more heavily (Tiffany & Wray, 2012). So craving is a mediator of the relationship between risk factors and substance use outcomes. Social isolation has an impact on the association between craving and severity of substance use. People who don't have social support will turn to drugs and alcohol to cope with cravings. On the other hand, a healthy social network can help minimize craving and substance use (Holt-Lunstad et al., 2015). Thus, social isolation is a moderating variable that enhances the effect of craving on severity of methamphetamine use.

The biopsychosocial model offers a holistic perspective to explain SUDs and incorporates biological, psychological, and social aspects (Engel, 1977). Family maladjustment is the social aspect, narcissistic traits the psychological vulnerability, craving the cognitive-affective processes and social isolation the environmental influences. CBT focuses on the importance of negative thinking and behaviors as they relate to addiction. Craving is understood as a learned response to both internal and external stimuli, which can be used to reinforce drug or other substance use behaviors (Beck et al., 2011). One theory for why people use a substance is the self-medication hypothesis, which proposes that people use substances to relieve emotional distress (Khantzian, 2013). Methamphetamine could be utilized to stop unfavorable feelings about family dysfunction and narcissistic weaknesses. According to attachment theory, the early relationship experiences with caregivers have a profound impact on emotional regulation and interpersonal functioning. Family maladjustment can result in insecure attachment and make them more susceptible to the use of drugs and substances (Schindler, 2019).

A combination of family, personality, cognitive and social factors are found to affect the severity of methamphetamine use. Family maladjustment and narcissistic personality traits are known to affect vulnerability; craving is one of the important mechanisms that link these vulnerabilities to substance use behaviors. This relationship is further compounded by social isolation, which decreases access to supportive resources. The present study seeks to fill the gap in literature by incorporating these factors into a moderated mediation model to offer a

comprehensive picture of severity of methamphetamine use and facilitate targeted interventions.

LITERATURE REVIEW

A few empirical studies have explored psychological, familial, and behavioral factors related to severity of methamphetamine use.

According to a longitudinal study conducted by Hildebrandt et al. (2024), narcissistic personality traits can be a strong predictor of substance-related problems, even when considering the actual amount of substance use. The study also found that the association between narcissism and addiction severity is mediated by impulsivity, indicating that narcissistic individuals are likely to experience a greater severity of addiction because they lack in self-regulation.

Lopez et al (2015), for their part, conducted an experimental study on methamphetamine users, and discovered that craving is an important factor in substance use behavior. They found that emotional and environmental cues are powerful triggers of craving and are important factors to predict addiction severity and relapse. Zhao et al. (2021) studied neurophysiological mechanisms of craving and found that, with the passage of time, the intensity of craving increases as brain structural changes. The effect of “incubation of craving” demonstrates the biological underpinning of the severity of addictions. Mutumba et al. (2021) investigated the psychological pathways of craving among methamphetamine users and found that the levels of stress and coping mechanisms significantly influence the level of craving. They have found that the relationship between psychological distress and substance use outcome is mediated by craving. The study conducted by Liu et al. (2024) was a randomized controlled trial that showed that craving can be effectively reduced by intervention, suggesting that craving is not only predictive, but it can also be modifiable. Craving is an important mechanism in addiction treatment that is pointed out in the study.

Seow et al. (2020) examined cue-reactivity amongst individuals who use methamphetamine and discovered that drug-related cues could have a significant impact on craving intensity, which in turn directly predicted the severity of drug use. The cognitive-behavioral underpinnings of addiction are highlighted in this study. Wang et al., (2013) examined decision making and craving in methamphetamine users, and concluded that increased craving was linked to poor decision making and increased risks of relapse. This is in line with craving being an important determinant of the severity of addiction.

Empirical studies have also been carried out in Pakistan related to psychosocial and personality aspects of substance use.

Abbas et al. (2024) carried out a mixed method study involving the methamphetamine users of the rehabilitation centers in Rawalpindi and Islamabad. Results showed that the more psychopathic and maladaptive personality characteristics people had, the more severe their drug and alcohol use patterns were, indicating that personality plays a role in addiction. Ali et al. (2021) explored drug use

behaviors of youth in Pakistan and identified family conflict, parental neglect and lack of parental supervision as important factors in predicting severity of drug use. The study highlighted the importance of family maladjustment in the development of addictions. Khan et al., (2019) examined relapse factors of drug users in drug rehabilitation centers and concluded that drug craving and inadequate social support were the most significant factors for relapse. This validates the mediating effect of craving and moderating effect of social isolation. Naeem et al. (2017) investigated psychosocial factors related to drug use and concluded that a person with dysfunctional family and social isolation were more likely to use drugs as a coping mechanism. Rasheed et al. (2018) studied the personality traits of substance users and the correlation between them and severity of drug use, and found that personality traits like impulsivity, aggression, narcissistic, etc. were significant with severe level of drug use. Shah et al. (2020) carried out a study on drug users in Pakistan and discovered that social isolation and stigma play a significant role in augmenting the gravity of drug addiction by decreasing their access to social support and augmenting psychological distress. There are several studies that have investigated the role of family functioning and substance use behaviors among adolescents, and Farooq et al. (2016) found that poorer family functioning (cohesion and communication) was correlated with substance use behaviors.

METHODOLOGY

In the present study, the research design was quantitative, cross-sectional, and followed the predictive model to see how family maladjustment and narcissistic personality traits affect the severity of methamphetamine use and how craving mediates the effect of family maladjustment and narcissistic personality traits on the severity of methamphetamine use while social isolation modifies the effect of family maladjustment and narcissistic personality traits on the severity of methamphetamine use. The participants were the people diagnosed as suffering from methamphetamine use disorder and were selected from rehabilitation centers in Pakistan by the technique of purposive sampling. Individuals who were 18-45 years of age and had a documented history of methamphetamine use disorder were recruited. Severe psychiatric conditions (e.g., schizophrenia, bipolar disorder) and/or neurological impairments and acute withdrawal treatment were exclusion criteria to guarantee reliability of responses.

Standardized and validated self-report instruments were used to collect data. Family maladjustment was measured with the Family Assessment Device (FAD) (Epstein et al., 1983), a family functioning inventory which has sub scores on a variety of dimensions. The Narcissistic Personality Inventory (NPI-16; Ames et al., 2006) was used to assess traits of narcissistic personality. The severity of methamphetamine use was determined by the Drug Abuse Screening Test (DAST-10; Skinner, 1982). The Brief Substance Craving Scale (BSCS; Sussner et al., 2006) was used to measure craving and the UCLA Loneliness Scale (Version 3; Russell, 1996) was used to assess social isolation. Data was collected in a controlled setting in rehabilitation centers with

formal permission from the institutions. The participants were told the purpose of the study and written informed consent was taken before the study. The ethical issues under confidentiality, anonymity, voluntary participation and right to withdraw of participants at any time were carefully adhered to in the research process. The data collected was analyzed with the statistical package for social sciences (SPSS) version.

Results

This chapter discusses the statistical analyses that were performed to investigate the roles of family maladjustment and narcissistic personality traits as predictive factors of the severity of methamphetamine use with craving as a mediator and social isolation as a moderator. The analysis was done by the Statistical Package for Social Sciences (SPSS-26) and PROCESS Macro (Hayes, 2018). Descriptive statistics, reliability analysis, correlation analysis, multiple regression, mediation analysis and moderation analysis are used to present the findings.

Table 1: Descriptive Statistics of Study Variables (N = 200)

Variables	M	SD
Family Maladjustment	52.34	8.21
Narcissistic Personality Traits	8.67	3.12
Craving	21.45	5.67
Social Isolation	48.22	9.10
Methamphetamine Use Severity	7.54	1.89

The descriptive statistics of the study variables are provided in Table 1 below. The level of methamphetamine use severity was found to be moderate to high in participants (M=7.54, SD=1.89), as well as craving (M=21.45, SD=5.67). There were also notable levels of family maladjustment and social isolation in participants, pointing to the existence of psychosocial problems in the group.

Table 2: Pearson Product Moment Correlation Matrix among Study Variables

Variables	1	2	3	4	5
Family Maladjustment	-				
Narcissistic Personality Traits	.42**	-			
Craving	.55**	.48**	-		
Social Isolation	.60**	.36**	.51**	-	
Methamphetamine Use Severity	.58**	.50**	.65**	.47**	-

Note. $p < .01$

Pearson correlation analysis showed that there were significant positive relationships between all variables studied. Severity of the family maladjustment was significantly positively correlated with the methamphetamine use severity ($r = .58$, $p < .01$), meaning that the more severe family maladjustment, the more severe methamphetamine use. Methamphetamine use severity ($r = .50$, $p < .01$) was also

significantly correlated with narcissistic personality traits. Craving was most highly associated with methamphetamine use severity ($r = .65, p < .01$), indicating that a higher level of craving was associated with more severe methamphetamine use. Craving and severity of substance use were positively associated with social isolation as predicted by the theory.

Table 3: Multiple Regression Analysis Predicting Methamphetamine Use Severity

Predictor Variables	B	SE	β	t	p	95% CI
Family Maladjustment	.21	.05	.32	4.20	< .001	[.11, .31]
Narcissistic Personality Traits	.18	.06	.25	3.10	.002	[.07, .29]
Craving	.35	.07	.40	5.50	< .001	[.22, .48]
Social Isolation	.12	.05	.18	2.40	.017	[.02, .22]

$R^2 = .54, F(4, 195) = 56.78, p < .001$

To assess the contribution of factors like family maladjustment, narcissistic personality disorder, craving, and social isolation in predicting the severity of methamphetamine use, multiple regression analysis was performed. It was found that there was a significant relationship between the predictors and methamphetamine use severity as determined by the F-value of 56.78 at $df(4, 195), p < .001$. This model explained 54% of the variance in methamphetamine use severity ($R^2 = .54$). It was seen that family maladjustment was a significant predictor for methamphetamine use severity ($\beta = .32, p < .001$). Narcissistic personality disorder was also a significant predictor ($\beta = .25, p = .002$). The strongest predictor of severity of methamphetamine use was craving ($\beta = .40, p < .001$) while social isolation was also a significant predictor ($\beta = .18, p = .017$).

Table 4: Mediation Analysis Showing the Indirect Effects of Craving

Pathways	B	SE	t	p
Family Maladjustment → Craving	.45	.06	7.50	< .001
Narcissistic Traits → Craving	.38	.07	5.40	< .001
Craving → Methamphetamine Use Severity	.40	.05	8.00	< .001

Bootstrapped Indirect Effects

Predictor	Indirect Effect	Boot SE	95% Boot CI
Family	.18	.04	[.10, .27]

Maladjustment			
Narcissistic Personality Traits	.15	.03	[.08, .23]

Results of the mediation analysis showed that craving was a significant mediator between family maladjustment and severity of methamphetamine use. Craving was significantly predicted by family maladjustment ($B = .45, p < .001$) and family maladjustment was significantly predicted by craving ($B = .40, p < .001$). This indirect effect was found to be significant due to the 95% bootstrapped confidence interval not containing zero: $B = .18, 95\% \text{ CI } [.10, .27]$. Analogously, craving played a major role in the association between narcissistic personality traits and severity of methamphetamine use. Narcissistic personality traits positively predicted craving ($B = .38, p < .001$) and the indirect effect was statistically significant, $B = .15, 95\% \text{ CI } [.08, .23]$. These data indicated that those who had maladaptive family environment and the narcissistic traits had higher cravings, which in turn led to a higher level of methamphetamine use of severity.

Table 5: Moderation Analysis of Social Isolation

Predictor Variables	B	SE	t	p	95% CI
Craving	.42	.06	7.00	< .001	[.30, .54]
Social Isolation	.20	.05	3.80	< .001	[.10, .30]
Craving × Social Isolation	.15	.04	3.75	< .001	[.07, .23]

$\Delta R^2 = .06, p < .01$

Moderation analysis showed that there was a significant interaction between craving and social isolation and methamphetamine use severity. The interaction between craving and social isolation was statistically significant ($B = .15, p < .001$) and the 95% CI for the interaction effect did not contain the value of zero $[.07, .23]$. This indicates that the effect of craving on methamphetamine use severity was accentuated by social isolation.

DISCUSSION

The results showed that family maladjustment was a significant predictor of the severity of methamphetamine use. This result is like previous studies showing that conflict, emotional support and poor communication in family relations are linked to drug use behaviors (Repetti et al., 2011). People from dysfunctional families will often have emotional problems and engage in unhealthy coping mechanisms such as drug use.

In the context of Pakistani culture, the importance of family is highlighted especially in view of the collectivistic nature of the society. The family is very important in terms of family cohesion, family interdependence and social obligations. Hence, the psychological consequences of disruptions in the family system might be

stronger in family systems than in individualistic societies. When family members reject, argue, or neglect us, it can cause us to feel shameful, deprived of emotion and to struggle with identity, possibly making us more susceptible to substance abuse. Furthermore, the policies of many households in Pakistan might be authoritarian and devoid of emotional expression which could worsen these problems and lead to the adoption of life-changing behaviors like drug use.

Results showed that narcissistic personality traits were a significant predictor of the level of methamphetamine use. This aligns with previous research indicating that people with narcissistic traits may use drugs and alcohol to manage their sense of worth and deal with their emotional instability (Miller et al., 2017). Narcissistic people tend to be impulsive, sensation seekers and they tend to avoid negative feelings, all of which are risk factors for drug use.

Narcissus personality traits might be evident in different forms in Pakistan because of cultural differences. Although this kind of behavior might not be as socially acceptable as it is when it's done in a more obvious manner, covert narcissism, which involves an over-sensitivity to criticism, insecurity, and a need for validation, may be more common. Such characteristics can be exacerbated by social pressures, comparison and societal expectations and may result in people seeking ways to improve their self-confidence, to escape from reality or to try to deal with feelings of not being good enough, which sometimes involves using drugs and alcohol such as methamphetamine. Craving was a significant mediator for both family maladjustment and narcissistic traits and methamphetamine use severity. This is consistent with the cognitive-behavioral approach to addiction, in which craving is a key process between thoughts and behaviors related to drug and alcohol use (Tiffany & Wray, 2012). People with family dysfunctions or with poor personality characteristics may be more susceptible to emotional distress which may manifest as craving as a coping mechanism. People may try to hide any feelings of distress in the Pakistani context, which is especially more so with men, thus, increasing internal tensions and cravings. This use of methamphetamine can then become a negative way to deal with emotions.

The current study results have significant implications for clinical practice, rehabilitation service and mental health policy especially in Pakistan. Family-based interventions are important and should be integrated into treatment programs for MUD because of the marked importance of family maladjustment. Enhancing family communication and emotional support, as well as working on lessening dysfunctional interaction patterns, can help lessen the risk of relapses and boost the effectiveness of treatment. Highlights the need for personality-based therapeutic strategies, like cognitive behavioral therapy and schema-focused interventions, to assist in fostering healthier self-regulation, decrease impulsivity, and handle emotional vulnerabilities in individuals. Craving seems to be a factor which mediates its relationship with drug use, suggesting that craving management techniques such as cue-exposure strategies, cognitive restructuring, and mindfulness-based relapse prevention should be used in rehabilitation programs to decrease the strength of drug urges. Moreover, social isolation was highlighted as a moderating variable, highlighting the importance of

social reintegration and stigma reduction. Rehabilitation centers should encourage peer support programs, community reintegration and psychoeducation programs, to minimize isolation and increase social relatedness, with the goal of decreasing the severity of methamphetamine use.

Limitations and Suggestions

This study possessed several limitations which should be taken into consideration when interpreting the results obtained. A cross-sectional design could not be used to infer causal relationships between variables, and the measures used were self-report which could have resulted in response bias and social desirability effects. Further, the study was conducted in rehabilitation centers of Pakistan, and the results are not generalizable to general population. Future studies should be longitudinal in design with larger non-clinical samples that are more diverse to increase generalizability. Other factors to be investigated include trauma, stigma, coping strategies and emotional regulation. Furthermore, future studies should develop and test culturally sensitive intervention programs on family functioning, craving management and social support for the future.

CONCLUSION

Finally, the current study reveals the significance of the complex interplay of family, personality, psychological and social factors on severity of methamphetamine consumption. Family maladjustment and narcissistic personality traits are important factors in explaining the severity of addiction and craving is a major mechanism by which this occurs. This relationship is further intensified by social isolation more so in the context of Pakistan where stigma and family dynamics are a major factor. The results indicate the importance of holistic, culturally appropriate approaches that consider individual psychological factors as well as family dynamics and social contexts. These many levels provide an opportunity to formulate better prevention and treatment strategies to fight the problem of methamphetamine use disorder in Pakistan.

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