Original Article

Family-Based Contributors in Relapse and Relapse Prevention Among Patients with Substance Use Disorder: An Exploration of Risk and Prognostic Factors

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Abstract

Background: Substance use disorder (SUD) remains a significant public health issue, with a high relapse rate even after detoxification treatment. Family dysfunction has been identified as a closely related factor contributing to relapse in individuals with SUD. The objective of this study was to investigate the mediating role of family climate in the relapse tendency among patients with SUD.

Methods: The study employed a case-control design using the survey method. A total of 103 patients from the addiction unit daycare at Mansoura University Hospital were divided into 2 groups: the relapsed group and the abstinent group. The Relapse Tendency Questionnaire, the Family Climate Scale, and a structured interview were administered to collect sociodemographic data.

Findings: The results revealed significant differences between the study groups in terms of sociodemographic risk factors, including marital status ($P \leq 0.001$), employment ($P = 0.043$), and economic status ($P = 0.028$). Additionally, a significant difference was observed between the study groups in terms of the Family Climate Scale ($P = 0.038$). Female participants reported that familial factors had a greater influence on their relapse compared to male participants ($P = 0.005$).

Conclusion: A statistically significant difference was found in the family climate subscale scores between the relapsed patients and the abstinent patients with SUD, confirming the influential role of family climate in the relapse process of SUD.

Keywords: Relapse, Substance use disorder, Family climate, Case-control study

Introduction

Substance use disorder (SUD) is a chronic and debilitating condition that is influenced by various biological, psychological, and social factors. The issue of relapse in SUD is a recurring event and a significant concern in its management. Adolescents are particularly affected by SUD, and it imposes substantial burdens on them during their productive years.[1] Research indicates that SUD is not a personal flaw but rather a persistent brain condition characterized by maladaptive drug-seeking behavior that significantly impairs functioning.[2]

SUD is influenced by 3 main layers of factors: individual, familial, and environmental. Common risk factors for substance use include sensitivity to reward,[3] traumatic childhood experiences such as child abuse,[4] adverse childhood experiences, externalizing behaviors, and related disorders,[5] destructive and aggressive behaviors,[6] poverty,[7] easy access to drugs in the local neighborhood, and peer pressure.[8]

Family and familial factors have a significant influence on development and play a crucial role in reducing risk factors and protecting against environmental stressors.[9] Research suggests that family-centered therapies offer several advantages in addressing these factors.[10]

Through mitigating risk factors and promoting protective or resilience factors, families can effectively prevent adolescent substance use.[11] Parenting styles characterized by authority,[12] secure parent-child attachment,[13] and parental supervision[14] have been associated with lower rates of substance use among young individuals. Furthermore, parental substance use has been identified as one of the primary risk factors for adolescent substance use.[15]

While preventive programs focusing on the family

environment, such as strengthening family programs, preparing for drug-free years, and problem-solving education, have been implemented, the underlying family factors that increase the risk of substance use remain incompletely investigated.[16] Existing research articles have primarily focused on parental substance use[17] and childhood traumatic experiences.[18] The current study aims to shed light on family dynamics in SUD and explore the associated risk factors for relapse. Additionally, the study aims to compare the contributing familial factors in SUD between abstinent and relapsed patients.

Methods

Study population and design

The present study was conducted at the outpatient addiction clinic of the Psychiatry Department affiliated with Mansoura University, Egypt. Approval to conduct the study was obtained from the institutional ethics committee. The study employed a case-control design. Data collection, using convenient sampling, took place from February to May 2023 utilizing the survey method. For illiterate participants, the interview method was employed. A total of 103 patients diagnosed with SUD participated in the study. The diagnosis of all patients was made using the Structured Clinical Interview (SCID-I) for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Written informed consent was obtained from all study participants. The participants were divided into 2 groups: 1. the relapsed group (patients who returned to previous levels of substance use) and 2. the abstinent group (patients who had remained abstinent for at least 6 months based on the results of the urine screening test). Patient privacy was ensured for all identifying details provided by the study participants. The relapsed group comprised 53 participants, while the abstinent group consisted of 50 participants enrolled in the study.

Study measures

The survey consisted of 3 sections: 1. socio-demographic details, 2. a questionnaire about factors correlated with relapse among substance abusers,[19] and 3. the family climate.[20]

Questionnaire about factors correlated with relapse among substance abusers

This standardized tool consists of 8 dimensions and 100 questions designed to measure relapse.[19] The dimensions include the following:

1. Desire and real estate hints (15 items)
2. Ability to control the abuse (9 items)
3. Pressure from coworkers (7 items)
4. Good feelings (18 items)
5. Unpleasant feelings (18 items)
6. Disruption of relationships with others (15 items)

7. Family problems (5 items)
8. Mental, physical, and debilitating pains (13 items)

For each item, a score of 2 was assigned if it was relevant and a score of 1 if it was not relevant. The total score ranged from 1 to 100, indicating that factors related to relapse were not applicable. A score ranging from 101 to 200 indicated the applicability of factors related to relapse. The Relapse Tendency Questionnaire was administered exclusively to the relapsed group.

The Family Climate Scale

The Family Climate Scale was developed by Kafafi in 2002 and was subsequently published in 2010 after being used in the Egyptian context. This scale consists of 85 items and is divided into 4 subscales: dehumanization (dealing with a person as an object), affected love (conditioned and unreal love), merged families (overinvolvement that impairs individual independence), and aberrant emotional climate (contradictory and insecure). The scale has been evaluated for its psychometric qualities, demonstrating high validity and reliability with a Cronbach's alpha coefficient of .89.[20]

The collected data were analyzed using SPSS version 24. Descriptive statistics were employed to analyze the sociodemographic factors. The chi-square test, the Monte Carlo test, and ANOVA were used to evaluate differences between the 2 study groups. Additionally, correlation analysis was conducted to explore associations.

Results

A total of 103 patients participated in this study. Among them, 51.5% (n = 53) were males, and 48.5% (n = 50) were females. The normality of the data was assessed using the 1-sample Kolmogorov-Smirnov test.

The results from Table 1 provide an analysis of the sociodemographic factors of the participants. The findings indicate that there is no significant difference between patients who had relapsed and those who were abstinent in terms of age, gender, marital status, education, occupation, economic status, or legal history. However, a significant difference was observed regarding participants' hospital admission. The abstinent patients reported a higher number of admissions (90%) compared to those who had relapsed (49.1%).

As shown in Table 2, there is a significant difference in the scores on the Family Climate Scale between the 2 study groups. The influence of the family environment was found to be lower for relapsed patients compared to abstinent patients. Specifically, the familial factors that influenced the health-related behavior of patients included dehumanization (treating a person as an object) and affected love (unreal conditional love). This difference is also illustrated in Figure 1.

Table 3 highlights significant gender differences in the scores on the Family Climate Scale among relapsed

Table 1. Sociodemographic details of study participants

Patient characteristics	Patient group (n=53)	Control group (n=50)	Test of significance	*P* value
Age (y), Mean±SD	29.92±7.51 (17-50)	29.68±8.82 (17-50)	t=0.163	0.870
Gender, No. (%)				
Male	29 (54.7)	24 (48)	χ²=0.465	0.495
Female	24 (45.3)	26 (52)		
Marital status, No. (%)				
Single	26 (49.1)	25 (50.0)	χ²=0.243	0.886
Married	22 (41.5)	19 (38.0)		
Divorced	5 (9.4)	6 (12.0)		
Education, No. (%)				
Illiterate	11 (20.8)	13 (26.0)		
Primary, preparatory	12 (22.6)	3 (6.0)	MC	0.09
Secondary	6 (11.3)	10 (20.0)		
Diploma	19 (35.8)	22 (44.0)		
University	5 (9.4)	2 (4.0)		
Occupation, No. (%)				
Non-worker	9 (17.0)	15 (30.0)	χ²=6.18	0.045
Manual worker	31 (58.5)	31 (62.0)		
Employee	13 (24.5)	4 (8.0)		
Economic status, No. (%)				
Very satisfied	5 (9.4)	2 (4.0)		
Satisfied	9 (17.0)	8 (16.0)	MC	0.681
Average	26 (49.1)	24 (48.0)		
In debts	13 (24.5)	16 (32.0)		
Previous admission, No. (%)				
None	27 (50.9)	5 (10.0)	χ²=21.13	≤0.001*
Once	16 (30.2)	33 (66.0)		
More than once	10 (18.9)	12 (24.0)		
Legal problem, No. (%)				
Yes	15 (28.3)	15 (30.0)	χ²=0.036	0.85
No	38 (71.7)	38 (70.0)		
Substance abuse, No. (%)				
Heroin	43 (81.1)	38 (76.0)	χ²=0.403	0.525
More than sub, including heroin	10 (18.9)	12 (24.0)		

t: independent t test, χ2: Chi-square test, MC: Monte Carlo test, *Significant $P \leq 0.05$.

Table 2. Family climate and Relapse scores of study participants

Items	Patient group (n=53)	Control group (n=50)	Test of significance	*P* value
Family climate	33.35±11.89	38.48±12.76	t=2.11	0.038*
Dehumanizing	10.83±3.57	13.42±3.73	t=3.59	0.001*
Affected love	8.54±4.71	10.84±10.84	t=2.52	0.013*
Merged family	9.21±3.37	9.42±4.13	t=0.287	0.775
Abnormal affective climate	4.77±1.74	4.48±1.56	t=0.237	0.813

*Significant $P \leq 0.05$.

Table 3. Comparison between males and females among relapse patients

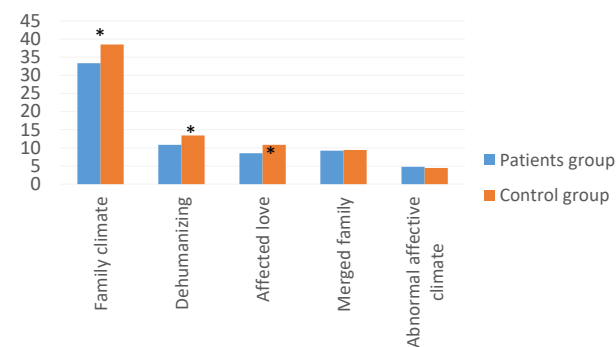| Items	Male group (n=29)	Female group (n=24)	Test of significance	*P* value
Family climate	29.31±11.82	38.25±10.19	t=2.91	0.005*
Dehumanizing	9.48±3.79	12.45±2.51	t=3.28	0.002*
Affected love	7.00±2.68	10.41±5.90	t=2.79	0.007*
Merged family	8.27±3.44	10.33±2.98	t=2.29	0.026
Abnormal affective climate	4.24±4.57	5.41±4.75	t=0.915	0.365
Relapse	67.34±25.03	77.83±17.19	t=1.74	0.088

*Significant $P \leq 0.05$.

Figure 1. Family climate among the studied groups

patients. Female participants reported a greater impact of familial factors on their relapse compared to male participants. Specifically, among females, the familial factors of dehumanization, affected love, and merged families had a greater influence on relapse behavior.

Table 4 presents significant sociodemographic risk factors that contribute to relapse behaviors in patients. These factors include being single or divorced, unemployed, or experiencing economic constraints.

As shown in Table 5, a negative correlation was found between relapse and family climate. This negative association is also depicted in Figure 2. Furthermore, significant negative correlations were observed between relapse behaviors and 2 subscales of the Family Climate Scale: merged family and affective climate.

Logistic regression analysis was conducted to examine the predictors of relapse behavior, as presented in Table 6. The results indicate that dehumanization, which involves the impersonal treatment of individuals ($P = 0.003$), was a significant predictor of relapse behavior among patients.

Table 4. Association between total relapse score and sociodemographic characteristics

Patient characteristics	Total relapse score	P value
Age (y)		
<30 y	77.70±14.75	t=1.92
≥30 y	66.26±27.12	P=0.061
Marital status		
Single/Divorced	79.96±15.98	t=3.79
Married	58.73±24.76	P≤0.001*
Education		
Illiterate	81.45±18.28	
Primary, preparatory	71.91±18.88	F=1.14
Secondary	61.50±22.07	P=0.349
Diploma	68.11±26.84	
University	79.80±14.82	
Occupation		
Non-worker	88.11±10.63[ab]	F=3.36
Manual worker	67.84±26.02[a]	P=0.043*
Employee	67.31±12.91[b]	
Economic status		
Very satisfied	62.92±25.81[ab]	
Satisfied	73.11±15.49	F=3.28
Average	78.84±15.32[b]	P=0.028*
In debts	90.40±11.50[a]	
Previous admission		
None	71.63±23.61	F=0.129
Once	70.87±24.00	P=0.879
More than once	75.30±16.70	
Legal problem		
Yes	71.26±26.60	t=0.168
No	72.42±20.71	P=0.867
Substance abuse		
Heroin	73.67±20.25	t=1.07
More than sub, including heroin	65.30±29.79	P=0.288

t: independent t test, F: ANOVA test, *Significant P≤0.05,
Note: Similar letters indicate significant difference between groups by post hoc LSD test.

Table 5. Correlation between relapse and family climate subscales

Items	Relapse score	
	r	P value
Family climate	-0.421	0.002*
Dehumanizing	-0.114	0.415
Affected love	-0.186	0.183
Merged family	-0.342	0.012*
Abnormal affective climate	-0.399	0.003*

*Significant.

Table 6. Logistic regression analysis for independent predictors of relapse

	β	P value	OR	95% CI
Previous admission				
None	1.869	0.004*	6.48	1.818-23.09
Once	-0.542	0.303	0.58	0.208-1.63
More than once	(r)	-	1.0	-
Family climate	0.057	0.100	1.06	0.989-1.132
Dehumanizing	-0.260	0.003*	0.771	0.648-0.918
Affected love	-0.143	0.046	0.867	0.753-0.998
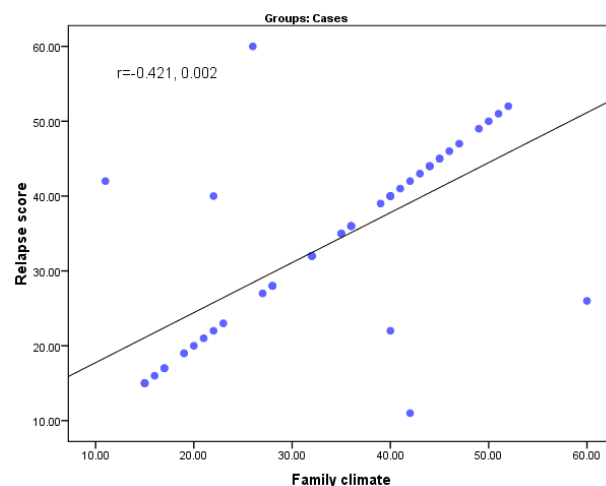
Figure 2. Scatter diagram for a negative correlation between relapse score and family climate

Discussion

This study aimed to investigate the role of the family environment in substance relapse among a group of patients with SUD who had experienced relapse by comparing their Family Climate Scale scores with those of a group of abstinent patients who had maintained at least 6 months of recovery. The results revealed a statistically significant difference between the 2 groups. These findings are consistent with another case-control study that included 30 relapsed SUD patients and 30 abstinent controls.[21] Furthermore, this study identified a statistically significant difference in the Family Climate Scale scores between the case and control groups.

The current study found that relapse was associated with unemployment, being single, and having a lower socioeconomic status. These findings partially align with another study, which concluded that relapse was more prevalent among substance abusers under the age of 30, those with lower socioeconomic status and educational attainment, those who were unemployed, and those with criminal histories and family histories of substance abuse.[22] Additionally, inadequate familial and social support, an early age of onset of substance misuse, and insufficient follow-up after detoxification were also associated with relapse.

The findings of the present research indicate that various

adverse family experiences act as risk factors, increasing the likelihood of relapse. Specifically, dehumanization and affected love were found to be correlated with relapse. These results partially align with previous research, which reported a statistically significant correlation between all subscales of the Family Climate Scale (dehumanization, affected love, merged family, and abnormal affective climate) and relapse in adolescent patients with SUD.[20]

The findings of the current study support previous evidence that disrupted family relationships are among the most significant high-risk situations that trigger relapse in individuals with SUD. This is consistent with the results of other studies that highlight the relationship between the family environment and relapse in individuals with SUD.[23-25]

A positive home environment and strong emotional relationships within the family are vital factors in preventing relapse.[26] These findings align with the results of our study. The influence of peers becomes more significant in the presence of family conflicts, which may increase the likelihood of relapse. The availability of social support, primarily provided by the family, can play a role in individuals becoming resilient to sociopsychological issues and SUD.[27]

Overall, these findings emphasize the importance of involving families in therapeutic and preventive programs, both within rehabilitation facilities and in the community.

The most intriguing finding of this study was the stronger correlation between the family climate score and relapse in female patients compared to male patients. This finding confirmed the gender difference in SUD and supported the idea that family discord is associated with a higher incidence of substance use relapse in women.[28] Additionally, it was found that the association between family conflict and SUD in adolescence varied by gender.[29]

In this study, the analysis of articles focused on the family implications for women with addiction-related problems and categorized the available evidence into 3 main categories: processes related to family disturbances, factors related to parenting styles, and variables related to partners.[30] The investigation in our study specifically focused on processes related to family disturbances. Four systematic processes were identified that could contribute to the initiation or relapse of SUD, including isolation, inhumane treatment, inconsistent treatment, and indoctrination.[31] Empirical research has linked family dysfunction to maladaptive emotion regulation strategies and behaviors, some of which are associated with SUD. For instance, family conflict and parental rejection are reported variables in dysfunctional families that have been correlated with SUD.[32] These findings further support our hypothesis that family processes, rather than family circumstances, are linked to relapse.

Conclusion

A statistically significant difference was observed in the family climate subscale scores between the relapsed patients with SUD and the recovered patients. This finding highlights the role of family climate in the relapse process of SUD. Additionally, a significant gender difference was observed in the effect of these risk factors, with a greater impact on females compared to males. Therefore, it is crucial to assess and address the contributing familial factors appropriately during the treatment of SUD.

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