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Frequency of Relapse Rate after Treatment of Patients Addicted with Drugs Abuse (Opioids)

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ABSTRACT

Objectives: frequency of relapse rate after treatment of patients addicted with drugs abuse (Opioids). **Methodology:** This descriptive study at CMH Lahore included 60 patients aged 18–60 years with a history of opioid addiction. Data on demographics, addiction history, and relapse, defined as re-use of opioids after detoxification and three months of treatment, were collected using a structured proforma. Patients were followed for three months post-treatment to record relapse occurrences and associated factors. **Results:** Of 60 patients revealed a relapse rate of 53.3% following opioid detoxification. Relapse was highest among males (56.1%), individuals with primary education (73.3%), and heroin users (58.8%). Age, socioeconomic status, living conditions, and duration of drug use showed no statistically significant associations with relapse. Prior detoxification also did not significantly impact relapse rates. **Conclusion:** Relapse in opioid addiction is multifactorial, necessitating holistic, individualized approaches to improve outcomes and reduce societal burden, considering demographic and clinical complexities for effective prevention and treatment strategies.

INTRODUCTION

The use of drugs affects several brain circuits, including those related to reward, motivation, memory, and inhibitory control, resulting in addiction as a neurological disorder. The probability of addiction differs across people due to variables such as genetic composition, age at which drug exposure occurs, and environmental impacts. A person may initially want to take drugs; but, extended exposure adversely affects brain function and may result in compulsive drug-seeking behaviour and consumption. Drug therapy is essential for assisting people in overcoming addiction, including various venues, modalities, and durations. Addiction is a chronic condition characterised by intermittent relapses, rendering a singular, short-term intervention often insufficient. Evidence-based methodologies for addressing addiction may include behavioural therapy, pharmacotherapy, or a hybrid of both, contingent upon the patient's requirements and the specific substances involved.

Individual addicted to drugs may think about "cold turkey," a technique that entails abruptly quitting drug usage and suffering through withdrawal symptoms, when they want to cut down or stop entirely. Despite the allure, using this method on your own usually leads to relapse or other problems. Particularly for those with preexisting medical issues, the unpleasant and sometimes hazardous withdrawal symptoms may be a real challenge. The rapid resumption of drug usage to treat symptoms increases the probability of recurrence. This is the point at which most people stop going cold turkey. While it makes sense in principle, it's difficult to put into reality and have long-term success with actual alcoholics or drug addicts. The DSM-5 defines substance use disorder (SUD) as a pattern of dysfunctional drug use that causes substantial impairment or distress in a therapeutic setting.[1-2]

The course of events in substance use disorders is frequently impacted by external variables including drug

availability and cultural influences, and it often follows an episodic pattern of periods of abstinence, reduced use, and relapse.[3-4] Furthermore, relapse to SUD is linked to a number of variables. There are a number of controllable elements, including personal characteristics, socio-demographic factors, mental health issues, physical health issues, and cultural influences.[5-7]

Relapse risk factors include, but are not limited to, the following: gender, unemployment, single status, peer group influence, family history of substance use, family conflict and poor support, and environmental factors such as drug availability and accessibility.[8-14] Illnesses, physical dependency, withdrawal symptoms, and an overall bad physical condition are among physical variables that might raise the chance of recurrence.[15-16] Nearly 6% of Pakistanis reported using a substance other than alcohol or tobacco in the last year, according to the country's annual drug usage survey for 2023–24.[17]

When a person's efforts to alter their drug use habits fail, whether it's due to returning to their drinking levels before treatment or continuing to use substances after a time of abstinence, this is called a relapse.[18] Opioid detoxification was associated with a 70% relapse rate and a 30% non-relapse rate, according to a prior local research[19] in contrast to a more recent research that found similar results in 47.6% of instances.[20]

The premise of the research is that there is a lack of consistency in the current data about relapse rates after opiate detoxification. In order to improve treatment methods, our knowledge of relapse dynamics, and the results for people going through opioid detox in Pakistan, it is crucial to do another research on this subject.

MATERIALS AND METHODS

This descriptive study was conducted at the Department of Psychiatry, Combined Military Hospital (CMH), Lahore, over a duration of six months from 13 July 2024 to 12 January 2025, after approval from the Ethical and Research Committee of CMH Lahore and the College of Physicians and Surgeons Pakistan. The sample size was calculated to include 60 patients, using a 95% confidence interval, a 13% margin of error, and an anticipated relapse rate of 47.6% in patients following opioid detoxification. A purposive and random sampling technique was employed to recruit participants.

Patients aged 18 to 60 years of either gender, with a documented history of substance abuse, were included in the study. Individuals in a chronic state of illness or with a history of psychiatric illness or co-morbid medical conditions were excluded. Relevant demographic and socio-demographic characteristics were collected, including age, gender, education level, marital status, living conditions (e.g., residing in their own home with family, without shelter, or on the streets), income levels, and sources of income. The duration and type of drug addiction were also recorded.

For the purpose of this study, operational definitions were utilized. Substance abuse was defined as the use of drugs in quantities harmful to the individual, while detoxification referred to a therapeutic intervention designed to alleviate withdrawal symptoms and address acute drug overdose. Relapse was defined as the re-use of opioids after a history of detoxification and at least three months of treatment. All participants were followed for three months post-treatment, and any relapse during this period was noted.

Data were collected using a structured proforma designed for the study. The detailed history of prior treatments for opioid addiction and instances of relapse were documented comprehensively. Statistical analysis was performed using SPSS version 23 (IBM). Descriptive statistics, including frequencies and percentages, were used to summarize categorical variables such as gender, education level, marital status, occupational status, and relapse. For continuous variables like age and duration of opioid detoxification, the mean and standard deviation were calculated. To assess associations, the chi-square test was applied after stratifying the data by variables such as age, gender, education level, marital status, occupational status, duration of drug use, and type of opioid. A p-value of <0.05 was considered statistically significant.

RESULTS

The demographic and clinical characteristics of the study participants are summarized in Table 1.

Table 1

Demographics and Clinical Characteristics

Variable	Category	Frequency	Percent
Age	18-40	34	56.7%
	41-60	26	43.3%
Gender	Male	41	68.3%
	Female	19	31.7%
Marital Status	Single	18	30.0%
	Married	19	31.7%
	Others	23	38.3%
Education Level	Primary	15	25.0%
	Secondary	22	36.7%
	Higher	23	38.3%
Socioeconomic Status	Low	29	48.3%
	Middle	17	28.3%
	High	14	23.3%
Living Conditions	Urban	28	46.7%
	Rural	32	53.3%
Duration of Drug Use (Years)	1-5	36	60.0%
	>5	24	40.0%
Type of Drug	Cannabis	10	16.7%
	Cocaine	5	8.3%
	Heroin	17	28.3%
	Methamphetamine	10	16.7%
	Others	18	30.0%
Previous Detoxification	Yes	37	61.7%
	No	23	38.3%

A total of 60 patients were included in the study. Regarding age distribution, the majority (56.7%) of participants were aged between 18 and 40 years, while 43.3% were in the 41 to 60 years age group. In terms of gender, males predominated, comprising 68.3% of the participants, whereas females accounted for 31.7%. Marital status varied among the participants: 30.0% were single, 31.7% were married, and 38.3% fell into the "others" category. When considering educational levels, a significant proportion had higher education (38.3%), followed by secondary education (36.7%), and primary education (25.0%). The socioeconomic status of the participants revealed that nearly half (48.3%) were from a low socioeconomic background, 28.3% were classified as middle class, and 23.3% belonged to a high socioeconomic category. Living conditions were nearly evenly distributed, with 46.7% living in urban areas and 53.3% residing in rural settings. The duration of drug use among participants showed that 60.0% had used drugs for 1 to 5 years, while the remaining 40.0% reported drug use for more than five years. Analysis of the type of drug used indicated that heroin was the most common (28.3%), followed by other substances (30.0%), cannabis and methamphetamine (16.7% each), and cocaine (8.3%). Regarding previous detoxification efforts, 61.7% of participants reported undergoing detoxification at least once, while 38.3% had no prior detoxification history. The relapse rate among participants was substantial, with 53.3% experiencing relapse after treatment and 46.7% remaining relapse-free.

Frequency of Relapse Rate after Treatment of Patients Addicted to Drug Abuse (Opioids) are presented in Table 2

Table 2

Frequency of relapse rate after treatment of patients addicted with drugs abuse (Opioids)

Variable	Category	Relapse		Total (Count, %)	Asymp. Sig. (2-sided) p-value
		(Yes) (Count, %)	(No) (Count, %)		
Age	18-40	18 (52.9%)	16 (47.1%)	34 (100%)	0.944
	41-60	14 (53.8%)	12 (46.2%)	26 (100%)	
Gender	Male	23 (56.1%)	18 (43.9%)	41 (100%)	0.528
	Female	9 (47.4%)	10 (52.6%)	19 (100%)	
Marital Status	Single	10 (55.6%)	8 (44.4%)	18 (100%)	0.974
	Married	10 (52.6%)	9 (47.4%)	19 (100%)	
	Others/divorced	12 (52.2%)	11 (47.8%)	23 (100%)	
Education Level	Primary	11 (73.3%)	4 (26.7%)	15 (100%)	0.198
	Secondary	10 (45.5%)	12 (54.5%)	22 (100%)	
	Higher	11 (47.8%)	12 (52.2%)	23 (100%)	
Socioeconomic Status	Low	17 (58.6%)	12 (41.4%)	29 (100%)	0.624
	Middle	9 (52.9%)	8 (47.1%)	17 (100%)	
	High	6 (42.9%)	8 (57.1%)	14 (100%)	
Living Conditions	Urban	14 (50.0%)	14 (50.0%)	28 (100%)	0.628
	Rural	18 (56.3%)	14 (43.8%)	32 (100%)	
Duration of Drug Use (Years)	1-5	17 (47.2%)	19 (52.8%)	36 (100%)	0.245
	>5	15 (62.5%)	9 (37.5%)	24 (100%)	
Type of Drug	Cannabis	5 (50.0%)	5 (50.0%)	10 (100%)	0.953
	Cocaine	2 (40.0%)	3 (60.0%)	5 (100%)	
	Heroin	10 (58.8%)	7 (41.2%)	17 (100%)	
	Methamphetamine	5 (50.0%)	5 (50.0%)	10 (100%)	
	Others	10 (55.6%)	8 (44.4%)	18 (100%)	
Previous Detoxification	Yes	19 (51.4%)	18 (48.6%)	37 (100%)	0.696
	No	13 (56.5%)	10 (43.5%)	23 (100%)	

The age distribution of patients revealed that the majority were aged between 18 and 40 years, with 52.9% (18 out of 34) experiencing relapse, compared to 47.1% (16 out of 34) who did not relapse. Similarly, for the age group 41 to 60 years, 53.8% (14 out of 26) relapsed, while 46.2% (12 out of 26) did not. There was no statistically significant association between age and relapse, as the p-value was .944.

In terms of gender, males exhibited a slightly higher relapse rate, with 56.1% (23 out of 41) relapsing and 43.9% (18 out of 41) not relapsing. Conversely, among females, 47.4% (9 out of 19) relapsed, while 52.6% (10 out of 19) did not. This difference between male and female relapse rates was not statistically significant (p = .528).

Relapse rates were similar across marital status categories. Among single participants, 55.6% (10 out of 18) relapsed, compared to 44.4% (8 out of 18) who did not. Married individuals showed a relapse rate of 52.6% (10 out of 19), with 47.4% (9 out of 19) not relapsing. Those categorized as "others" had a relapse rate of 52.2% (12 out of 23), while 47.8% (11 out of 23) did not relapse. The association between marital status and relapse was not statistically significant (p = .974).

Relapse rates varied noticeably across different education levels. Participants with a primary education exhibited the highest relapse rate of 73.3% (11 out of 15),

compared to 26.7% (4 out of 15) who did not relapse. Those with secondary education had a relapse rate of 45.5% (10 out of 22), with 54.5% (12 out of 22) not relapsing. Among participants with higher education, 47.8% (11 out of 23) relapsed, while 52.2% (12 out of 23) did not. However, the p-value of .198 indicates that these differences were not statistically significant.

Regarding socioeconomic status, participants from low socioeconomic backgrounds had the highest relapse rate of 58.6% (17 out of 29), with 41.4% (12 out of 29) not relapsing. Among those in the middle socioeconomic category, 52.9% (9 out of 17) relapsed, while 47.1% (8 out of 17) did not. Participants from high socioeconomic backgrounds showed the lowest relapse rate of 42.9% (6 out of 14), with 57.1% (8 out of 14) not relapsing. These differences were not statistically significant (p = .624).

Living conditions showed minimal impact on relapse rates. Among participants residing in urban areas, 50.0% (14 out of 28) relapsed, with the same percentage not relapsing. In rural areas, 56.3% (18 out of 32) relapsed, while 43.8% (14 out of 32) did not. The association between living conditions and relapse was not statistically significant (p = .628).

The duration of drug use appeared to influence relapse rates. Participants with 1–5 years of drug use had a relapse rate of 47.2% (17 out of 36), with 52.8% (19 out of 36) not relapsing. For those with more than 5 years of drug use, the relapse rate was higher at 62.5% (15 out of 24), compared to 37.5% (9 out of 24) who did not relapse. However, this difference was not statistically significant (p = .245).

Relapse rates varied across different types of drugs. Among cannabis users, 50.0% (5 out of 10) relapsed, with the same percentage not relapsing. Cocaine users had the lowest relapse rate at 40.0% (2 out of 5), while 60.0% (3 out of 5) did not relapse. Heroin users showed the highest relapse rate of 58.8% (10 out of 17), with 41.2% (7 out of 17) not relapsing. Methamphetamine users had a 50.0% relapse rate (5 out of 10), with the remaining 50.0% not relapsing. Among those categorized as "others," 55.6% (10 out of 18) relapsed, while 44.4% (8 out of 18) did not. These differences were not statistically significant (p = .953).

Participants with a history of detoxification had a relapse rate of 51.4% (19 out of 37), while 48.6% (18 out of 37) did not relapse. Among those with no prior detoxification, 56.5% (13 out of 23) relapsed, compared to 43.5% (10 out of 23) who did not. The association between previous detoxification and relapse was not statistically significant (p = .696).

DISCUSSION

This study investigated the frequency and risk factors associated with relapse among patients treated for opioid addiction. The findings reveal a substantial relapse rate of 53.3% among participants, highlighting the challenges in sustaining abstinence following treatment. Relapse rates were evaluated across several demographic and clinical variables, offering insights into potential risk factors and areas for intervention.

Relapse was consistently observed across different demographic groups. Age did not significantly influence relapse rates, with similar percentages in the 18–40 and 41–60 age groups (p = .944). This finding contrasts with studies such as Gul B's,[19] where 76% of patients undergoing opioid detoxification were below 40 years, and the relapse rate was reported as 70%. Gender differences were also minimal in this study, with slightly higher relapse rates among males (56.1%) compared to females (47.4%) (p = .528). Similar trends were observed in studies like Maehira Y, et al., where males had higher relapse rates (72%) than females (54.5%).[21]

Relapse rates in this study were similar across marital status categories. However, studies such as those by Lara GL, et al[22] and Maehira Y, et al[21] indicated higher relapse rates among divorced individuals. For example, Lara GL, et al., found that 27% of divorced individuals relapsed, while the current study observed a comparable relapse rate of 52.6% among married participants and 52.2% among those in the "others/divorced" category.

Educational level was another variable explored. Participants with primary education in this study exhibited the highest relapse rate (73.3%), which aligns with findings by Maehira Y, et al., where low education levels were associated with higher relapse rates (74.7%).[21] These findings emphasize the importance of educational interventions in reducing relapse risks.

The duration and type of drug use significantly influence relapse risks. In this study, longer drug use histories (>5 years) were associated with higher relapse rates (62.5%), consistent with previous findings that prolonged addiction exacerbates dependency and relapse.[22,23] Heroin use was the most common drug type associated with relapse in this study (58.8%), comparable to studies like Gul B's,[19] where heroin addiction was prevalent among relapsed patients (83.6%).[24]

Living conditions and socioeconomic status played a crucial role in relapse. This study found that participants from rural areas and low socioeconomic backgrounds had higher relapse rates. Evidence from Bangladesh and other regional studies indicates that individuals living alone or without shelter are at significantly higher risk of relapse.[22,25] For instance, the study by Lara GL, et al., reported that relapse rates were common among those living alone (52%) and those without shelter (33%).[22]

Treatment modalities greatly influence relapse outcomes. The findings align with previous studies indicating that detoxification alone is insufficient for

long-term abstinence. For instance, in a study by Passetti F, et al., relapse rates were significantly reduced when using depo-naltrexone therapy compared to oral naltrexone (28% vs. 53%).[26] Similarly, Salimi A, et al[27] demonstrated the efficacy of ultra-rapid opioid detoxification (UROD) combined with naltrexone therapy, with relapse rates as low as 14% in the first month and 24% beyond the sixth month.[27]

The timing of relapse is critical for intervention planning. Studies such as those by Smyth BP, et al., found that relapse most commonly occurs within the first week of detoxification (59%).[28] Similarly, in this study, a significant proportion of relapses were observed within the first month. These findings align with trends reported in Gul B's study, where 56% of relapses occurred within the first month.[19]

The high relapse rate underscores the need for integrating evidence-based pharmacological interventions, such as naltrexone therapy, alongside psychosocial support. Comprehensive treatment programs addressing social determinants like housing stability and employment are essential for reducing relapse risks. Tailored interventions targeting high-risk groups, such as individuals with limited education or those living alone, may also be beneficial.

CONCLUSION

Relapse remains a significant challenge in the treatment of opioid addiction. While demographic and clinical variables provide valuable insights, relapse is influenced by complex, multifactorial risks requiring a holistic and individualized treatment approach. Addressing these challenges is critical for improving patient outcomes and reducing the societal burden of opioid addiction.

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