The Psychological Shield: Role of Optimism and Psychological Well-Being in Relapse of Drug Addiction

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Abstract

Background: Relapse remains a major challenge in addiction recovery. The psychological factors playing a crucial role in preventing recurrence. **Objectives:** This study aimed to examine the effects of PWB and optimism on relapse. The research hypothesized that higher levels of PWB and optimism would reduce the likelihood of relapse. **Method:** A sample of 201 drug users who relapsed within a year following medical treatment participated in this study. Participants are between the ages of 20 and 35. Descriptive statistics, multinomial logistic regression and a decision tree model (classification and regression trees) with SPSS 26 were used to evaluate the hypotheses. **Results & Discussion:** Both research hypotheses are accepted. The results indicated that both PWB and optimism significantly reduced the odds of relapse. Specifically, higher levels of PWB and optimism were associated with decreased likelihoods of relapse in both the 0-4 months and 4-8 months stages. **Conclusion:** The findings suggest that fostering PWB and optimism in addiction recovery can play a vital role in preventing relapse, particularly in the early recovery stages. Future research should further explore their combined impact and long-term effects on relapse prevention.
Keywords: Optimism, Psychological Well-Being, Relapse, Drug Addiction.

Introduction

Drug addiction is a chronic and recurring illness that causes several issues for individuals as well as their communities. Since over half of those who receive therapy go back to using drugs, even the most effective therapies available today cannot prevent substance use relapses (NIDA 2023). According to recent research, psychological well-being and optimism can assist prevent relapses in drug usage following treatment (Carver et al., 2010; Devi & Singh, 2023).

According to studies, positive thinking improves mental health and helps people become more resilient and manage challenging situations better across all demographics (Carver et al., 2010). According to Stratton et al. (2021), research indicates that those who are

optimistic may manage drug withdrawal more well while maintaining their drive to abstain. According to research, those who remain optimistic report less mental health issues and feel secure in their therapeutic processes (Peterson & Steen, 2001).

According to research, aspects of psychological well-being such as autonomy, self-acceptance, life purpose, and personal development affect how effectively an individual recovers from addiction (Ryff & Keyes, 1995). In addition to improving their emotional regulation and strengthening their resolve to abstain, people in good psychological health are less likely to take drugs as a result of triggers (Holt-Lunstad et al., 2022). Research shows that preserving psychological well-being helps prevent stress-induced relapse, which forces drug users to return to addictive behaviors (Sinha, 2012; Devi & Singh, 2023).

Though few studies examine the combined impact on relapse rates, research indicates that psychological health and optimism aid in addiction recovery. The current study looks at the relationship between psychological health and optimism in preventing relapse following recovery from addiction. In order to help us create treatment plans that support patients' emotional and mental recovery, our study assesses how these elements interact.

Literature Review

Optimism and Drug Addiction

According to research, health psychology requires optimism in order to assist individuals in improving the mental health and quitting drug usage. This idea explains how people anticipate positive outcomes even in the face of adversity (Carver et al., 2010; Devi & Singh, 2023). According to research, those who are more optimistic recover from addiction more successfully by applying effective problem-solving techniques while being resilient and handling hardship effectively (Scheier & Carver, 1985).

Those who maintain their optimism throughout their recovery process typically prevent relapse and have superior treatment results. According to the Bohn et al. (2024), optimism assisted patients in recovering from drug use disorders in lessening the severity of their cravings. The conclusion is supported by research showing cravings promote backsliding (Bohn et al., 2024; Devi & Singh, 2024). Research by Peterson and Steen (2001) found that hopeful patients stick with their treatment regimen and do not give up on their recovery. Research indicates that optimism protects drug use disorders from producing anxiety and serious depression and improves mental health by lowering stress levels (Tindle et al., 2007).

Psychological Well-Being and Drug Addiction

According to Ryff (1989), psychological well-being encompasses a person's ability to accept who they are, form relationships with others, remain independent, manage their environment, seek purpose in life, and develop individually. The aspects of personal well-being assist people in overcoming obstacles in life, such as resuming drug usage. People with greater mental health and less stress take drugs less frequently and recover more quickly.

Holt-Lunstad et al. (2022), examined the ways in which long-term recovery from drug addiction is supported by mental health. People with higher psychological well-being report happier lives and are better at avoiding drugs. When confronted with stressors, those who are in good health are less likely to relapse (Sinha, 2012). Relapse risk is decreased by those who have improved psychological well-being abilities because they react better to stress without abusing drugs.

The Role of Optimism and Psychological Well-Being in Preventing Relapse

Optimism and psychological health have been shown to aid in addiction rehabilitation; nevertheless, scientists must learn how these factors interact to prevent relapses. Carver et al. (2010) found that optimism improves psychological resilience, which in turn promotes improved mental health throughout stressful situations. By maintaining a positive self-image and the capacity to effectively regulate emotions, optimism aids drug users in maintaining their recovery. In 2021, Stratton and associates investigated if psychological health and optimism may aid those coping with alcoholism. Individuals who scored well on both mental health and optimism remained clean for longer than those who scored poorly on metric.

Resnick et al. (2016) demonstrated that when programs integrate mental health initiatives with positive thinking, treatment effectiveness increases. The integrating mindfulness and purpose-based instruction with optimism-building techniques into therapy improves recovery outcomes and reduces the likelihood that patients would relapse into substance use (Resnick et al., 2016; Gunjan & Singh, 2024).

Gaps in the Literature and the Need for Further Research

Although prior study has demonstrated the importance of optimism and mental health on addiction recovery, experts are still unsure of how these factors work together to influence addiction recurrence. There are not many studies that look at how these factors interact to prevent a relapse in drug addiction; most research looks at one aspect at a time. Cross-sectional studies make up a large portion of finished research, which makes it more difficult to establish clear cause-and-effect links. To understand how optimism and mental health change to impact

addiction recovery and relapse rates, scientists need to conduct long-term studies. The present research aims to assess the predictive relationship between PWB, optimism & relapse timing. Our research examines how psychological well-being and positive emotions prevent drug addicts from resuming their substance usage.

Objectives

1. To assess the impact of optimism on relapse periods.
2. To assess the impact of psychological well-being on relapse periods.

Hypotheses

1. Higher levels of optimism will be associated with extended periods of relapse-free recovery.
2. Greater psychological well-being will be linked to longer relapse-free periods during recovery.

Sample

The target population for this study consisted of individuals who have used substances (such as alcohol, opioids, etc.) and experienced relapse within 12 months following their medical treatment. Participants were between the ages of 20 and 35 years (M = 28.59, SD = 5.665). A total of 201 participants were included in the study, and the sample was drawn from addiction treatment centres in Haryana.

Ethical Practice: The study was conducted in accordance with ethical guidelines for psychological research. Before collecting data from the selected participants, they were informed about the study's objectives and provided with a consent form, which outlined the following:

"I have some personal questions for you that some individuals find hard to respond to. Your identity will never be used in conjunction with any of the information you provide, and your responses will be treated with the utmost confidentiality. You are free to leave this research at any moment, and you are not required to respond to any questions that you do not feel comfortable answering. We would be very grateful if you could assist us with this research. Would you be open to taking part?"

Research Method

Research Design

This study employed a quantitative research approach to explore the relationship between relapse duration in drug addiction and psychological factors, specifically optimism and

psychological well-being. The primary objective was to assess the influence of these factors on relapse periods, categorized into three timeframes: 0–4 months, 4–8 months, and 8–12 months. Using a cross-sectional design, data were collected from 201 consecutively recruited patients who had experienced relapse after drug dependency treatment.

Measurement Tools

To measure the psychological variables (i.e., optimism and PWB), the following scales are used in the research study:

The Scale of Psychological Well-Being (PWB), developed by Ryff and colleagues in 1995, is a widely used instrument designed to measure various dimensions of psychological well-being. It is grounded in a multidimensional model of well-being that emphasizes positive psychological functioning and personal growth. The scale assesses six core dimensions of psychological well-being: "Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-acceptance." The revised version of the PWB scale has a total of 42 items. Participants respond to items on a Likert scale, typically ranging from 1 (strongly disagree) to 6 (strongly agree). Scores for each dimension are calculated by summing responses to relevant items, with higher scores indicating greater psychological well-being in that area. The scale has demonstrated high reliability, with Cronbach's alpha coefficients typically exceeding 0.70 across dimensions. It also shows strong construct validity, correlating with other measures of well-being, mental health, and life satisfaction.

The Life Orientation Test-Revised (LOT-R), developed by researchers Scheier et al. (1994), is a commonly used instrument to gauge an individual's propensity for positive outcomes. In order to lessen answer bias, the Life Orientation Test-Revised has four more items in addition to 10 items with three favorably and three negatively worded prompts. To gauge the degree of optimism, participants answer ten questions on a scale of 0 (strongly disagree) to 4 (strongly agree). The LOT-R's test-retest results and internal consistency (Cronbach's alpha between 0.70 and 0.80) demonstrate excellent measurement standards.

Data Analysis Technique

The present study employed two statistical approaches to analyze the data: the current study used Multinational Logistic Regression (MLR) alongside Decision Tree Modeling (DTM). We selected these methods to see different ways how these factors affect relapse outcomes.

Three groups were created in order to investigate the effects of psychological factors, including optimism and psychological well-being, on relapse using Multinomial Logistic Regression (MLR). According to when the relapse occur, the study divides relapses into three categories: within four months, between four and eight months, and between eight and twelve months. MLR estimates several categories in a single dependent variable, going beyond standard binary logistic regression. Through this study, the researchers were able to ascertain the relationship between the participants' projected relapse group and the levels on independent factors. By calculating the significant ratings and result change percentages of psychological well-being and optimism, we were able to ascertain how these parameters impacted various stages of relapse.

By identifying the variables that predict drug abuse recovery, the Decision Tree Model assisted researchers in the investigation of the interactions between various elements. The decision tree approach separated our sample population into groups according to the input values using its partitioning algorithm. Based on relapse results, the model algorithm selected the predictor and threshold combination that resulted in the most homogeneously segregated subgroups. These analytical techniques developed a comprehensive framework to identify factors that encourage relapse. The decision tree model offered value by exposing nonlinear interactions and important breaking points, whereas the MLR model accurately depicted variable effects. Our study's findings were enhanced by the diverse use of analytical techniques, which provided more effective relapse prevention strategies.

Result

Psychological Well-Being and Relapse

The result table 1 is showing the multinomial logistic regression analysis of PWB and relapse. The results of the multinomial logistic regression indicate that psychological well-being (PWB) is a significant predictor of relapse categories, with the reference category being relapse in 8–12 months (Category 3). Specifically, higher PWB is associated with reduced odds of relapse in both 0–4 months (Category 1) and 4–8 months (Category 2) when compared to the reference group. For relapse in 0–4 months, the regression coefficient B = -0.287 (SE = 0.40, $p < 0.01$), indicating that for every one-unit increase in PWB, the odds of relapse in this category decrease by approximately 24.90% (Exp(B) = 0.751; 95% CI [0.693, 0.813]). Similarly, for relapse in 4–8 months, the regression coefficient B = -0.115 (SE = 0.021, $p < 0.01$) shows that a one-unit increase in PWB reduces the odds of relapse by approximately 10.90% (Exp(B) = 0.891; 95%

CI [0.855, 0.930]). These findings highlight that higher levels of PWB significantly reduce the likelihood of earlier relapse, with a stronger protective effect observed for relapse in 0–4 months compared to 4–8 months. These results underscore the importance of fostering PWB in individuals recovering from addiction to delay or prevent relapse, particularly in the earlier stages of recovery. Hence, our first hypothesis, *'Higher levels of optimism will be associated with extended periods of relapse-free recovery,'* is accepted.

Table 1: Multinomial Logistic Regression Analysis of PWB and Relapse

Relapse		*B*	*Std. error*	*Wald*	*df*	*Sig.*	*Exp(B)*	*% of Exp(B)*	*Lower Bound*	*Upper Bound*
Relapse (0-4 months)[a]	**Intercept**	21.608	2.886	56.047	1	.000				
	PWB	-0.287	0.40	50.243	1	.000	0.751	24.90%	0.693	0.813
Relapse (4-8 months)[a]	**Intercept**	11.392	2.111	29.131	1	.000				
	PWB	-0.115	0.021	28.700	1	.000	0.891	10.90%	0.855	0.930

1. *a: Reference category (relapse within 8-12 months)*
2. *p<0.01*

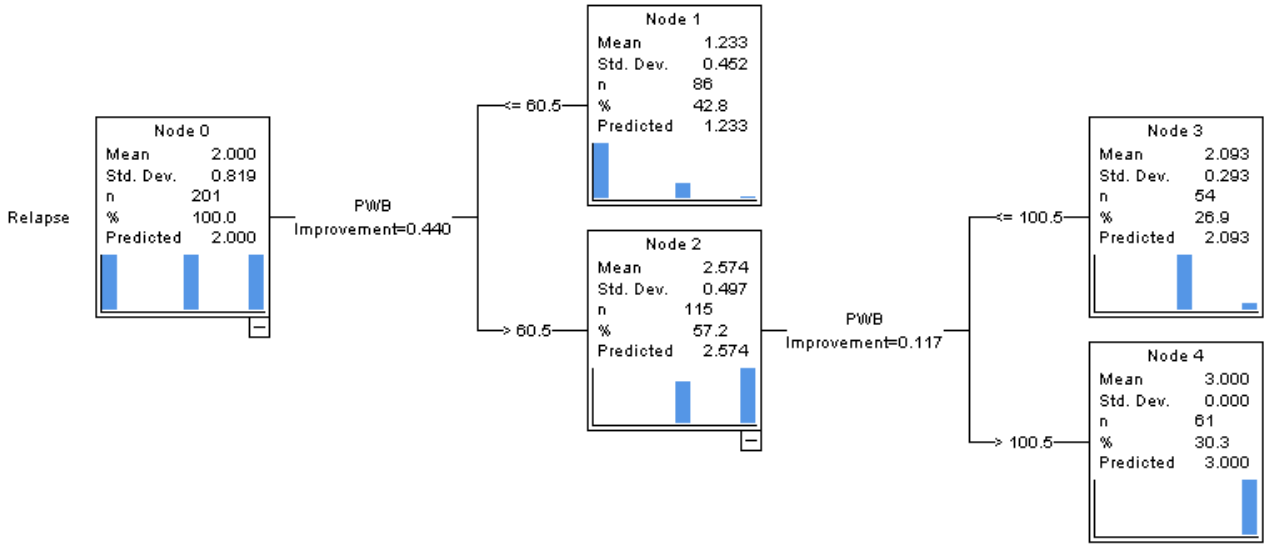

Figure 1. Decision Tree Model of PWB and Relapse

The decision tree model shown in the figure 1 illustrates how the variable psychological well-being (PWB) impacts relapse periods, providing a detailed breakdown of relapse categories based on different levels of PWB improvement. The model is divided into several nodes that

represent different levels of PWB, and each node provides insights into the mean relapse score, standard deviation, sample size (n), and predicted relapse values.

- ***Node 0*** represents the overall sample, where the mean relapse score is 2.000 with a standard deviation of 0.819, indicating a moderate overall tendency for relapse across all participants. The predicted value for relapse here is also 2.000, representing the general tendency across the entire dataset.
- Moving to ***Node 1*** (PWB improvement ≤ 0.440), we see a lower mean relapse score of 1.233, with a standard deviation of 0.452. This node contains 86 participants, accounting for 42.8% of the total sample. The predicted relapse score here is also 1.233, suggesting that individuals with higher PWB improvement are less likely to experience relapse.
- ***Node 2*** (PWB improvement > 0.440) represents individuals with lower improvement in PWB. The mean relapse score increases to 2.574 with a standard deviation of 0.497. This node includes 115 participants (57.2% of the sample), and the predicted relapse score is 2.574, indicating that lower PWB improvement is associated with a higher likelihood of relapse.
- The model also branches into ***Node 3*** (PWB improvement ≤ 0.117), where the mean relapse score is 2.093, with a low standard deviation of 0.293. This group has 54 participants (26.9% of the sample), and the predicted relapse score here is 2.093, showing that individuals in this subgroup show moderate levels of relapse.
- Finally, ***Node 4*** (PWB improvement > 0.117) demonstrates the lowest relapse score of 3.000, with zero standard deviation. This group includes 61 participants (30.3% of the sample), indicating that those with higher PWB improvement are associated with the lowest relapse risk.

Optimism and Relapse

The result table 2 is showing the multinomial logistic regression analysis of optimism and relapse. The multinomial logistic regression analysis demonstrates that optimism is a significant predictor of relapse categories, with the reference category being relapse in 8–12 months (Category 3). Specifically, higher levels of optimism are associated with a reduced likelihood of relapse in both 0–4 months (Category 1) and 4–8 months (Category 2) when compared to the reference group. For relapse in 0–4 months, the regression coefficient B = -0.817 (SE = 0.106, $p < 0.01$) indicates that a one-unit increase in optimism decreases the odds

of relapse in this category by approximately 24.90% (Exp(B) = 0.442; 95% CI [0.359, 0.544]). Similarly, for relapse in 4–8 months, the regression coefficient B = -0.550 (SE = 0.089, $p < 0.01$) shows that a one-unit increase in optimism reduces the odds of relapse by approximately 10.90% (Exp(B) = 0.577; 95% CI [0.485, 0.686]).

These findings highlight that individuals with higher levels of optimism are less likely to relapse, with a stronger protective effect observed for relapse in 0–4 months compared to 4–8 months. These results underscore the importance of promoting optimism as part of intervention strategies to minimize the risk of relapse, particularly during the earlier stages of recovery. So, the second hypothesis, '*Greater psychological well-being will be linked to longer relapse-free periods during recovery,'* is proved.

Table 2: Multinomial Logistic Regression Analysis of Optimism and Relapse

Relapse		*B*	*Std. error*	*Wald*	*df*	*Sig.*	*Exp(B)*	*% of Exp(B)*	*Lower Bound*	*Upper Bound*
Relapse (0-4 months)[a]	**Intercept**	8.855	1.272	48.432	1	.000				
	Optimism	-0.817	0.106	59.351	1	.000	0.442	24.90%	0.359	0.544
Relapse (4-8 months)[a]	**Intercept**	6.937	1.202	33.304	1	.000				
	Optimism	-0.550	0.089	38.472	1	.000	0.577	10.90%	0.485	0.686

1. *a: Reference category (relapse within 8-12 months)*
2. *p<0.01*

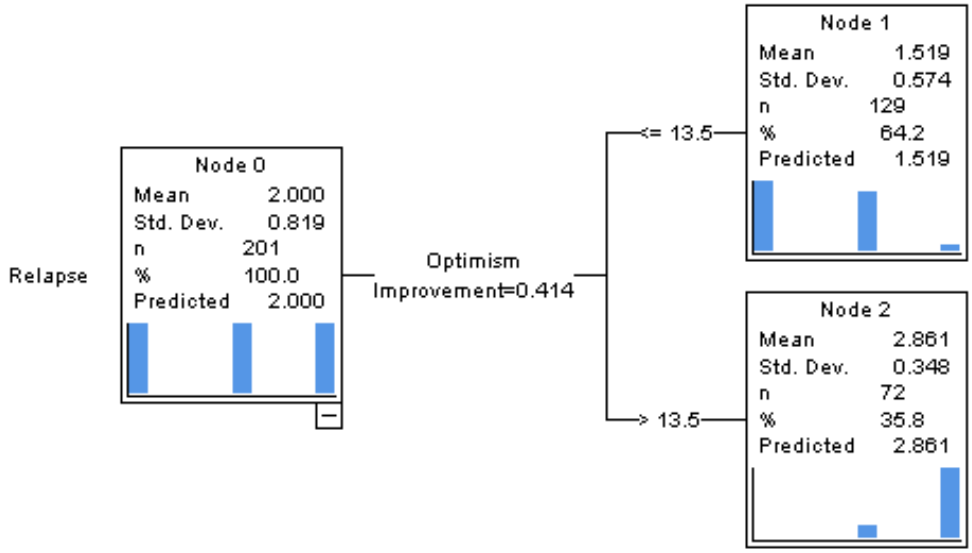

Figure 2. Decision Tree Model of Optimism and Relapse

The decision tree model in the figure 2, illustrates the predictive relationship between optimism and relapse among participants. The root node represents the entire dataset, with a mean relapse score of 2.000 and a standard deviation of 0.819 for a total sample size of 201 participants. The model identifies optimism as a significant predictor of relapse and splits the data at an optimism score of 13.5. This split improves the prediction of relapse by 0.414, demonstrating the importance of optimism in explaining variability in relapse outcomes.

The first branch of the model includes participants with optimism scores of 13.5 or less (Node 1). This group, which comprises 64.2% of the sample (n = 129), has a mean relapse score of 1.519 and a standard deviation of 0.574. These findings suggest that individuals with lower optimism are more likely to experience earlier or more frequent relapses. Conversely, participants with optimism scores greater than 13.5 (Node 2), representing 35.8% of the sample (n = 72), have a higher mean relapse score of 2.861 with a lower standard deviation of 0.348. This indicates that higher levels of optimism are associated with delayed relapse or fewer instances of relapse.

Overall, the decision tree provides clear evidence that optimism significantly influences relapse patterns. Individuals with higher optimism demonstrate greater resilience against relapse, highlighting the potential value of fostering optimism in intervention programs. These findings emphasize the importance of psychological strategies aimed at enhancing optimism to reduce relapse rates and improve outcomes for those dealing with addiction.

Discussion

The present research study examined the relationship between relapse periods, psychological well-being and optimism. The findings indicate that optimism and elevated PWB are more effective in preventing relapses in the first four months than in the following four months. Positive mental attributes aid people avoid resuming drug use, according to research that backs up these findings.

Psychological Well-Being (PWB) and Relapse

According to our statistics, relapses are less common in the early and intermediate phases of addiction treatment when psychological well-being is higher. Deci and Ryan's self-determination theory states that amid stressful situations, such as drug addiction, well-being offers essential defense against the deterioration of motivation. High PWB individuals are better able to manage stress by reducing negative emotions, which aids in the development of

constructive coping mechanisms and reduces the likelihood that they would relapse into addiction (Luthans et al. 2008; Devi & Singh 2025).

According to earlier research, psychological health lowers the likelihood of relapsing into addiction. In 2008, Tindle et al. found that those who were more psychologically healthy were better able to avoid addictive behaviors. According to Ryan et al. (2005), because of well-being, homes help people become more robust to relapse by providing improved coping mechanisms for dealing with triggers. According to Kashdan and Rottenberg (2010), mental health aids individuals in recovery in fending against adverse life situations. Cohen et al. (2003) shown in their study that mental well-being promotes the employment of healthy coping strategies and reduces relapses. Similar to this study, research by Zautra et al. (2000) indicates that promoting mental wellness helps people live better lives and overcome their addictive behaviors.

Optimism and Relapse

According to our statistics, optimistic persons are less likely to revert to their former behaviors, especially in the early phases of recovery. According to a study by Carver et al. (2010), those who are optimistic make better coping choices and maintain sobriety. According to studies by Scheier and Carver (1985), optimism boosts motivation and keeps relapses from occurring. Optimistic people continue their abstinence because they perceive setbacks as transient and the result of someone else's responsibility.

According to research, optimism improves the likelihood of relapsing into addiction. Tindle et al. (2008) shown in their study that those who were optimistic kept sober more frequently and had better recovery outcomes than those who were not. Carver and Scheier (2014) claim that optimism shields people against difficulties brought on by stress and addiction. In 2010, Taylor et al. shown that optimism strengthens our basic emotional fitness, enabling us to manage recovery more effectively. Gustafsson et al. (2010) found that positive people utilize healthy coping mechanisms that reduce their likelihood of resuming drug use. In 2010, Schneider et al. demonstrated that individuals with a positive worldview take fewer chances, preventing them from reverting to negative behaviors.

Comparison of PWB and Optimism

According to our research, feeling hopeful was not as effective in preventing relapse in the first few months as maintaining a sense of purpose in life (PWB). Because PWB encompasses a number of positive psychological functions beyond optimism, such as self-acceptance,

emotional regulation, and life contentment, it offers more comprehensive protection against relapse (Ryff & Singer, 2008). Optimism encourages people in recovery to stick with their course and helps them deal with obstacles more effectively. The study adds to research on addiction rehabilitation and positive psychology. According to research, PWB and optimism help us develop stronger coping mechanisms and mental resilience, which in turn leads to long-term sobriety (Carver et al., 2010; Luthans et al., 2008). To assist drug users, stay abstinent, researchers should examine the relationship between PWB and optimism.

Limitations and Future Directions

Although the research exhibits several study limitations, it also advances our knowledge of the connections between psychological components and relapse episodes. The results gained may not be as reliable when applied to different populations due to the small sample size of 201 individuals. We will better comprehend these findings by doing studies with larger and more diverse participant groups. In addition to PWB and optimism, future research will examine other psychological components of resilience and coping strategies that affect post-relapse outcomes.

Conclusion

The conclusion is that psychological well-being and optimism play an important role in recovery from drug addiction. According to the research, psychological well-being and optimism need to be incorporated into the foundation of any drug addiction treatment program. Psychological well-being improved drug abstinence at the beginning of a relapse cycle, whereas optimism offered robust protection during the course of recovery. Our study adds to the body of literature demonstrating that positive psychological qualities aid in recovery and prevent relapse. To assist patients, stay free from addiction, medical professionals and scientists who study addiction recovery should encourage these psychological characteristics during therapy.

Data Availability Statement

The data supporting this study are available from the corresponding author upon reasonable request.

Ethical Statement

The study was performed according to the ethical standards of the Central Drugs Standard Control Organization, India. The study was waived ethical approval from the Institutional

Ethics Committee for Human Research of MAMC (ECR/1176/Inst/HR/2019) with permission to collect data from participants being granted by the HOD of Psychiatry at MAMC (Study No. 17401). All participants voluntarily gave informed consent to be enrolled in the study.

Informed Consent

Informed consent was obtained from all the participants involved in this study. Participants were provided with detailed information about the study's purpose, procedures, and benefits before their consent was obtained.

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