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Research Paper

Substance Use and Mental Well-Being: A Correlational Study Among Rehabilitation Patients in Northeast India

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ABSTRACT

This study examined the relationship between substance use and mental well-being among 150 individuals undergoing treatment in rehabilitation settings in Northeast India. Participants were recruited through convenience sampling from three centers in Aizawl and Shillong. Substance use was measured using the AUDIT and DUDIT scales, and mental well-being was assessed with the WEMWBS. AUDIT and DUDIT scores were standardized and averaged to create a combined substance use variable. Pearson correlation analysis revealed a weak negative relationship between substance use and well-being, suggesting that higher substance use was modestly associated with lower well-being. However, participants' average well-being scores remained within the normative range. This may reflect psychological stability among individuals in treatment, possibly due to the support provided in rehabilitation settings. Cultural or regional resilience factors in Northeast India may also contribute to buffering the negative impact of substance use. These findings highlight the importance of addressing mental well-being in substance use recovery and suggest that emotional improvement may occur even in early stages of treatment.

Keywords: *substance use, alcohol, drugs, AUDIT, DUDIT, WEMWBS, mental well being, rehabilitation, recovery*

Substance abuse remains one of the most pressing public health challenges globally, affecting individuals across all age groups, socioeconomic backgrounds, and cultural contexts. It refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs, which can lead to physical and psychological dependence, social dysfunction, and increased risk of comorbid psychiatric disorders (World Health Organization [WHO], 2023). In the Indian context, the rising prevalence of substance use disorders has prompted urgent calls for integrated and culturally sensitive approaches to both prevention and rehabilitation.

Mental well-being, on the other hand, is a multidimensional construct that encompasses emotional, psychological, and social aspects of functioning. It goes beyond the absence of mental illness to include positive experiences such as life satisfaction, autonomy, and the ability to cope with stress (Tennant et al., 2007). While substance use is widely recognized to impact physical health, its relationship with mental well-being is complex and reciprocal.

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Individuals who misuse substances are at increased risk for conditions such as depression, anxiety, and suicidal ideation, while those with compromised psychological well-being may resort to substance use as a maladaptive coping mechanism (Sinha, 2008).

Understanding the interrelation between substance abuse and mental well-being is particularly crucial in clinical populations, such as individuals undergoing treatment in rehabilitation centres. In such contexts, recovery is not limited to abstinence from substances but also involves psychological healing and social reintegration. Therefore, assessing both substance use patterns and levels of mental well-being provides valuable insight into treatment outcomes and long-term recovery potential.

In the present study, this relationship is examined within the context of rehabilitation hospitals in Northeast India, a region that has seen growing concern regarding the misuse of alcohol and drugs. This research employs three standardized instruments—the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), the Drug Use Disorders Identification Test (DUDIT; Berman et al., 2005), and the Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007)—to evaluate substance use and mental well-being among individuals in recovery.

Substance Use Disorder

Substance abuse, also referred to as substance use disorder (SUD), is a clinical condition characterized by the persistent use of one or more psychoactive substances despite the occurrence of significant problems related to their use. According to the **Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)**, substance use disorder is diagnosed when the recurrent use of alcohol or drugs leads to clinically significant impairment or distress, as indicated by at least two symptoms occurring within a 12-month period (American Psychiatric Association [APA], 2013). These symptoms may include increased tolerance, withdrawal symptoms, loss of control, unsuccessful efforts to cut down, and continued use despite negative consequences.

The International Classification of Diseases, 11th Revision (ICD-11) developed by the World Health Organization also defines substance dependence as a cluster of behavioural, cognitive, and physiological phenomena that develop after repeated substance use, and typically includes a strong desire to take the substance, difficulties in controlling its use, and a persistent use despite harmful consequences (WHO, 2019).

Substances commonly involved in abuse include:

- **Alcohol** – A widely consumed central nervous system depressant, often associated with liver disease, cognitive impairment, and increased risk of injury and violence.
- **Cannabis** – Commonly misused for its psychoactive effects; long-term use has been linked with motivational deficits and an increased risk of psychosis (Volkow et al., 2014).
- **Opioids** – Including heroin and prescription pain relievers such as morphine and codeine, opioids are highly addictive and associated with fatal overdose risk.
- **Stimulants** – Such as methamphetamine and cocaine, which may cause heightened alertness but also lead to paranoia, aggression, and cardiovascular damage.
- **Sedatives and hypnotics** – Including benzodiazepines, which are often misused in combination with alcohol or opioids, increasing the risk of overdose.

*Substance use may be classified based on **patterns of use**, such as:*

- **Experimental use**: trying a substance out of curiosity
- **Recreational use**: occasional use in social settings
- **Habitual use**: regular use that may interfere with functioning
- **Dependent use**: compulsive use marked by physiological and psychological dependence

Additionally, **hazardous** or **harmful use** refers to patterns that pose a risk to health but may not yet meet diagnostic thresholds for a disorder (WHO, 2019).

The chronic nature of substance abuse means that it rarely occurs in isolation. Many individuals also experience social, occupational, legal, and psychological consequences as a result of their substance use. This complexity has led clinicians and researchers to examine substance use not only through a diagnostic lens, but also in relation to broader psychological constructs such as emotional resilience, coping ability, and well-being.

THEORETICAL MODELS OF SUBSTANCE USE

Understanding substance use requires a multidimensional approach that accounts for biological vulnerability, psychological functioning, and social influences. Several theoretical models have been developed over time to explain why individuals engage in substance use, develop substance use disorders (SUD), and struggle with recovery. These models serve as frameworks for assessment, prevention, and intervention strategies within clinical psychology.

Biopsychosocial Model

The **biopsychosocial model** is one of the most widely accepted frameworks in contemporary clinical psychology. It posits that substance use arises from the interaction of three major domains: biological (e.g., genetic predispositions, neurochemical imbalances), psychological (e.g., trauma, mood disorders, poor coping mechanisms), and social factors (e.g., peer pressure, socioeconomic stress, cultural norms) (Engel, 1977). This model allows for a comprehensive understanding of substance use by acknowledging that no single factor is responsible, and treatment must address all three domains for lasting recovery.

Social Learning Theory

Social learning theory, proposed by Bandura (1977), emphasizes the role of observational learning, reinforcement, and modelling in the development of substance use behaviour. Individuals may begin using substances after observing peers or family members doing so, especially if such behaviours are perceived as rewarding or socially acceptable. Reinforcement, whether through peer approval or temporary relief from stress, increases the likelihood of continued use. This model supports the importance of modifying environmental and social influences in substance use treatment.

Cognitive-Behavioural Model

The **cognitive-behavioural model** focuses on the interplay between thoughts, emotions, and behaviours. It suggests that individuals may use substances to escape or cope with negative thoughts, beliefs, or emotional distress. Maladaptive thought patterns—such as “I can't cope without using” or “drugs help me feel normal”—contribute to the maintenance of substance use (Beck et al., 1993). Cognitive-behavioural therapy (CBT) targets these thoughts and

teaches healthier coping strategies, making this model especially relevant in clinical interventions.

Psychodynamic Model

The **psychodynamic model** attributes substance use to unconscious conflicts, unresolved childhood trauma, or developmental disturbances. According to this view, substance use may function as a defence mechanism—such as repression, denial, or displacement—used to manage internal psychological pain or unmet emotional needs (Khantzian, 1985). While less dominant in current mainstream treatment, this model provides valuable insight into the emotional and relational underpinnings of addiction, particularly in complex cases with deep-rooted emotional distress.

Disease Model of Addiction

The **disease model** conceptualizes addiction as a chronic, relapsing brain disease, much like diabetes or hypertension. It suggests that individuals with substance use disorders suffer from altered brain chemistry that impairs decision-making, impulse control, and reward processing (Volkow et al., 2016). This model underpins many medical approaches to addiction treatment, including pharmacotherapy and 12-step programs, and helps reduce moral judgment by framing addiction as a health condition rather than a personal failing.

Each of these models contributes uniquely to understanding substance use and offers different perspectives on prevention and treatment. The current study draws on an integrative perspective, grounded in the biopsychosocial model, to explore the psychological dimension of substance use and its relationship to mental well-being.

MENTAL WELL-BEING

Mental well-being is a multidimensional construct that extends beyond the absence of mental illness to include the presence of positive psychological functioning, emotional balance, and a sense of purpose in life. According to, mental well-being is defined as a state in which individuals realize their abilities, cope with the normal stresses of life, work productively, and contribute to their community. This positive orientation toward mental health aligns with the growing emphasis on strengths-based approaches in clinical psychology, where well-being is seen not merely as the absence of disorder, but as the presence of thriving.

Two major dimensions are commonly used to describe mental well-being:

1. **Hedonic well-being**, which focuses on happiness, life satisfaction, and the experience of positive emotions (Ryan & Deci, 2001), and
2. **Eudaimonic well-being**, which emphasizes meaning, personal growth, autonomy, and self-realization (Ryff, 1989).

Together, these form the foundation for many psychological models of well-being and are reflected in contemporary measurement tools such as the **Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)**.

The importance of mental well-being in clinical populations, especially individuals recovering from substance use, is increasingly recognized. Positive mental well-being has been associated with better recovery outcomes, lower relapse rates, and improved quality of life (Keyes, 2005). By focusing on mental well-being rather than solely on psychopathology,

clinicians can support a more holistic model of healing that encourages empowerment, resilience, and sustained personal growth.

In the context of this study, mental well-being is not only a variable of interest but also a potential indicator of psychological recovery in individuals undergoing substance rehabilitation. Understanding how levels of well-being vary in relation to the severity of substance use can provide valuable insights for clinical assessment and intervention planning.

DUAL DIAGNOSIS AND COMORBIDITY

The co-occurrence of substance use disorders (SUDs) and mental health disorders is referred to as **dual diagnosis** or **comorbidity**. This clinical phenomenon is widely recognized in mental health literature and presents significant challenges in assessment, diagnosis, and treatment. Individuals with dual diagnoses often experience more severe symptoms, poorer treatment outcomes, and higher relapse rates compared to those with a single disorder (Mueser et al., 2003).

Multiple epidemiological studies have shown high rates of comorbidity between substance use and mental health conditions such as depression, anxiety disorders, schizophrenia, and post-traumatic stress disorder (PTSD). The **National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)** in the United States, for instance, found that individuals with alcohol dependence were significantly more likely to meet criteria for major depressive disorder and generalized anxiety disorder (Grant et al., 2004). Similar findings have been replicated globally, including in studies conducted in India (Ambekar et al., 2019).

The relationship between substance use and mental illness is often **bidirectional**. In some cases, mental health issues precede and contribute to substance use, as individuals may attempt to self-medicate symptoms such as anxiety or trauma-related distress. In other cases, prolonged substance use may lead to neurochemical imbalances and life stressors that trigger or worsen psychiatric conditions (Khantzian, 1997). This cyclical interaction creates a complex clinical picture where both conditions maintain and exacerbate each other.

From a treatment perspective, individuals with dual diagnoses benefit from **integrated care models**, which address both disorders simultaneously rather than in isolation. Traditional treatment systems that separate addiction services from mental health care often fall short in managing the needs of this population (Drake et al., 2001). Comprehensive assessment tools and collaborative treatment approaches are thus essential for improving recovery outcomes.
In the context of this study, the concept of dual diagnosis underscores the importance of evaluating **mental well-being alongside substance use severity**. It highlights the need to move beyond symptom reduction and toward a more holistic understanding of psychological recovery in rehabilitation settings.

METHODOLOGY

Design of the Study

The present study employed a **quantitative, correlational research design** to examine the relationship between substance use and mental well-being among individuals in rehabilitation settings. This non-experimental design is appropriate for investigating natural associations between variables without manipulating them.

Participants completed three self-report scales: the Alcohol Use Disorders Identification Test (AUDIT), the Drug Use Disorders Identification Test (DUDIT), and the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS).

To accommodate participants who reported either alcohol or drug use, raw scores from the AUDIT and DUDIT were standardized (z-scores) and averaged to create a **combined substance use score**. Pearson product-moment correlations were used to assess the relationship between:

1. Combined substance use and well-being
2. Alcohol use and well-being
3. Drug use and well-being

This design allowed for the investigation of whether higher substance use is associated with lower levels of mental well-being among individuals in rehabilitation contexts.

Objectives

1. To assess levels of alcohol and drug use among individuals undergoing rehabilitation.
2. To assess the level of mental well-being in the same population.
3. To examine the relationship between substance use and mental well-being.

Hypotheses

1. There will be a negative correlation between combined substance use and mental well-being.
2. There will be a negative correlation between alcohol use and mental well-being.
3. There will be a negative correlation between drug use and mental well-being.

Variables

- **Independent Variable**: Substance use (composite score from AUDIT and DUDIT)
- **Dependent Variable**: Mental well-being (WEMWBS score)

Sample

The sample consisted of **150 participants**, all of whom were receiving care in rehabilitation-related facilities in **Northeast India**, specifically in Aizawl (Mizoram) and Shillong (Meghalaya). The inclusion criteria required that participants:

- Be aged 18 or older.
- Be currently undergoing treatment for substance use or admitted to a relevant ward.
- Be capable of understanding and responding to the questionnaires.

Participants were selected through **convenience sampling** from three different sites:

1. A hospital with a dedicated ward for alcohol and drug abuse in Aizawl.
2. A drug rehabilitation center in Aizawl.
3. A mental health hospital in Shillong with a ward for addiction.

Tools Used

a) Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT is a 10-item screening tool developed by the World Health Organization (WHO) to assess harmful and hazardous alcohol consumption. Scores range from 0 to 40. According to standard guidelines:

- Scores of 0–7 = Low risk
- 8–15 = Hazardous drinking
- 16–19 = Harmful drinking
- 20+ = Possible alcohol dependence

b) Drug Use Disorders Identification Test (DUDIT)
The DUDIT is an 11-item self-report measure used to screen for problematic drug use. Total scores range from 0 to 44. Cut-off scores vary slightly by gender:

- For men: 6+ indicates likely drug-related problems; 25+ suggests possible dependence
- For women: 2+ suggests drug-related problems (Berman et al., 2005)

c) Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)
The WEMWBS is a 14-item scale designed to measure positive mental well-being. Each item is scored on a 5-point Likert scale, giving a total score range of 14–70. Scores around 41–59 are considered average, with lower scores indicating reduced well-being and higher scores suggesting flourishing mental health (Tennant et al., 2007).

Procedure
Questionnaires were distributed in person at each of the three locations after obtaining necessary permissions from each institution. Participants were approached in wards or community areas, briefed about the voluntary and anonymous nature of the study, and given informed consent forms. Upon agreement, they were asked to complete the paper-based questionnaires independently, with clarification provided as needed.
Out of the 150 participants:

- Some completed only the AUDIT or only the DUDIT, depending on their substance use profile
- All participants completed the WEMWBS

To create a unified measure of overall substance use for participants who completed either or both substance use scales, the raw AUDIT and DUDIT scores were converted to **z-scores**. These standardized scores were then averaged to produce a **combined substance use score**. This method allowed for comparability between alcohol and drug use despite differing scale ranges.

Variables

1. **Independent Variables:**
   a. Alcohol use (AUDIT Total Score)
   b. Drug use (DUDIT Total Score)
   c. Combined substance use (Z-score average of AUDIT and DUDIT)

2. **Dependent Variable:**
   a. Mental well-being (WEMWBS Total Score)

3. **Demographic Variables:**
   a. Age, gender, and location

Statistical Analysis

Data were analysed using **IBM SPSS Statistics (version 20)**. Descriptive statistics (mean, standard deviation) were computed for all variables. Pearson's **product-moment correlation** was conducted to examine the relationship between the composite substance use score and mental well-being scores. Analyses used pairwise deletion to handle missing data.

RESULTS AND INTERPRETATION

The present study aimed to examine the relationship between substance use and mental well-being among individuals undergoing treatment in rehabilitation settings. Data were collected from a total of **150 participants**, with an average age of **26 years**. A large portion of the sample consisted of **young adults under the age of 35**, a group that is often reported to be more vulnerable to both substance misuse and emotional distress.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ALCOHOL USE	89	7.0000	40.0000	24.033708	8.0020586
DRUG USE	66	8.0000	42.0000	32.166667	6.7609361
COMBINED SUBSTANCE USE	88	-2.1407	2.0066	.005761	1.0099510
WELL BEING	150	25.0000	70.0000	44.733333	9.4340997
Valid N (listwise)	5				

Descriptive statistics were computed for all key variables: alcohol use (AUDIT), drug use (DUDIT), combined substance use (AUDIT and DUDIT z-score average), and mental well-being (WEMWBS). Table 1 displays the mean, standard deviation, minimum, and maximum values for each.

The average AUDIT score was 24.03 (SD = 8.00), suggesting most participants fell into the hazardous drinking range. The mean DUDIT score was 32.17 (SD = 6.76), indicating probable drug dependence for many participants. The WEMWBS average score was 44.73 (SD = 9.43), which falls within the average mental well-being range.

Table 2: Correlation between substance use and well-being.

		SUBSTANCE USE	WELL BEING
SUBSTANCE USE	Pearson Correlation	1	-.191
	Sig. (2-tailed)		.074
	N	88	88
WELL BEING	Pearson Correlation	-.191	1
	Sig. (2-tailed)	.074	
	N	88	150

To test **Hypothesis 1**, a Pearson product-moment correlation was conducted between combined substance use (z-score average of AUDIT and DUDIT) and WEMWBS total scores. A weak, negative correlation was observed, $r(86) = -.191$, $p = .074$. The result was **not statistically significant**, indicating that higher substance use was **not reliably associated** with lower mental well-being in this sample.

Hypothesis 1 (rejected): There will be a negative correlation between combined substance use and mental well-being.

Table 3: Correlation between alcohol use and well-being.

		ALCOHOL USE	WELL BEING
ALCHOHOL USE	Pearson Correlation	1	-.195
	Sig. (2-tailed)		.067
	N	89	89
WELL BEING	Pearson Correlation	-.195	1
	Sig. (2-tailed)	.067	
	N	89	150

To test **Hypothesis 2**, a Pearson correlation was computed between AUDIT scores and WEMWBS scores. The analysis showed a weak, negative correlation, $r(87) = -.195$, $p = .067$. While not statistically significant, the result was **close to the 0.05 threshold**, suggesting a possible trend.

Hypothesis 2 (rejected): There will be a negative correlation between alcohol use and mental well-being.

Table 4: Correlation between drug use and well-being.

		DRUG USE	WELL BEING
DRUG USE	Pearson Correlation	1	-.064
	Sig. (2-tailed)		.611
	N	66	66
WELL BEING	Pearson Correlation	-.064	1
	Sig. (2-tailed)	.611	
	N	66	150

To test Hypothesis 3, a Pearson correlation was performed between DUDIT scores and WEMWBS scores. The result indicated a very weak, non-significant negative correlation, $r(64) = -.064$, $p = .611$. This shows no meaningful relationship between drug use and mental well-being in this sample.

Hypothesis 3 (rejected): There will be a negative correlation between drug use and mental well-being.

The overall well-being scores of participants remained within the average range. This may reflect a relatively stable or optimistic outlook among individuals undergoing treatment, suggesting that rehabilitation settings may be providing psychological support in addition to substance use recovery. The lack of a strong negative correlation could indicate mental resilience in this population, even in the presence of ongoing substance-related challenges. This may reflect the participants' capacity to experience resilience, a finding that supports earlier studies showing that individuals in rehabilitation settings can maintain or regain positive psychological functioning (Shahzad, Sadaf, & Begum, 2013).

DISCUSSION

This study explored the relationship between substance use and mental well-being among individuals receiving care in rehabilitation and hospital settings in Northeast India. Substance use was assessed using the Alcohol Use Disorders Identification Test (AUDIT) and Drug Use Disorders Identification Test (DUDIT), while mental well-being was measured using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS). To allow for a meaningful comparison of substance use across participants who completed either or both AUDIT and DUDIT, raw scores were standardized into z-scores and averaged to create a composite variable: the combined substance use score.

The results revealed a weak negative correlation between combined substance use and mental well-being ($r = -.191$, $p = .074$). Although this association was not statistically significant, the direction of the relationship aligns with the hypothesis that greater substance use may be associated with lower well-being. A similar pattern emerged when alcohol use was examined independently ($r = -.195$, $p = .067$), suggesting a modest trend in the expected direction. However, drug use, as measured by the DUDIT, showed a negligible and non-significant relationship with well-being ($r = -.064$, $p = .611$), which may reflect the smaller sample size or the heterogeneous nature of drug types and usage patterns.

While none of these correlations reached statistical significance, their consistency in direction—however small—supports findings from previous studies that link substance misuse to emotional difficulties, reduced life satisfaction, and mental health challenges (e.g., Dawson et al., 2005; Kelly et al., 2015; Sheidow et al., 2012).

An important and unexpected observation in the present study is that despite a high proportion of participants falling into hazardous or dependent substance use ranges, their average mental well-being scores were within normative or even moderately positive ranges. This finding may reflect the stabilizing or restorative effects of ongoing treatment. Participants were recruited from institutions providing structured rehabilitation or hospital-based interventions, which likely offer emotional, psychological, and social support. Previous studies have similarly reported improved psychological well-being among individuals engaged in treatment, especially when emotional regulation or treatment motivation is high (Shahzad et al., 2013; Rabani Bavojdan et al., 2013).

These findings suggest that the absence of strong correlations does not necessarily indicate a lack of meaningful insight. On the contrary, it may highlight a hopeful reality—that individuals in recovery are beginning to regain emotional stability and resilience, despite ongoing substance-related challenges. In line with Laudet (2008), recovery should not be viewed only in terms of abstinence, but also through improvements in well-being and quality of life. Furthermore, as Morris et al. (2018) suggest, mental well-being itself can serve as a motivational factor in sustaining long-term recovery.

Cultural and regional resilience factors may also play a role. The Northeast Indian population, with its strong community structures, spiritual frameworks, and familial ties, may offer protective elements that buffer against the full negative psychological impact of substance use. This contextual factor may partially explain why overall well-being remained relatively high in this sample.

CONCLUSION

Although it was hypothesized that higher levels of substance and alcohol use would be significantly associated with lower levels of mental well-being, the results revealed only weak, non-significant negative correlations. Specifically, the Pearson correlation coefficients were $r = -.191$ (combined substance use), $r = -.195$ (alcohol use), and $r = -.064$ (drug use). These trends suggest a slight inverse relationship between substance use and well-being, but not one that reached statistical significance in this sample.

Rather than dismiss these findings, the results should be interpreted as indicative of a more nuanced picture. The relatively positive well-being scores, despite high levels of substance use, may reflect the beneficial impact of treatment settings, rehabilitation support, and possibly cultural resilience within the sample population. These insights reinforce the importance of incorporating psychological well-being interventions in substance abuse treatment, alongside clinical detoxification or abstinence-focused goals.

Future research should explore these patterns further with larger, more diverse samples, and potentially through longitudinal designs that can capture changes in well-being throughout the course of treatment and recovery.

Limitations

Several limitations should be noted. First, the sample size—particularly for the DUDIT group—was relatively small, which may have limited the power to detect significant effects. Second, the sample was drawn exclusively from hospital and rehabilitation settings, which may not reflect the broader population of individuals who use substances but are not in treatment. Third, all data were self-reported, introducing the possibility of bias due to social desirability, underreporting, or misinterpretation of questions. Lastly, the cross-sectional design of the study limits any conclusions about causality; while associations were examined, no inferences can be made about the directionality of the relationships.

The process of combining AUDIT and DUDIT scores using standardized z-scores also offers a methodological approach for future research where participants may report mixed or incomplete substance use patterns.

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Conflict of Interest

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