

QUALITY OF LIFE AND ASSOCIATED FACTORS AMONG INDIVIDUALS WITH SUBSTANCE USE ENROLLED IN REHABILITATION CENTERS OF BIRATNAGAR METROPOLITAN CITY OF NEPAL

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ABSTRACT

Substance use has a negative impact on individuals physical, mental, and social well-being. However, limited research has been conducted to assess the quality of life (QoL) of individuals with substance use in eastern Nepal. This study aimed to assess the quality of life and its associated factors among individuals with substance users residing in rehabilitation centers in Biratnagar Metropolitan City, Nepal. An analytical cross-sectional study was conducted among 109 residents from seven rehabilitation centers between August 2024 and February 2025. Data were collected using sociodemographic and clinical questionnaires, and the WHOQOL-BREF tool. Multivariable linear regression was used to identify factors associated with QoL. Out of 109 respondents the mean overall quality of life score was 56.4 (22.2) with a mean score of 55.4 (19.2), 54.7 (18.8), 54.8 (23.9), and 44.3 (16.4) in physical, psychological, social, and environmental domains, respectively. After adjusting for the confounders, compared to the age group of 15- 25 years, the mean overall quality of life score was lowered by 12.7 units among 26-35 years ($P= 0.04$, 95% CI -25.1, 0.03), and compared to those who stay with family and friends the mean overall quality of life score was lowered by 10.9 unit among those who stay alone ($P=0.01$, 95% CI -19.4, -2.3). Individuals with substance use staying in rehabilitation centers generally had a moderate quality of life. However, quality of life declined with increasing age, particularly among those aged 36 to 45 and among those who lived alone highlighting the need for targeted interventions.

KEYWORDS

Drug, addiction, rehabilitation, quality of life, Nepal

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INTRODUCTION

Substance use is a treatable public health problem affecting a person's brain and behavior, profoundly affecting individuals, families, and communities.¹ Globally, over 300 million people used drugs in 2023.² The Nepal Drug Users Survey 2020 estimated that approximately 130,424 people in Nepal use drugs, excluding tobacco and alcohol, reflecting a steady increase from 46,309 in 2006 and 91,534 in 2013, with an average annual growth rate of about 5.06% from 2013 to 2020 and among them 84.7% used cannabis in their lifetime.³ Quality of life (QoL) is a crucial indicator that goes beyond abstinence to capture the broader impact of substance use and the effectiveness of rehabilitation efforts.⁴ It encompasses physical health, psychological well-being, social relationships, and environmental satisfaction. Globally, studies have consistently shown that individuals with substance use disorders have significantly lower QoL compared to the general population, due to factors such as comorbid mental health conditions, stigma, unemployment, and lack of social support.⁵ Substance use disorder can affect several aspects of a person's physical and psychological health, relationships, and overall quality of life.^{6,7} However, there is some evidence from Kathmandu indicating that among opioid users, 87.0% reported a good overall quality of life, suggesting variability depending on context and substance type.⁸ Rehabilitation centers aim to address these challenges by providing a supportive environment for recovery, but the extent to which they succeed in improving QoL remains under-explored in Nepal.⁹

In the Nepali context, limited research has been conducted to assess QoL among individuals with substance use disorders, particularly those enrolled in rehabilitation centers. While some international studies have identified key factors influencing QoL such as age, education, type and duration of substance use, family support, and employment status similar evidence in Nepal is sparse and lacks regional specificity.

Given the increasing number of individuals seeking rehabilitation services in Biratnagar, there is a critical need to generate local evidence on their quality of life and the associated factors. Understanding these dimensions is essential to inform more holistic and effective rehabilitation programs that focus not only on substance use cessation but also on enhancing overall well-being. Therefore, this study will assess the overall quality of life and its associated factors among individuals with

substance use enrolled in rehabilitation centers in Biratnagar Metropolitan City of Nepal.

MATERIALS AND METHODS

Study design and settings: An analytical cross-sectional study among individuals with substance users enrolled at drug rehabilitation centers in Biratnagar Metropolitan City from August 2024 to February 2025. The study included all seven drug rehabilitation centers in Biratnagar. These centers provide a structured environment for individuals recovering from substance use, where residents typically stay for at least three months as part of the recovery process.

Sample size and participant recruitment: All individuals with substance users who enrolled at the seven rehabilitation center were invited to participate in the study (n=129). However, individuals with diagnosed mental illnesses (n=10) and those unable to respond (n=10) were excluded from the study. Hence, the data were collected among 109 participants.

Data collection tools and techniques: A structured questionnaire was developed based on an extensive literature review and expert opinion. Socio-demographic variables were adapted from previous research conducted in Nepal.¹⁰ Participants self-reported their history of substance use, family member addiction, and prior stays at rehabilitation centers.

We used the WHOQOL-BREF (World Health Organization Quality of Life - BREF), a validated 26-item instrument developed by WHO, to assess physical, psychological, social, and environmental domains of QoL.¹¹ This 26-item tool evaluates four domains: physical health, psychological health, social relationships, and environment. Additionally, two separate questions assess overall health perception and overall quality of life. Responses were recorded on a five-point Likert scale, ranging from "very dissatisfied" to "very satisfied," "not at all" to "an extreme amount," and "never" to "always." Domain scores were transformed to a 0–100 scale, where higher scores indicate better quality of life.

Data collection and analysis: A pretest was conducted among individuals with substance users who resided at a rehabilitation center in Lahan, leading to necessary modifications before final data collection. Trained enumerators facilitated a self-administered data collection process. Data was entered into Microsoft Excel and analyzed using SPSS-17. Descriptive statistics, including mean

and standard deviation (SD) for continuous variables and frequencies and percentages for categorical variables, were calculated. Linear regression analysis was performed to identify factors associated with QoL.

This study is the part of the study of the broader project approved by the Nepal Health Research Council (NHRC) (Ref. No.: 32_2024), focusing on the “Effectiveness of Brahma Kumaris Raja Yoga meditation on the quality of life of the person residing in the drug rehabilitation center”. The approval was taken from the

respective metropolitan authority. Permission was also taken from rehabilitation centers. Written informed consent was obtained from all respondents and confidentiality was strictly maintained.

RESULTS

Among 109 respondents, the mean age was 31.4 ± 13.3 years. The majority were from Nepal (79.8%). More than half (53.2%), were from Morang district. The majority of the

Table: 1 Sociodemographic characteristics of the respondents (n=109)

Characteristics	n (%)
Country	
Nepal	87 (79.8)
India	22 (20.2)
District	
Arariya	13 (11.9)
Morang	58 (53.2)
Sunsari	11 (10.1)
Saptari	7 (6.4)
Udaypur	3 (2.8)
Others	17 (15.6)
Religion	
Hindu	98 (89.9)
Muslim	9 (8.3)
Others	2 (1.8)
Education	
Illiterate	11 (10.1)
Primary	22 (20.2)
Secondary	51 (46.8)
Bachelor	12 (11.0)
Master	13 (11.9)
Occupation	
Farmer	22 (20.2)
Service	22 (20.2)
Business	35 (32.1)
Others	30 (27.53)
Marital status	
Unmarried	51 (46.8)
Married	50 (45.9)
Divorced	6 (5.5)
Others	2 (1.8)
Age	
15-25	46 (42.2)
26-35	32 (29.4)
36-45	14 (12.8)
46-55	8 (7.3)
>55	9 (8.3)

n: frequency %: percentage

Table 2 Characteristics of residents of rehabilitation centres of Biratnagar Metropolitan City (n=109)

Clinical characteristics	n (%)
Family support	
Yes	81 (74.3)
No	28 (25.7)
Substance use	
Yes	107 (98.2)
No	2 (1.8)
Types of substance use	
Alcohol	42 (40.0)
Brown sugar	13 (12.4)
Tobacco	7 (6.7)
Drugs	7 (6.7)
Mixed	36 (34.3)
Reason of substance use	
Friend circle	30 (27.5)
Fun / self interest	31 (28.4)
Stress/ grief / family dispute	41 (37.6)
Others	7 (6.4)
Substance use among family members	
Yes	28 (25.7)
No	81 (74.3)
Quarrel in family	
Yes	53 (48.6)
No	56 (51.4)
Stay with	
Family	98 (89.9)
Friends	3 (2.8)
Alone	8 (7.3)
Resided in a rehabilitation center previously	
Yes	47 (43.1)
No	62 (56.9)

n: frequency %: percentage

Table 3: Raw and transform score (TS) of quality of life of the respondents (n=109)

	Physical domain		Psychological		Social		Environmental		Overall QoL	
	Raw	TS 0-100	Raw	TS 0-100	Raw	TS 0-100	Raw	TS 0-100	Raw	TS
Mean	22.5	55.4	19.1	54.7	9.6	54.8	22.2	44.3	6.5	56.4
SD	5.3	19.2	4.5	18.8	2.8	23.9	5.2	16.4	1.8	22.2

Table 4: Bivariate and multivariate linear regression analysis for quality of life (n=109)

	Bivariate analysis			Multivariate analysis				
Variables	β	coef	95% CI	P value	β	coef	95% CI	P value
Age								
15-25		Ref				Ref		
26-35		-10.4	-20.3, -0.05	0.04		-12.7	-25.1,0.03	0.04
36-45		-17.2	-30.3, -4.0	0.01		-20.4	-37.8, -3.08	0.02
46-55		-9.6	-26.1, 6.8	0.2		-17.9	-39.6, 3.7	0.1
>55		-4.4	-20.1, 11.2	0.5		-5.08	-26.9, 16.7	0.6
Marital status								
Single		Ref				Ref		
Married		-0.77	-9.2, 7.7	0.85		6.9	-3.8, 17.7	0.2
Religion								
Hindu		Ref				Ref		
Non-Hindu		1.7	-12.36, 15.77	0.81		0.36	-14.7, 15.4	0.9
Education								
Not able to read and write		Ref				Ref		
Primary		-1.7	-17.9, 14.5	0.8		-8.4	-25.3, 8.4	0.3
Secondary		6.5	-8.1, 21.2	0.3		-2.1	-18.2, 14.06	0.7
bachelors and above		6.2	-9.7, 22.1	0.4		2.5	-14.5, 19.6	0.7
Family support								
No		Ref				Ref		
Yes		12.7	-0.09, 25.5	0.05		9.7	-4.1, 23.5	0.1
Substance use among family members								
		Ref				Ref		
No		-12.5	-44.04, 18.9	0.4		-14.8	-62.4, 32.6	0.5
Yes		-0.31	-0.87, 0.23	0.2		-0.09	-0.8,0.6	0.7
Duration of use								
No		Ref				Ref		
Yes		-2.6	-12.3, 7.05	0.5		1.2	-9.4, 11.9	0.8
Staying with								
Family/Friends		Ref				Ref		
Alone		-18.7	-34.5, -2.8	0.02		-10.9	-19.4, -2.3	0.01
Quarrel in family								
No		Ref				Ref		
Yes		-10.6	-18.8, -2.4	0.01		-5.6	-14.6, 3.3	0.2
Resided in the rehabilitation center								
No		Ref				Ref		
Yes		-4.7	-13.2, 3.7	0.2		-2.1	-7.3, 12.3	0.6
Types of drugs								
Illegal drugs		Ref				Ref		
Legal drugs		-3.8	-11.5,5.3	0.4		2.4	-7.3, 12.3	0.6

respondents (89.9%), identified themselves as Hindu. About 47.0% had attained secondary level education, while 32.0% were engaged in business. Additionally, 46.8% were unmarried (Table 1).

Nearly 75.0% of the respondents reported having family support. Almost all were using some form of substance, with many staying at the rehabilitation center as part of their recovery. The most common substances reported were alcohol use (40.0%). Additionally, 25.7% had family members who also used substances. Majority of them, 89.9% lived with their families, while 48.6% reported experiencing family conflicts. Furthermore, 43.1% had previously stayed in drug rehabilitation centers (Table 2).

The mean transformed scores for the WHOQOL-BREF domains were as follows: physical health (55.4 ± 19.2), psychological health (54.7 ± 18.8), social relationships (54.8 ± 23.9), and environment (44.3 ± 16.4). The overall quality of life score was 56.4 ± 22.2 (Table 3).

As compared to the age group of 15-25 years, the mean quality of life score was lowered by 12.7 unit among 26-35 years ($p=0.04$, 95% CI -25.1, 0.03) and lowered by 20.4 unit among 36-45 years ($p=0.02$, 95.0% CI -37.8, -3.08) adjusting for socio-demographic variables, presence of family support, substance use, duration of substance use, family use, staying status, quarrel in family, rehabilitation residence and type of drugs. Similarly, compared to those who stay with family and friends the mean quality of life score was lowered by 10.9 unit among those who stay alone adjusting for socio-demographic variables, presence of family support, substance use, duration of substance use, family use, quarrel in family, rehabilitation residence and type of drugs ($p=0.01$, 95.0% CI -19.4, -2.3) (Table 4).

DISCUSSION

The study found that individuals with substance use experienced a moderate overall quality of life. However, quality of life varied across different domains, with the environmental domain being the lowest. Additionally, older individuals and those living alone reported significantly lower quality of life.

Substance use was most prevalent among young individuals, aligning with the Nepal drug survey showing that 76.2% of drug users below age of 30 years,³ in India one third age below 24 years.¹² Adolescence is a critical period marked by risk-taking behaviors, and without adequate support systems, young individuals

are particularly vulnerable to substance use initiation.¹³ Alcohol was the most commonly used substance, in line with findings from other regional studies in Dharan (40.0%)¹⁴ Bhaktapur (30.0%) used before the age of 18 years,¹⁵ and Dehradun, India (61.7%).¹⁶ In Nepal, according to STEPs survey 23.9% were alcohol users.¹⁷ While globally, cannabis remains the most widely used drug,¹⁸ our study shows the significant role of alcohol in substance use disorders. Alcohol use is a leading risk factor worldwide, having a direct impact on many health-related targets of the sustainable development goals (SDGs).¹⁹ The primary reasons for initiating drug use included stress (37.6%), in contrast, the study done in India showed 87.0% started substance due to friends.¹² In low and middle-income countries, 28.0% of the youths faced symptoms of depression or anxiety.²⁰ As per the mental health survey, the prevalence of mental health disorders was highest (11.4%) in Koshi Province of Nepal and four times higher among youth having alcohol use disorder.²¹ The presence of drug-using family members was a notable factor, emphasizing the role of familial exposure in shaping substance use behaviors. Family discord (48.6%), further contributed to drug use initiation and continuation. A concerning finding was the high relapse rate among participants, with nearly half (43.1%) having previously resided in rehabilitation centers. This underscores the chronic nature of substance use disorders and the necessity of long-term relapse prevention strategies. Relapse rates reported in other studies vary, and this has a significant on an individual's psychological and social well-being, thereby reducing their quality of life.²² Poor quality of life also leads to relapse. The relapse rate after treatment in rehabilitation centers was high at 63.0%.²³ Various rehabilitation centers in Nepal operate through NGOs and some are privately managed. These centers aim to boost the self-esteem of those struggling with drug addiction and help them develop a negative attitude towards drugs.²⁴ Individuals pursuing help for substance use disorders aim to enhance their quality of life by decreasing or ceasing their substance use.²⁵

In this study, the overall quality of life score was moderate, a similar finding was found in Ethiopia²⁶ but lower than the study done at Kathmandu.⁸ The physical health score was lower compared to similar studies conducted in India but higher than in Nepal, potentially reflecting differences in healthcare access.²⁷ However, psychological health scores were relatively higher, possibly due to stronger coping mechanisms or social support. The

social and environmental domain scores were comparable to the study conducted in India, suggesting shared regional or cultural influences.²⁸

In this study, the mean quality of life score was lowered by 12.7 units among 26-35-year-olds. A similar finding was seen that quality of life was negatively related to older age, driven by physical, psychological and social factors.²⁸ This may be due to increased responsibilities, such as career, finances and family, which lead to higher stress levels. Additionally, early health issues, reduced physical activity, work-life imbalance, and mental health challenges like stress and anxiety could contribute to this decline. The mean quality of life score was lowered among those who live alone. Various studies have found that perceived family support plays a crucial role in improving various aspects of health, including physical, psychological, environmental and social health of the addict and preventing relapse.²⁹ It emphasizes that social isolation is a significant barrier to recovery, as strong family support can help mitigate some of the negative effects of loneliness. Physical and psychological consequences of addiction lead to degradation in the quality of substance abuser life.³⁰ They enter into a vicious cycle of addiction and low quality of life.

This study has several strengths, firstly, this study includes all the residents from all rehabilitation centers within Biratnagar Metropolitan City, the capital of Koshi Province, Nepal. Secondly, by utilizing the WHOQoL-BREF, a validated instrument, the study ensures the reliability of its findings, which can inform the development of targeted interventions to enhance the quality of life for individuals with substance use disorders. Improving quality of life through such interventions may contribute to a reduction in relapse rates. However, this study has several limitations. The cross-sectional design prevents the establishment of causal relationships. Additionally, recall bias may have influenced participants' responses. Another limitation is the exclusion of individuals with diagnosed mental illnesses, which restricts the applicability of the findings to this subgroup. Furthermore, as the study focused exclusively on individuals residing in rehabilitation centers, it does not account for drug users living in the community, reducing the generalizability of the results.

In conclusion, the study found that individuals with substance use staying in rehabilitation centers generally had a moderate quality of life. However, quality of life declined with increasing

age, particularly among those aged 36 to 45 and those who lived alone. This highlights the need for targeted interventions that address age-specific challenges. Such efforts could include school-based prevention programs, youth empowerment activities, and promoting a positive mindset among individuals in these age groups. Additionally, strengthening social connections, providing tailored emotional and psychological support, and ensuring access to comprehensive care services are essential. By implementing these measures rehabilitation centers can help create a more supportive environment that fosters recovery and overall well-being.

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