

How does sexual quality of life correlate with self-esteem and relationship functioning among men with opioid dependence? A cross-sectional study from Southern Rajasthan.

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Abstract

Background

This study aimed to assess the association between sexual quality of life, self-esteem, and relationship functioning among men with opioid dependence and compare these outcomes between treatment-naïve men and those receiving buprenorphine–naloxone maintenance treatment.

Methods

This hospital-based cross-sectional study was conducted at Ananta Institute of Medical Science and Research Center, Rajsamand, Rajasthan, India, from January to November 2025. A total of 104 men with opioid dependence were recruited through purposive sampling, including 52 treatment-naïve participants and 52 receiving buprenorphine–naloxone maintenance treatment. Sexual quality of life was assessed using the Sexual Quality of Life Questionnaire for Men (SQoL-M), while self-esteem and relationship functioning were assessed using the Self-Esteem and Relationship Questionnaire (SEAR). Appropriate statistical tests were used to compare groups and examine associations between study variables.

Results

The mean overall SQoL-M score was 37.34 ± 9.50 , and the mean overall SEAR score was 44.87 ± 8.09 . Treatment-naïve participants had significantly lower SQoL-M scores than buprenorphine-maintained participants (34.63 ± 10.10 vs. 40.04 ± 8.10 ; $p = 0.0033$). Similarly, mean SEAR scores were significantly lower among treatment-naïve participants (42.52 ± 8.06 vs. 47.21 ± 7.47 ; $p = 0.0027$). A statistically significant moderate positive correlation was observed between SEAR and SQoL-M scores ($r = 0.56$, $p < 0.0001$), indicating that higher self-esteem and better relationship functioning were associated with better sexual quality of life.

Conclusion

Sexual quality of life was positively associated with self-esteem and relationship functioning among men with opioid dependence. Participants receiving maintenance treatment had higher scores on both measures than treatment-naïve participants.

Recommendation

Routine assessment of sexual health, self-esteem, and relationship functioning should be incorporated into comprehensive opioid dependence care. Longitudinal studies are recommended to clarify these associations over time.

Keywords: Opioid dependence, Sexual health, Quality of life, Satisfaction, Buprenorphine

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Introduction

Opioid dependence is a chronic and relapsing disorder associated with substantial physical, psychological, and social morbidity. Beyond direct effects on physical health, opioid dependence can adversely affect emotional well-being, interpersonal relationships, occupational functioning, and overall quality of life. Psychological difficulties, social stigma, feelings of inadequacy, and reduced confidence may negatively influence an individual's self-esteem, while financial difficulties, family conflicts, and impaired social functioning may strain intimate relationships. These psychosocial consequences are particularly relevant to sexual health, where self-confidence, emotional intimacy, and relationship quality are closely interconnected.

Sexual health represents an important yet frequently under-recognized domain of impairment among men with opioid dependence. Opioid exposure has been associated with reduced sexual desire, erectile difficulties, orgasmic disturbances, and other forms of sexual dysfunction.[1,2] Chawla et al. reported poor self-esteem, sexual relationship functioning, sexual satisfaction, and sexual quality of life among treatment-naïve men with heroin dependence, highlighting the multidimensional burden of opioid dependence.[1] One important biological mechanism underlying these difficulties is suppression of the hypothalamic–pituitary–gonadal axis, which may result in reduced testosterone concentrations and opioid-induced hypogonadism. A systematic review and meta-analysis by Bawor et al. demonstrated testosterone suppression among opioid users, supporting the role of opioid exposure in endocrine dysfunction.[3] Similar concerns have been discussed in reviews of opioid-induced hypogonadism and its clinical consequences. [4,5] However, the impact of opioid dependence on sexual health extends beyond physiological dysfunction. Sexual difficulties may contribute to performance-related anxiety, diminished sexual confidence, dissatisfaction with intimate relationships, and a negative perception of one's sexual adequacy. Consequently, self-esteem and relationship functioning may be adversely affected, further compounding the psychological and interpersonal burden of opioid dependence. [1,2]

Sexual quality of life provides a broader perspective on these consequences by capturing the perceived impact of sexual difficulties on confidence, satisfaction, emotional well-being, and intimate relationships. Findings from Chawla et al. highlight the importance of considering psychosocial dimensions alongside conventional measures

of sexual dysfunction.[1] Evidence also suggests that sexual difficulties may persist among men receiving opioid maintenance treatment. Yee et al., in a meta-analysis, found that sexual dysfunction was common among men receiving opioid substitution treatment, with a higher pooled prevalence among methadone-treated men than among those receiving buprenorphine.[6] Studies examining men receiving buprenorphine maintenance have also investigated testosterone concentrations and sexual functioning, demonstrating the importance of continued assessment of sexual health during treatment. [7,8]

Treatment status may be relevant to sexual functioning and sexual quality of life. Sen et al. compared treatment-naïve men with heroin dependence with men maintained on buprenorphine and reported better sexual functioning, relationship satisfaction, and sexual quality-of-life scores in the buprenorphine-maintained group.[2] These findings suggest that treatment and recovery may be accompanied by improvements in sexual and psychosocial well-being. However, because the study was comparative rather than a longitudinal assessment of the same individuals before and after treatment, the findings should not be interpreted as definitive proof that treatment alone caused these improvements. Furthermore, the extent of improvement may vary according to the duration of opioid exposure, associated medical and psychological conditions, relationship circumstances, and treatment received. The present study therefore examined self-esteem and relationship functioning alongside sexual quality of life to better understand these interrelated domains among men with opioid dependence.

An additional consideration in understanding the sexual and psychosocial consequences of opioid dependence is the type of opioid used. Heroin and naturally derived opioids differ in their pharmacological characteristics and patterns of use, while the associated clinical and social circumstances may also vary across populations. Although opioids can affect sexual functioning through common biological mechanisms, the magnitude and pattern of their effects may differ between individuals and substance-use groups. Agarwal et al. described the sociodemographic profile of patients with opioid dependence attending a tertiary healthcare centre in Southern Rajasthan, providing regionally relevant context for understanding the characteristics of this population.[9] Examining sexual health, self-esteem, and relationship functioning among the region-specific predominant type of opioid users may provide different insights. This also highlights the need for

regionally relevant evidence, because findings from studies predominantly involving heroin users may not be directly generalizable to populations in which naturally derived opioids predominate.

The present study was therefore undertaken to assess sexual quality of life, self-esteem, and relationship functioning, and the relationship between the two so that a broader understanding of the psychosocial dimensions of sexual health among men with opioid dependence in Southern Rajasthan could be explored.

Materials and methods

Study design and setting

This hospital-based cross-sectional study was conducted in the Department of Psychiatry at Ananta Institute of Medical Science and Research Center, Rajsamand, Rajasthan, India, a tertiary care teaching hospital located in Southern Rajasthan. The institution provides medical education and multidisciplinary healthcare services, including specialised psychiatric care. The hospital caters to patients from Rajsamand and surrounding urban and rural areas, providing outpatient and inpatient services for various psychiatric disorders, including substance use disorders. Participants were recruited from the Psychiatry Outpatient Department (OPD) and inpatient ward between January and November 2025. The study included 104 adult men with opioid dependence, comprising 52 treatment-naïve participants and 52 participants receiving buprenorphine–naloxone maintenance treatment. Opioid dependence was diagnosed independently by two psychiatrists according to the International Classification of Diseases, Eleventh Revision (ICD-11) diagnostic criteria. Written informed consent was obtained from all eligible participants before enrolment.

Participants

Male patients aged >18 years who provided consent, understood Hindi questionnaires, fulfilled ICD-11 DCR criteria for opioid dependence independently diagnosed by two psychiatrists, and were sexually active and living with their partner during the preceding 6 months were included. Patients with primary sexual dysfunction, relevant medication use, medical/surgical/psychiatric conditions affecting sexual functioning, substance use other than opioid and nicotine use, or having intellectual disability were excluded. Additionally, for Group 1 (treatment-naïve patients with opioid dependence), exclusion criteria included substance use (within the last one month) other than tobacco and opioids, and for Group 2 (patients on buprenorphine maintenance), exclusion criteria included substance use

other than tobacco within the last one month, lack of abstinence from opioid substances in the last 6 months, or poor maintenance on Buprenorphine–naloxone during the last 6 months.

Sampling and sample size

Purposive sampling was used. The final sample comprised 104 participants, with 52 treatment-naïve participants and 52 receiving opioid substitution therapy with buprenorphine–naloxone. The minimum required sample size was 94 at a 95% confidence level and 90% power; 10% was added for possible non-response or incomplete data.

Bias

Potential sources of bias were addressed through predefined eligibility criteria and standardised assessment procedures. Selection bias was minimised by applying uniform inclusion and exclusion criteria to participants recruited from both outpatient and inpatient settings. Information bias was reduced through the use of structured data collection proformas and standardised assessment instruments, including the Self-Esteem and Relationship Questionnaire (SEAR) and the Sexual Quality of Life Questionnaire for Men (SQoL-M). Potential confounding was partly addressed by excluding participants with medical or psychiatric conditions, and medication use likely to affect sexual functioning. Nevertheless, recall bias and social desirability bias could not be completely excluded because of the sensitive nature of the self-reported information. Furthermore, purposive sampling may have introduced selection bias, while the cross-sectional design limited causal interpretation of the observed associations.

Study tools

1. Sociodemographic and Clinical Proforma: The proforma included age, religion, occupation, employment, residence, education, family type, socioeconomic status (SES) assessed using the Modified Kuppuswamy Scale 2023, type of opioid used, age at opioid initiation, and family history of opioid use.

2. Sexual History Proforma: The sexual history proforma assessed age at first sexual intercourse and number of sexual partners.

3. Self-Esteem and Relationship Questionnaire (SEAR): To evaluate self-esteem, confidence, and relationship satisfaction, a validated self-report ‘Self-Esteem and Relationship’ (SEAR) Questionnaire was used. [10]. The questionnaire consists of 14 items rated on a five-point Likert scale and comprises two major domains: the

Relationship domain (Items 1–8), which evaluates relationship satisfaction, emotional closeness, and partner communication, and the Confidence domain (Items 9–14), which measures self-esteem and confidence related to sexual functioning. Raw scores are transformed to a 0–100 scale, with higher scores indicating better relationship functioning, greater confidence, and lower psychosocial distress. Owing to its brevity, excellent reliability, and responsiveness to treatment-related changes, the SEAR questionnaire is widely used in both clinical practice and research.

4. Sexual Quality of Life Questionnaire–Male (SQoL-M): It is a validated self-report instrument designed to assess the impact of sexual functioning on overall quality of life, with particular emphasis on emotional well-being, self-esteem, and interpersonal relationships. [11] The SQoL-M consists of 11 or 18 items depending on the version used, each rated on a six-point Likert scale ranging from "completely agree" to "completely disagree." Most items are negatively worded and therefore require reverse scoring before calculating the total score. Raw scores are transformed to a 0–100 scale, with higher scores indicating better sexual quality of life, greater emotional well-being, reduced distress related to sexual problems, and improved relationship satisfaction. The SQoL-M has demonstrated good internal consistency, satisfactory test–retest reliability, and excellent construct validity, making it suitable for both clinical practice and research. A validated Hindi version of the SQoL-M was used in the present study.

Study procedure

Written informed consent was obtained from all participants before enrolment. Eligible participants were screened using

a structured screening proforma. Sociodemographic and clinical details were recorded, followed by assessment of self-esteem and relationship functioning using the SEAR questionnaire and sexual quality of life using the SQoL-M. Interviews were conducted in Hindi in a private setting to ensure confidentiality and encourage accurate reporting.

Data collection and statistical analysis

Data were collected using a semi-structured proforma developed by the investigators following an extensive review of the literature. The collected data were entered into Microsoft Excel and analysed using IBM SPSS Statistics version 26. Continuous variables were summarized as mean $\pm$ standard deviation, while categorical variables were expressed as frequencies and percentages. Appropriate statistical tests were applied for comparison between groups. Pearson's correlation coefficient was used to assess the relationship between SEAR and SQoL-M scores. A p-value <0.05 was considered statistically significant.

Ethical consideration

Ethical approval was obtained from the Institutional Ethical Committee, Ananta Institute of Medical Science and Research Center, Rajsamand, Rajasthan, on 10 May 2024 (Ethical Clearance No.: AIMS/Ananta IEC/2024/213).

Results

Sociodemographic Characteristics

A total of 104 sexually active men with opioid dependence were included in the study. The mean age of the participants was 37.26 ± 7.49 years.

Table 1. Sociodemographic characteristics of men with opioid dependence

S. No.	Variable	Number (N=104, Percentage %)	Group 1 (N=52), (%)	Group 2 (N=52), (%)	df	p-value
1.	Religion				1	0.7739
	Hindu	90 (86.5)	46 (88.5)	44 (84.6)		
	Islam	14 (13.5)	6 (11.5)	8 (15.4)		
2.	Occupation				4	0.365
	Unemployed	1(1.0)	1 (1.9)	0		
	Unskilled/Semi-skilled	10(9.6)	6 (11.5)	4 (7.7)		
	Skilled manual workers	66(63.5)	29(55.8)	37(71.2)		
	Sales and Clerical workers	20(19.2)	13(25)	7(13.5)		
	Professional/Technical occupations	7 (6.7)	3 (5.8)	4 (7.7)		

3.	Employment status					
	Never employed		1 (1.9)	0		
	Presently unemployed		13 (25.0)	7 (13.5)		
	Full-time employed		21 (40.4)	24 (46.2)		
	Part-time employed		1 (1.9)	8 (15.4)		
	Self-employed	1 (1.0%)	15 (28.8)	11 (21.2)		
	Student	2 (1.9)	0	1 (1.9)		
	Homemaker	20 (19.2)	1 (1.9)	0	6	0.1222
		45 (43.3)				
		9 (25)				
		1(1)				
		1(1)				
4.	Domicile				1	0.6882
	Rural	63 (60.6)	33 (63.5)	30 (57.7)		
	Urban	41(39.4)	19 (36.5)	22 (42.3)		
5.	Education Level				5	0.6392
	Literate	13 (12.5)	8 (15.4)	5 (9.6)		
	Primary	30 (28.5)	12 (23.1)	18 (34.6)		
	Secondary	42 (40.4)	24 (46.2)	18 (34.6)		
	Graduate	17 (16.3)	7 (13.5)	10 (19.2)		
	Post-graduate	2 (1.9)	1 (1.9)	1 (1.9)		
6.	Socioeconomic status				7	0.2732
	Upper SES	1(1)	0	1 (1.9%)		
	Upper Middle SES	13 (12.5)	7 (13.5%)	6 (11.5%)		
	Lower Middle SES	32 (30.8)	22(42.3%)	10(19.2%)		
	Upper Lower SES	57 (54.8)	22(42.3%)	35(67.3%)		
	Lower SES	1(1.9)	0	1(1.0)		
7.	Type of Family				1	0.1491
	Joint	68 (65.4)	30 (57.7)	38 (73.1)		
	Nuclear	36 (34.6)	22 (42.3)	14 (26.9)		

The majority of participants were Hindu (86.5%), belonged to rural areas (60.6%), had secondary-level education (40.4%), and belonged to joint families (65.4%). The majority were engaged in skilled manual occupations (63.5%). More than half of the participants belonged to the upper-lower socioeconomic category (54.8%). No statistically significant differences were observed between the treatment-naïve and buprenorphine-maintained groups across the major sociodemographic variables.

Clinical and sexual history characteristics

The mean age at initiation of opioid use among participants was 26.36 ± 4.95 years. The majority of participants (96, 92.3%) reported using natural opioids, predominantly raw opium and *doda chura*, whereas 8 (7.7%) reported using other opioids, including smack, heroin, and brown sugar. The mean age at first intercourse was 20.54 ± 2.30 years in the overall sample. A positive family history of opioid use was reported by 50 (48.1%) participants. Sixty-four participants (61.5%) reported a single lifetime sexual

partner, whereas 40 (38.5%) reported more than one lifetime sexual partner.

Among the overall participants, the mean SEAR score was 44.87 ± 8.09 , while the mean SQoL-M score was 37.34 ± 9.50 .

SEAR and SQoL-M Scores

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Table 2. Comparison of mean SEAR and SQoL-M Scores between groups

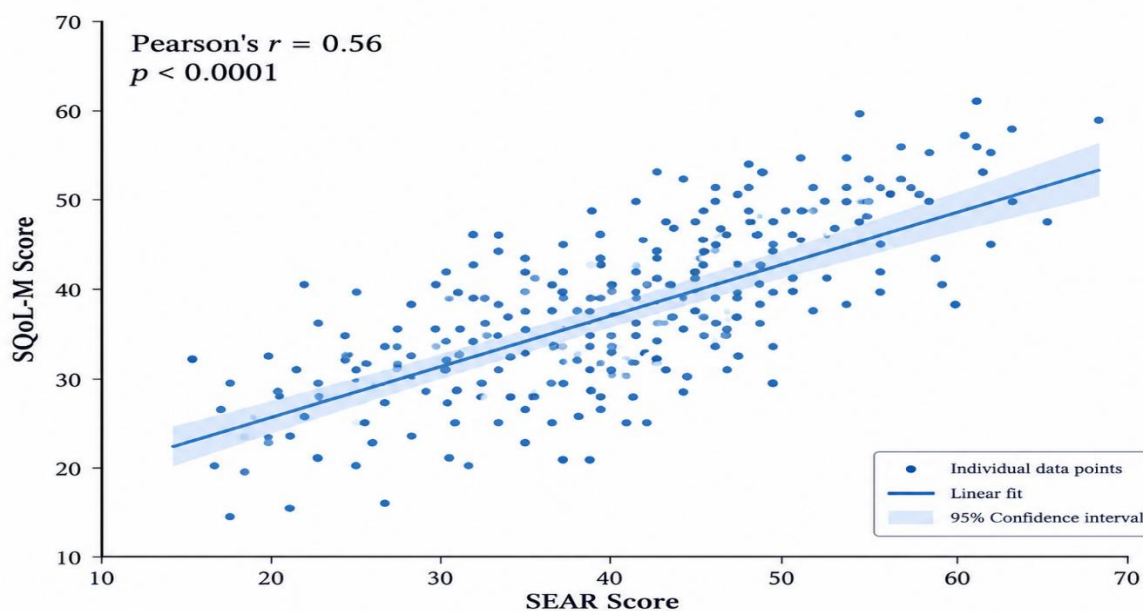
Scale	Group 1(n=52), Mean $\pm$ SD	Group2 (n=52), Mean $\pm$ SD	p-value
SEAR	42.52 ± 8.06	47.21 ± 7.47	0.0027
SQoL-M	34.63 ± 10.10	40.04 ± 8.10	0.0033

The mean SEAR score was significantly higher among buprenorphine-maintained participants than treatment-naïve participants (47.21 ± 7.47 vs. 42.52 ± 8.06 ; $p=0.0027$). Similarly, the mean SQoL-M score was significantly higher

among buprenorphine-maintained participants than treatment-naïve participants (40.04 ± 8.10 vs. 34.63 ± 10.10 ; $p=0.0033$).

Correlation between SEAR and SQoL-M scores

Correlation Between SEAR and SQoL-M Scores



There is a moderate positive correlation between SEAR and SQoL-M scores ($r = 0.56$, $p < 0.0001$).

Figure 1: Correlation between SEAR and SQoL-M scores

A statistically significant moderate positive correlation was observed between SEAR and SQoL-M scores in the overall

sample ($r=0.56$, $p<0.0001$). Thus, participants with higher SEAR scores tended to have higher SQoL-M scores.

Discussion

The present study examined the association between self-esteem and relationship functioning and sexual quality of life among men with opioid dependence.

Sociodemographic characteristics

The mean age of participants was 37.26 ± 7.49 years, with comparable ages in the treatment-naïve and buprenorphine-maintained groups. This is broadly comparable with findings reported by Sen et al., who studied treatment-naïve and buprenorphine-maintained men with opioid dependence. [2] In contrast, the recent community-based study by Patel et al. included a considerably younger population, with a median age of 26 years. [12] Differences may reflect variations in recruitment setting, treatment status, and population characteristics. The majority of participants were Hindu, with no significant difference between the two groups. This finding is broadly consistent with previous Indian studies of opioid-dependent populations and may primarily reflect the demographic composition of the study region. Most participants were engaged in skilled manual occupations. Agarwal et al., in a study conducted in Southern Rajasthan, similarly reported a predominance of manual and agriculture-related occupations among individuals seeking treatment for opioid dependence. [9] This similarity supports the regional relevance of the present findings. A rural background was observed in 60.6% of participants, with no significant difference between groups. Agarwal et al. reported a similar rural predominance in their Southern Rajasthan sample. [9] Differences from community-based studies may reflect variations in geographical catchment and healthcare-seeking patterns. Most participants had completed secondary-level education. The majority of participants belonged to joint families. This finding may reflect the sociocultural context of the region. However, family structure alone does not necessarily indicate the quality or availability of family support. More than half of the participants belonged to the upper-lower socioeconomic category. Similar representation of lower socioeconomic groups has been reported in Indian opioid-dependent populations. [9]

Clinical characteristics

Natural opioids, predominantly raw opium and doda chura, were the predominant opioids used by participants (92.3%). This observation aligns with the findings reported by Agarwal et al. in their study conducted in Southern Rajasthan, which also identified natural opioids as the

predominant substances used by participants. [9] This pattern may reflect regional availability and established patterns of opioid use in Rajasthan. Natural opioids, predominantly raw opium and doda chura, were the most commonly used opioids among participants in the present study (92.3%). This finding is consistent with Agarwal et al., who described the clinical and sociodemographic profile of patients with opioid dependence attending a tertiary-care centre in Southern Rajasthan, highlighting the regional pattern of natural opioid use [9]. Similarly, Nitin Aggarwal et al. studied patients with opioid dependence at a tertiary-care centre in Udaipur, providing further regional context regarding the clinical characteristics of this population [14]. The predominance of natural opioid use in the present study may reflect regional availability and established substance-use patterns in Southern Rajasthan.

Age at initiation of opioid use

The mean age at initiation of opioid use in our study was 26.36 ± 4.95 years. These results contrast with the findings reported by Agarwal et al. (2023), who found a mean age of opioid initiation of 21.57 ± 5.00 years among patients with opioid dependence in Southern Rajasthan. [9] Differences in the average age at opioid initiation could be attributable to variations in the sociodemographic profiles and patterns of substance use across study populations.

Family history

A family history of opioid use was present in 48.1% of the participants. Prasant et al. demonstrated increased rates of substance-use disorders among first-degree relatives of opioid-dependent males compared with controls, particularly opioid use disorder among brothers and alcohol use disorder among fathers. [13] These findings support the importance of familial vulnerability in opioid dependence.

Sexual relationship history

The mean age at first intercourse in the present study was 20.54 ± 2.30 years. A majority of participants (61.5%) reported a single lifetime sexual partner, whereas 38.5% reported more than one lifetime partner. Although a greater proportion of buprenorphine-maintained participants reported multiple lifetime sexual partners, the difference was not statistically significant. Sen et al. reported no statistically significant differences between treatment-naïve and buprenorphine-maintained participants in either the mean age at first sexual intercourse or the average number of lifetime sexual partners [2]. Thus, the findings of the present study are in line with Sen et al. regarding the absence

of significant differences in sexual history between treatment groups, although direct comparison of the proportion reporting a single lifetime partner is limited by differences in how the data were categorized and reported. [2]

Self-esteem and relationship functioning.

The mean SEAR score in the overall sample was 44.87 ± 8.09 . The mean SEAR score was significantly higher among buprenorphine-maintained participants than among treatment-naïve participants, showing better relationship satisfaction, emotional closeness, and partner communication, and the Confidence domain, which measures self-esteem and confidence related to sexual functioning. This finding is consistent with Sen et al., who used the SEAR questionnaire to compare treatment-naïve and buprenorphine-maintained men with opioid dependence and reported better sexual esteem and relationship functioning outcomes among the buprenorphine-maintained group. [2] The observed difference could be associated with greater treatment stability, reduced use of illicit opioids, better psychosocial functioning, and improved interpersonal stability among individuals receiving maintenance treatment.

Sexual quality of life

The mean SQoL-M score was 37.34 ± 9.50 in the overall sample. Buprenorphine-maintained participants had significantly higher SQoL-M scores than treatment-naïve participants, showing emotional well-being, self-esteem, and interpersonal relationships. This finding is consistent with Sen et al., who reported better sexual quality-of-life scores among buprenorphine-maintained men compared with treatment-naïve men with opioid dependence. [2] Chawla et al. similarly reported impairment across self-esteem, sexual relationship, sexual satisfaction and sexual quality-of-life domains among treatment-naïve men with heroin dependence. [1]

Correlation between SEAR and SQoL-M scores

A statistically significant moderate positive correlation was observed between SEAR and SQoL-M scores in the overall sample. This finding suggests that participants reporting better relationship satisfaction, emotional closeness, and partner communication, and the Confidence domain, which measures self-esteem and confidence related to sexual functioning, also tend to report better emotional well-being, self-esteem, and interpersonal relationships. Chawla et al.

reported low scores across SEAR and SQoL-M domains among treatment-naïve men with heroin dependence, supporting the close relationship between psychosocial functioning and sexual well-being. [1] Sen et al. similarly demonstrated differences in relationship and sexual quality-of-life domains between treatment-naïve and buprenorphine-maintained participants. [2]

The present findings are clinically relevant, highlighting the importance of sexual quality of life in relation to emotional well-being, self-esteem, and interpersonal relationships, including relationship satisfaction, partner communication, and confidence in sexual functioning.

Generalizability

The generalisability of the findings is limited by the single-centre design, purposive sampling, and relatively small sample size. Furthermore, the inclusion of only sexually active men living with their partners during the preceding six months, along with the predominance of natural opioid users, may restrict the applicability of the findings to other populations of men with opioid dependence. Therefore, the findings should be interpreted primarily in the context of similar clinical settings and populations in Southern Rajasthan. Multicentre studies involving larger and more diverse samples, including community-based populations and individuals using different types of opioids, are needed to improve generalisability.

Conclusion

The present study described emotional well-being, self-esteem, and interpersonal relationships, including relationship satisfaction, partner communication, and confidence in sexual functioning among men with opioid dependence. Buprenorphine-maintained participants had significantly higher self-esteem and relationship and sexual quality of life than treatment-naïve participants. A moderate positive correlation was observed between self-esteem and relationship and sexual quality of life scores in the overall sample. These findings suggest that sexual health assessment in opioid dependence should be extended to include self-esteem, relationship functioning, and subjective sexual quality of life.

Limitations

The present study has several limitations. First, the cross-sectional design limits the ability to establish temporal or causal relationships between treatment status, self-esteem, relationship functioning, and sexual quality of life. Second, purposive sampling from a tertiary-care psychiatric setting

limits the generalizability of the findings to community-based populations or individuals not seeking treatment. Third, the study did not include a healthy control group; therefore, the absolute SEAR and SQoL-M scores cannot be interpreted as evidence of impairment relative to the general population without an appropriate normative comparison. Fourth, factors such as duration of opioid dependence, duration of buprenorphine treatment, duration of abstinence from illicit opioids, opioid dose, comorbid psychiatric disorders, physical illnesses, serum testosterone levels, and relationship duration could influence sexual functioning and sexual quality of life but were not comprehensively evaluated. Finally, self-reported sexual measures are susceptible to recall bias and social desirability bias, despite the use of private interviews and confidentiality.

Recommendation

Longitudinal studies incorporating randomization of participants using a healthy control arm, and the addition of biological, clinical, and psychosocial variables are warranted to clarify the mechanisms underlying these associations and to determine the impact of opioid-dependence treatment on sexual function.

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Conflict of Interest

The authors declare no conflict of interest.

List of abbreviations

ICD-11- International Classification of Diseases, 11th Revision

DCR-Diagnostic Requirements,

OPD- Outpatient Department

SES- Socioeconomic Status

SEAR- Self-Esteem and Relationship

SQoL-M- Sexual Quality of Life Questionnaire–Male

SD- Standard Deviation

SPSS- Statistical Package for the Social Sciences

IBM-International Business Machines Corporation

r- Pearson's correlation coefficient

p- Probability value

df- Degrees of freedom

N-Total sample size

n- Subgroup sample size.

HPG axis- Hypothalamic–Pituitary–Gonadal Axis

BM- Buprenorphine Maintenance

OD- Opioid Use Disorder

STI- Sexually Transmitted Infection.

Authors contributions

Dr. Shveta contributed to the conceptualization, data collection, data analysis, interpretation of results, and manuscript preparation. Dr. Sunil Kumar and Dr. Bharat Agarwal contributed to the study design, supervision, and critical revision of the manuscript. Dr. Tanay Agarwal contributed as a colleague to data collection and manuscript review. All authors reviewed and approved the final manuscript.

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