Assessment of Sexual Behavior among Patients Seeking Treatment for Opioid Dependence and Their Knowledge and Attitude about High-Risk Sexual Behavior: A Cross-Sectional Observational Study

Abstract

Aims: The primary aim of the current study was to assess the sexual history and behavior among treatment-naive male patients of heroin dependence presenting to outpatient services; their knowledge and attitude about high-risk sexual behavior; and their sexual quality of life.

Methods: A cross-sectional exploratory study was done on treatment-naive patients of heroin dependence, recruited by purposive sampling method. They were assessed using a semi-structured pro forma that explored sociodemographic and clinical details, including details on injecting behavior, sexual history and behavior, perceived impact of heroin on sexual functioning, and knowledge and attitude toward high-risk sexual behavior; Human Immunodeficiency Virus (HIV) Knowledge Questionnaire-18; and Sexual Quality of Life Questionnaire-Male.

Results: Fifty-three married patients with a diagnosis of opioid dependence were included in the study. The mean age of the sample was 31.4 years, with a mean age of heroin initiation being 22.5 years and 39.6% having a history of injecting drug use. About 40% of the sample reported to have engaged in sex with a commercial sex worker or a casual partner, of which many reported that such encounters were unprotected. Almost all of the participants reported sex under intoxication in the last month. Prolonging of the duration of erection and ejaculation was reported by a large majority of participants, while many reported heroin intake to increase libido and sexual pleasure. HIV and sexual quality of life were generally poor. Injecting drug use was associated with significantly greater number of partners, having history of casual partner sex, unprotected sex with casual partner, and poorer sexual quality of life.

Conclusion: Risky sexual behaviors are common (including few having coercion/assault) among patients with opioid dependence syndrome. Knowledge regarding high-risk sexual behavior and HIV is poor, which should be a focus of treatment strategies. Injecting drug use is associated with more risky sex and poorer sexual quality of life.

Keywords: High-risk sexual behavior, opioid dependence syndrome, sexual knowledge, sexual quality of life

Introduction

Sexual behavior includes all activities which gratify the sexual needs of an individual. Though “risk” or “abnormality” in relation to sexual behavior is not easy to define, the context in which people express their sexuality and exhibit sexual behavior makes it risky or abnormal. One of the major challenges measuring high-risk sexual behavior is the silence of this behavior. Patients as well as clinicians are often hesitant in discussing about patients’ sexual behavior. The risks associated with high-risk sexual behavior would be contraction of sexually transmitted infections (including human immunodeficiency virus [HIV]) and unintended pregnancies or abortions (in case of females). High-risk sexual behavior has been defined variably in different studies, for example, early initiation of sex/sexual promiscuity, sexual intercourse with multiple sexual partners/female sex workers/nonspouse partner, “unnatural” sexual intercourse such as anal/oral sex, unprotected sexual intercourse, indulging in sexual intercourse with an individual who injects drugs, or sex under the influence of alcohol or other psychoactive substances. Substance use disorder is a condition which has often been found in association with high-risk sexual behavior, such as involvement with more sexual

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partners, forgetting to use a condom while having sexual intercourse, or simply using it incorrectly.\textsuperscript{[9,10]}

In the context of opioid use disorders, in the Indian subcontinent, high-risk behavior has been evaluated in people who inject drugs (PWIDs) in various studies particularly from the northeastern states of India. For example, in a study, it was seen that younger PWIDs (18–24 years) were more likely to consistently use condoms with female sex workers and casual or paid partners as compared to older PWIDs.\textsuperscript{[11]} Another study comparing injecting drug use and sexual behavior in Delhi and Imphal showed that multiple sexual partners were more common, consistent condom use was low, and HIV testing was infrequent in Delhi.\textsuperscript{[12]} A study from Manipur, correlating injection practices with sexual practices, showed that the odds of having multiple sexual partners was higher in nonheroin users, those who shared needles as compared to heroin users, and those who did not share injections. Sharing of needles or syringes correlated with multiple sexual partners and inconsistent condom use.\textsuperscript{[13]} Similarly, another study from the same area showed that 40% of PWIDs had casual sex partners and 65% of them reported inconsistent use of condom. Individuals who inject drugs were more likely to engage in unprotected sexual intercourse.\textsuperscript{[14]} A study on 420 male PWIDs in Delhi suggested a history of anal sex with men in one-third of the sample.\textsuperscript{[15]} History of anal sex was associated with higher number of female partners and a history of sharing of needles. A study done at a tertiary care center in India on patients of opioid dependence maintained on antagonist/agonist showed that sexual dysfunction was associated with higher risk-taking behavior.\textsuperscript{[16]}

Substance use being a risk category of high-risk behavior merits attention to the knowledge and attitude of risky behavior and HIV. In addition, sexual quality of life as a concept talks about the manner in which an individual perceives his/her sexual well-being and needs being met adequately. Although much literature has dwelt upon the public health perspective of risky sexual behavior being facilitator of transmission of sexually transmitted infections (including HIV) among opioid users, less literature is available to understand the overall and comprehensive sexual experiences of an individual with addiction, the perceived sexual effects of the substance under consideration (opioids in this case), and the sexual quality of life. These are important considerations of how and why substances such as opioids are intricately linked to sexual experiences, but which are less often discussed owing to reluctance and privacy concerns in the clinical setting. Thus, this study aimed to assess sexual experiences and behavior, perceived effect of heroin, knowledge and attitude toward sexual behavior and HIV, and overall sexual quality of life among patients seeking treatment of heroin dependence.

**Methods**

A cross-sectional exploratory study was taken up on treatment-naïve patients of heroin dependence, recruited by purposive sampling method from the outpatient services of the National Drug Dependence Treatment Centre (NDDTC), All India Institute of Medical Sciences.

Male treatment-naïve outpatients in the age range of 18–50 years, married or having a cohabiting partner, diagnosed as opioid (heroin) dependence according to the International Classification of Diseases, 10th edition, and having been sexually active currently (i.e., in the last 1 month) were included in the study.

The exclusion criteria included current/past history of significant cognitive, psychiatric, and physical comorbidities (assessed by history and detailed clinical examination) which may interfere with the assessment; past or current history of dependence on any other substance apart from opioid and tobacco (as assessed by history and clinical examination); not having a cohabiting partner; currently not sexually active (in the past 1 month); and nonwillingness to participate in the study.

All patients seeking treatment at the NDDTC were eligible for participating in the study. After screening out for exclusion criteria, the patients were recruited after taking informed consent. All assessments for the study were done in a single session using a semi-structured pro forma consisting of sociodemographic and clinical details (including details on injecting behavior, sexual history and behavior, perceived impact of heroin on sexual functioning, and knowledge and attitude about high-risk sexual behavior); HIV Knowledge Questionnaire-18 (HIV-KQ-18); and Sexual Quality of Life Questionnaire-male (SQoL-M). The scales were translated into Hindi for application in patient population.

The HIV-KQ-18 is an 18-item scale\textsuperscript{[17]} which consists of questions related to HIV and its mode of transmission and prevention. It is a self-administered scale and the responses can be “true,” “false,” or “don’t know.” For each of the 18 items, a score of 1 is assigned to each correct answer. “Don’t know” and “nonresponses” are coded as “incorrect” and assigned a score of 0. Assessments were based on the analysis of the summation of these scores, whereby higher scores indicate greater knowledge of HIV. This scale has a Cronbach’s alpha coefficient of 0.75–0.89.

The SQoL-M is an 11-item Likert scale.\textsuperscript{[18]} It consists of questions on the perspectives of a male patient on his sexual quality of life, future, and manhood. It is a self-administered scale. Responses come under six categories ranging from completely agree to completely disagree with intermediate items. The total score ranges from 11 to 66. The internal consistency and test–retest reliability of the scale are good (>0.7).
Data analysis was conducted using SPSS version 20 (IBM Corp. Armonk, NY, USA). As this was largely a descriptive study, means, standard deviations, frequencies, percentages, medians, and ranges were used to describe the data. For finding associations and correlations, appropriate parametric and nonparametric tests were applied. \( P < 0.05 \) was considered statistically significant, and missing value imputation was not required.

**Results**

Fifty-three married male patients with a diagnosis of opioid dependence were included in the study. The characteristics of the patients are presented in Table 1. The mean age of the sample was 31.4 years, with an age range of 21–48 years. All of them were married and staying together with their spouses. Majority of them were employed, educated up to 10\textsuperscript{th} grade, had urban residence, and were of Hindu religion. The family income ranged from Rs. 8000–100,000/month, with a median income of Rs. 18,000/month. The mean age of heroin initiation was 22.5 years, and 39.6\% had a history of injecting drug use, with many of them having a history of sharing and reuse of needles/paraphernalia.

Table 1: Characteristics of the patients included in the study

| Variable                          | \( n (\%) \) or mean±SD |
|-----------------------------------|-------------------------|
| Age (years)                       | 31.4±7.7                |
| Gender (male)                     | 53 (100)                |
| Marital status (married and staying together) | 53 (100) |
| Occupation                        |                         |
| Currently employed                | 39 (73.6)               |
| Currently not employed            | 14 (26.4)               |
| Education                         |                         |
| Up to 10\textsuperscript{th}      | 39 (73.6)               |
| Above 10\textsuperscript{th}      | 14 (26.4)               |
| Residence                         |                         |
| Urban                             | 45 (84.9)               |
| Rural                             | 8 (15.1)                |
| Religion                          |                         |
| Hinduism                          | 34 (64.2)               |
| Islam                             | 15 (28.3)               |
| Sikhism                           | 4 (7.5)                 |
| Monthly family income in INR      | 25,283.0±21,126.3       |
| Tobacco use ever                  | 53 (100)                |
| Cannabis use ever                 | 38 (71.7)               |
| Alcohol use ever                  | 27 (50.9)               |
| Age at heroin initiation          | 22.5±6.2                |
| Daily spending on heroin in INR   | 1375.5±1262.5           |
| Injecting drug use ever           | 21 (39.6)               |
| History of sharing                | 7 (33.3)                |
| History of reuse                  | 13 (61.9)               |
| History of abscesses or ulcers    | 3 (14.3)                |
| Abstinence (>1 month) ever         | 18 (34)                 |

INR=Indian rupees, SD=Standard deviation

Sexual encounter-related history is presented in Table 2. All of them had sexual encounters in the past 1 month. The initial sexual encounter occurred at a mean of 18.1 years (ranged from 11 to 25 years), and the mean lifetime number of partners was 5.2 (range 1–30, median 3). Although majority of them used a condom, the consistent or last encounter use was low. About 40\% of the sample reported to have engaged in casual sex or sex with a commercial sex worker (CSW), and many of them had reported that such encounters were unprotected. Almost all of the participants had reported sex under intoxication in the last month. A sizeable number reported having oral or anal sex ever; about a seventh of the sample reported having sexual encounter with a male, with most of them reporting unprotected intercourse. About 20\% of the sample reported coercion of partner into sex, but less frequently so under intoxication. Three participants reported assaulting someone sexually, with two of them under intoxication. Watching pornography and masturbation were ubiquitous, and premarital (unprotected) intercourse was fairly common.

The perceived impact of heroin on their current (past 1 month) sexual functioning is reported in Table 3. It was seen that almost half perceived that heroin increased their libido, whereas 40\% perceived that it decreased libido. About two-thirds perceived heroin to increase sexual pleasure, whereas about a fourth reported it to decrease sexual pleasure. Prolonging of the duration of erection and ejaculation was reported by a large majority of the participants, though there were some who did not feel any change or reported decrement in the duration of erection and/or ejaculation. We did not find a relationship of age of the participant or duration of heroin with reporting either an increase or decrease in libido.

The knowledge and attitude about high-risk sexual behavior are presented in Table 4. Although a large proportion of the participants knew that unsafe sex leads to the transmission of HIV, many were not sure about the transmission of other infections. Only a minority of the participants knew that oral/anal sex leads to the transmission of HIV or sexually transmitted infections. A majority of the participants did report that sex under the influence of alcohol is risky. From the perspective of attitude, almost half agreed that condoms should always be used and interestingly, an equal proportion would rather not use condoms. About a third felt inhibited buying condoms from a chemist shop. Most participants reported that they could convince their partners for use of condoms during intercourse. Use of condoms was not made fun of by friends according to majority of the participants. Almost three-fourths of the participants reported that they would like to be tested for HIV if so offered.

The responses on the HIV-KQ-18 are presented in Table 5. First, some of the questions had more than 50\% “don’t
Table 2: Sexual history of the participants

| Variable                                      | n (%) or mean (SD) |
|-----------------------------------------------|--------------------|
| Had sex in the last 1 month                   | 53 (100)           |
| Age at first intercourse                      | 18.1±3.2           |
| Number of sexual partners in lifetime         | 5.2±5.8            |
| Ever used condom                              | 43 (81.1)          |
| Used condom in the last encounter             | 7 (13.2)           |
| Consistent condom use in the last 1 month     | 6 (11.3)           |
| Casual partner sex (ever)                     | 22 (41.5)          |
| Casual partner sex (last 1 month)             | 8 (15.1)           |
| Unprotected casual partner sex ever           | 9 (17.0)           |
| Sex with CSW (ever)                           | 21 (39.6)          |
| Sex with CSW (last 1 month)                   | 7 (13.2)           |
| Unprotected sex with CSW ever                 | 5 (9.4)            |
| Sex under intoxication ever                   | 53 (100)           |
| Sex under intoxication in the last month      | 52 (98.1)          |
| Sex with substance user ever                  | 6 (11.3)           |
| Unprotected sex with substance user ever      | 5 (9.4)            |
| Oral sex ever                                 | 22 (41.5)          |
| Anal sex ever                                 | 18 (34.0)          |
| Sexual intercourse with male ever             | 7 (13.2)           |
| Unprotected sexual encounter with male ever   | 5 (9.4)            |
| Ever tested for HIV                           | 16 (30.2)          |
| Ever experienced STD symptoms                 | 21 (39.6)          |
| Coerced sex on someone ever                   | 10 (18.9)          |
| Coerced sex on someone under intoxication     | 3 (5.7)            |
| Ever assaulted someone sexually               | 3 (5.7)            |
| Ever assaulted someone under intoxication     | 2 (3.8)            |
| Premarital intercourse                        | 45 (84.9)          |
| Premarital unprotected intercourse            | 30 (56.6)          |
| Do you watch pornography                      | 53 (100)           |
| Do you masturbate                             | 53 (100)           |

CSW=Commercial sex worker, SD=Standard deviation, STD=Sexually transmitted disease, HIV=Human immunodeficiency virus

know” responses and these included information of a vaccine to stop adults from getting HIV; female condom to decrease the chances of HIV; and use of natural skin condom, antibiotics, or Vaseline or baby oil with condoms to lower the chances of contracting HIV. Other areas where information was lacking were related to window period, progression to demonstrate signs of the disease, and transmission through kissing or sharing a glass of water. The mean HIV-KQ-18 score was 5.2 (±3.1) with a range of 0–11. The knowledge scores were weakly associated with age (r = 0.290, P = 0.030), but not with injection drug use, number of partners, and unprotected sex with a casual partner or with unprotected sex with a CSW.

Further exploratory analysis was conducted for assessing the relationship of injecting drug use and risky sexual behaviors. Injecting drug use was associated with statistically significantly lower age of initiation of sex (16.7 vs. 17.0 years, P = 0.010), greater number of partners (mean 7.2 vs. 3.8, P = 0.006), having a history of casual partner sex ever (61.9% vs. 28.1%, P = 0.015), unprotected casual partner sex (33.3% vs. 6.3%, P = 0.021), and unprotected sex with CSW (23.8% vs. 0%, P = 0.007). However, HIV-KQ-18 scores (mean score 6 in injecting drug users vs. 4.8 in others, P = 0.122) and proportion of having sex with a CSW (52.4% vs. 31.3%, P = 0.099) did not statistically significantly differ between injecting drug users and others.

The data on the sexual quality of life are presented in Table 6. It was seen that participants were most concerned about the future of sexual life. On the other hand, they were most reassured about their sexual adequacy (e.g., feeling less of man, or losing confidence as a sexual partner). The mean score of the scale was 32.28 (range of scores from 11 to 66). It was observed that having more number of sexual partners was associated with poorer sexual quality of life (r = −0.372, P < 0.006). It was also observed that injecting drug users had poorer sexual quality of life (mean score 24.1 vs. 37.6, P = 0.003). The sexual quality of life was not significantly associated with a history of casual sex, sex with a CSW, having symptoms of sexually transmitted disease, or indulging in coercive sexual activity.

Discussion

This is one of the few Indian studies to comprehensively assess the sexual behavior, knowledge, and attitude of treatment-naïve individuals with opioid (heroin) dependence syndrome and its association with their sexual quality of life.

In the current study, all participants included were married, cohabiting, and currently sexually active. The purpose was to assess the behavior and dysfunction among those who were currently practicing sexual intercourse and have at least a regular sexual partner. The average age of the participants was somewhat higher than that of other studies where majority of the participants were found to be <25 years of age. This is an expected finding as unmarried individuals were excluded from the study, which, in turn, might have excluded relatively younger patients. Around 40% of the sample has a history of injecting drug use with a history of sharing and reuse of paraphernalia in a majority of them. This is comparable to the findings of a recent study conducted on 1049 PWIDs, in whom 37.5% had a history of needle/syringe sharing. A number of prior studies have also shown similar figures in terms of percentage of PWIDs sharing needles/syringes.

With respect to sexual behavior, the mean age of first sexual encounter was 18.1 years with an average of around 5–6 sexual partners. In contrast to other studies done in opioid users (heroin and nonheroin, including injecting users), the average number of sexual partners was more. This difference in the finding could be possibly explained by better reporting by our study population or cohort effects.
Table 3: Perceived impact of heroin on sexual function

| Variable                                      | n (%) or mean (SD) |
|-----------------------------------------------|--------------------|
| Effect of heroin on your libido               |                    |
| Increases libido                              | 28 (52.8)          |
| Decreases libido                              | 22 (41.5)          |
| No effect on libido                           | 3 (5.7)            |
| Effect of heroin on your sexual pleasure      |                    |
| Increases pleasure                            | 34 (64.2)          |
| Decreases pleasure                            | 15 (28.3)          |
| No effect                                     | 4 (7.5)            |
| Effect of heroin in your maintenance of penile erection |        |
| Prolongs erection                             | 39 (73.6)          |
| Shortens erection                             | 9 (17.0)           |
| No effect on erection                         | 5 (9.4)            |
| Effect of heroin on your ejaculation          |                    |
| Shortens the duration of ejaculation          | 3 (5.7)            |
| Prolongs the duration of ejaculation          | 46 (86.8)          |
| No effect                                     | 4 (7.5)            |

SD=Standard deviation

Table 4: Knowledge and attitude about high-risk sexual behavior

| Statements about “knowledge” | Yes (%) | No (%) | Can’t say (%) |
|------------------------------|---------|--------|---------------|
| Unsafe sex can lead to HIV   | 45 (84.9) | 1 (1.9) | 7 (13.2)      |
| Various other infections can spread by unsafe sex, apart from HIV | 21 (39.6) | 8 (15.1) | 24 (45.3) |
| Condom is not required if one knows his partner well and not as a stranger | 37 (69.8) | 13 (24.5) | 3 (5.7)      |
| Practicing oral/anal sex does not lead to HIV/TD | 16 (30.2) | 15 (28.3) | 22 (41.5) |
| Having sex under the influence of alcohol may be risky | 35 (66) | 10 (18.9) | 8 (15.1)      |

| Statements about “attitude” | Yes (%) | No (%) | Can’t say (%) |
|-----------------------------|---------|--------|---------------|
| Condom should always be used during sex | 26 (49.1) | 21 (39.6) | 6 (11.3)      |
| I wouldn’t want to use condom if given an option | 26 (49.1) | 26 (49.1) | 1 (1.9)      |
| I wouldn’t be comfortable buying condom from a chemist shop | 19 (35.8) | 32 (60.4) | 2 (3.8)      |
| I can convince my sexual partner to use condom | 47 (88.7) | 3 (5.7) | 3 (5.7)      |
| If my friends knew that I use condom, they would make fun of me | 12 (22.6) | 40 (75.5) | 1 (1.9)      |
| If offered, I would like to get myself tested for HIV | 39 (73.6) | 13 (24.5) | 1 (1.9)      |

TD=Transmitted disease, HIV=Human immunodeficiency virus

Various other risky sexual behaviors which were found prevalent among opioid users included intercourse with casual partners/CSWs, intercourse under intoxication, and indulgence in oral and anal intercourse. These findings match the findings obtained from literature.[11-16,27] A worthwhile point to be noted is that during majority of these incidences, the individuals used protection. A small percentage of individuals was involved in other risky activities such as coerced sex, assault, and intercourse with substance users and males. These could reflect the true low prevalence of such behaviors or apprehensions of being judged or punished after disclosing such facts. This is the first study to our knowledge to report on these behaviors among heroin users.

Another important finding which could explain the high prevalence of risky sex among opioid users was their perceived positive effects on sexual act (especially duration of erection and ejaculation). This finding is expected and has often been discussed in literature. James in as early as 1986 mentioned about the use of opioids as aphrodisiacs and to delay ejaculation.[28] While in short term majority of the psychoactive substances are taken to enhance sexual performance and sexual pleasure, they lead to dysfunction in long term by reducing the levels of gonadotropins (luteinizing hormone and follicle-stimulating hormone).[29] While many participants in our study supported that libido increased with heroin use, a large proportion also reported that libido decreased with opioid use. This reporting was unaffected with age or duration of heroin use. This suggests that many other factors might result in changes in libido, though physiologically observed phenomena such as prolonged erection and delayed ejaculation were largely consistent.

Knowledge regarding high-risk sexual behavior and HIV tended to be inadequate. While a large proportion of the participants knew that unsafe sex leads to the transmission of HIV, they were not sure about the transmission of other infections. This finding is of concern in light of the fact that one-third reported having undergone HIV testing (which mandatorily involves educating the patients about HIV during pre- and post-test counseling). This finding is similar to a study done in the USA on

with time. It was also seen that lower age of first sexual intercourse (but not age itself) was associated with higher number of lifetime sexual partners. While more than three-fourth of the individuals had ever used condoms, the frequency of consistent condom use was very low (about 10%). The rate of consistent condom use has been reported to be lower in opioid-using population, similar to what was found in the general population as well.[24] However, in comparison to the recent data on the rates of condom use in the general population, the rate of condom use in our study population was extremely low. Chandran et al. reported ever use of condom by the general population to be 83%, but 38% always used them.[25] Rastogi et al. reported that 48.6% of men used condom consistently with female sex workers, but only 0.8% of men used condom consistently with their regular partners.[26]
seventy individuals, where the percentage having correct knowledge about HIV transmission was higher than that of hepatitis C virus (HCV) transmission. This finding can be understood in light of the fact that knowledge regarding HIV is spread widely through campaigning and mass media unlike that of HCV or other sexually transmitted diseases. However, the percentage of knowledge about HIV was lower (<50%) as compared to that of the aforementioned study (73%). This probably indicates that more efforts might be required by clinicians on educating their patients about high-risk and HIV-related behavior. On the other hand, in comparison to a study done on refugees with lower education and negligible access to media, HIV and risky sex knowledge appeared to be higher, supporting the role of creating awareness about HIV in media.[31] Although studies are available on HIV-related behaviors in the Indian population of opioid-dependent patients, no study in India, till date, has systematically studied opioid-dependent patients’ knowledge regarding HIV.

In the current study, there were contrasts found between patients’ attitudes toward the use of condom and their actual practice. While around half of the individuals believed that condom should always be used during sexual encounters, only around 11% actually used condoms consistently in the last 1 month. The reasons behind this discrepancy could be looked into in further clinical assessments as these could be related to some practical difficulties with the use of condom, for example, difficulty wearing a condom or loss of pleasurable sensation during the sexual act.

Sexual quality of life was an important correlate assessed in the current study. It was seen that higher number of sexual partners and presence of injecting drug use were associated with poorer sexual quality of life. Sexual quality of life has not been studied systematically in opioid-dependent population yet, however, certain authors have assessed general quality of life and correlated it with sexual dysfunction.[32,33]

In addition to an attempt to throw light on a very important and prevalent, yet underestimated phenomenon

Table 5: Human Immunodeficiency Virus Knowledge questionnaire

| Questions                                                                 | True (%) | False (%) | Don’t know (%) |
|---------------------------------------------------------------------------|----------|-----------|---------------|
| 1. Coughing and sneezing do not spread HIV                                | 26 (49.1)| 5 (9.4)   | 22 (41.5)     |
| 2. A person can get HIV by sharing a glass of water with someone who has HIV | 26 (49.1)| 15 (28.3)| 12 (22.6)     |
| 3. Pulling out penis before a man climaxes in cum keeps a woman from getting HIV during sex | 25 (47.2)| 10 (18.9)| 18 (34.0)     |
| 4. A woman can get HIV if she has anal sex with man                       | 28 (52.8)| 8 (15.1) | 17 (32.1)     |
| 5. Showering, or washing one’s genitals/private parts, after sex prevents a person from getting HIV | 15 (28.3)| 14 (26.4)| 14 (26.4)     |
| 6. All pregnant women infected with HIV will have babies born with AIDS  | 25 (47.2)| 12 (22.6)| 16 (30.2)     |
| 7. People who have been infected with HIV quickly show serious signs of being infected | 29 (54.7)| 4 (7.5)  | 20 (37.7)     |
| 8. There is a vaccine that can stop adults from getting HIV               | 22 (41.5)| 4 (7.5)  | 27 (50.9)     |
| 9. People are likely to get HIV by deep kissing, putting their tongue in their partner’s mouth, if their partner has HIV | 33 (62.3)| 9 (17)   | 11 (20.8)     |
| 10. A woman cannot get HIV if she has sex during her period               | 13 (24.5)| 25 (47.2)| 15 (28.3)     |
| 11. There is a female condom that can help decrease a woman’s chance of getting HIV | 13 (24.5)| 8 (15.1) | 32 (60.4)     |
| 12. A natural skin condom works better against HIV than does a latex condom| 7 (13.2) | 0        | 46 (86.8)     |
| 13. A person will not get HIV if she or he is taking antibiotics          | 10 (18.9)| 16 (30.2)| 27 (50.9)     |
| 14. Having sex with one partner can increase a person’s chance of being infected with HIV | 46 (86.8)| 1 (1.9)  | 6 (11.3)      |
| 15. Taking a test for HIV 1 week after sex will tell a person if she or he has HIV | 28 (52.8)| 2 (3.8)  | 23 (43.4)     |
| 16. A person can get HIV by sitting in a hot tub or swimming pool with a person who has HIV | 15 (28.3)| 15 (28.3)| 23 (43.4)     |
| 17. A person can get HIV from oral sex                                    | 26 (49.1)| 9 (17)   | 18 (34)       |
| 18. Using Vaseline or baby oil with condoms lowers the chance of getting HIV | 12 (22.6)| 13 (24.5)| 28 (52.8)     |

HIV=Human immunodeficiency virus

Table 6: Sexual quality of life item scores and total score

| Variable                                                                 | Mean (SD) |
|--------------------------------------------------------------------------|-----------|
| 1. When I think about my sexual life, I feel frustrated                  | 2.53±1.87 |
| 2. When I think about my sexual life, I feel depressed                   | 2.55±1.91 |
| 3. When I think about my sexual life, I feel less of a man               | 3.92±2.03 |
| 4. I have lost confidence in myself as a sexual partner                  | 3.38±1.88 |
| 5. When I think about my sexual life, I feel anxious                     | 2.47±1.89 |
| 6. When I think about my sexual life, I feel angry                       | 3.36±1.81 |
| 7. I worry about the future of my sexual life                           | 2.23±1.86 |
| 8. When I think about my sexual life, I am embarrassed                   | 3.04±1.97 |
| 9. When I think about my sexual life, I feel guilty                      | 2.62±1.93 |
| 10. When I think about my sexual life, I worry that my partner feels hurt or rejected | 3.40±2.06 |
| 11. When I think about my sexual life, I feel as if I have lost something | 2.79±1.84 |
| Total                                                                    | 32.28±17.26|

Ratied from 1 “completely agree” to 6 “completely disagree.”  
SD: Standard deviation
of high-risk sexual behavior, there are various strengths of the current study. For example, assessment through a detailed structured pro forma, stringent selection criteria of recruiting patients of opioid dependence (e.g., recruiting only individuals who were not only currently sexually active but also having a cohabiting partner, with no comorbid psychiatric illness or dependence on any other substance than heroin and tobacco), studying their baseline knowledge and attitudes toward risky sex, and correlation with the quality of sexual life. Sexual quality of life is overlapping but otherwise distinct from sexual dysfunction, and ours is the first study to assess this parameter among ambulatory opioid-dependent population.

However, relatively smaller sample size owing to stringent selection criteria, absence of a comparator group, no validation of the Hindi version of the scales used, and single specific center findings limit the generalizability of the current findings. In further studies, researchers may plan to follow the patients in their treatment to assess the impact of the current treatment strategies on improving the knowledge/attitude of patients coming into treatment. Further comparison with a control or comparator group (e.g., treatment-naïve vis-a-vis abstinent/treated patients or opioid-dependent vs. alcohol-dependent patients) may complement the current findings. In addition, exploring the association with sexual dysfunctions (in addition to sexual quality of life, which was assessed in the current study) prevalent across heroin users may also be taken up. Studies conducted with a qualitative data analysis may enrich the knowledge base about the sexuality of heroin-dependent patients and may generate important hypotheses which could be tested with methodologically robust quantitative study designs.

Conclusion

Risky sexual behaviors are common (including few reporting coercion and assault) among patients with opioid dependence. Knowledge regarding high-risk sexual behavior and HIV is poor, which should be a focus of treatment strategies. Injecting drug use is associated with more risky sex and poorer sexual quality of life. There is a need to focus on the sexual history of patients coming into treatment for opioid dependence disorder. Treatment strategies should aim not only at abstinence but also at modifying the behavior and attitudes of these patients and enhancing their knowledge.

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Conflicts of interest

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