

Probing the dual burden: assessing psychological distress and substance use among female sex workers in Sonagachi, Kolkata, West Bengal, India

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Abstract

Background. *Psychological distress and substance use is a global public health problem. Understanding the mental distress and substance use regarding female sex workers is crucial which is noticeably lacking in India. The authors of this study investigate the prevalence of psychological distress and substance use among female sex workers in Sonagachi.*

Methods. *Using convenience sampling 149 participants were invited to participate. Tools included socio-demographic proforma, alcohol use disorder identification test to assess the risk of alcohol consumption and patient health questionnaire used to assess anxiety and depression.*

Results. *Overall, 52.4% reported psychological distress and 66.1% of participants were found to use substances. The factors associated with psychological distress are marital status, education level and number of children. Education, sex under the influence of substances, and number of years working predicted a higher likelihood of substance use such as tobacco, cannabis and alcohol. Additionally, psychological distress was more significant among women who were married, worked for more than 5 years, were forced to enter the sex trade and used condoms inconsistently.*

Conclusion. *Education, sex under the influence of alcohol, number of years working, marital status, age of working, reason for sex work and condom use emerged as significant predictors of use of tobacco and cannabis, risk of alcohol consumption and psychological distress.*

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Introduction

Globally in 2019, approximately 970 million individuals, which is equivalent to one in every eight people, were reported to be living with some form of mental disorder. The most commonly diagnosed mental disorders were anxiety and depressive disorders (1).

The World Health Organization (WHO) estimates that there are 2,443 disability-adjusted life years (DALYs) associated with mental health issues for every 100,000 people, and the suicide rate adjusted for age is 21.1 per 100,000 individuals (2). “Around 14.6% of people in the country, those between the ages of 10 and 75, drink alcohol (3). “Alcohol is used by 85.6% of people, while cannabis is used by 2.8%, and opioids by 2.1%. As for harmful and dependent use, 19% of alcohol users and 0.25% of cannabis users use these substances in a dependent manner (3)”.

Female sex workers (FSWs) are at a higher risk of experiencing mental health conditions like depression, anxiety, and post-traumatic stress disorder (PTSD) when compared to the general population (4) Kalinowski et al., in their review reported on anxiety, depression, suicidal ideation, self harm and PTSD emphasizing psychological risks that are associated with job-related risks. Their review highlighted several socio-economic factors that were also associated with sex work and the mental health challenges that emerged as consequences (5). The connection between mental health problems, engaging in risky behaviours, substance use, and sexual behaviours is high among FSWs (6). Furthermore, they face structural disparities like discrimination, poverty, gender inequality, and the possibility of being arrested by the police (7). These factors increase their susceptibility to mental illness. The association between female sex work and illicit drug use has been recognized for many years (8). Additionally, in the sex work industry, alcohol is widely accessible (9,10). The examination of the factors influencing mental health problems and substance use in India is crucial for achieving the United Nations’ sustainable development goals (SDGs), particularly SDG 3.4 and SDG 3.5, which seeks to “Noncommunicable diseases and mental health: By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being” and “strengthen prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol (11)”. Martin-Romo et al. emphasized that, despite the increased

susceptibilities including “violence and high-risk sexual behaviors”, leading to mental health conditions among them, there exist several barriers to help seeking, including stigma (12). The SDG 5 aims to target gender equality, enhancing the empowerment of women and reduce discrimination and violence.

This research can lead to the development of tailored support systems and interventions for their specific requirements, offering insights into a problem that is poorly understood in India. Understanding the mental distress of FSWs is crucial, to pinpoint areas where additional support, such as mental health services, is necessary. Sonagachi is part of a city where single people and businesses sell sex, also known as the red-light district. Studies regarding the FSWs facing complex challenges are noticeably lacking in India. The objectives of this study are to assess the prevalence of psychological distress and substance use among FSWs and the associated factors.

Methods

Study design

This is a community-based, cross-sectional study having quantitative components conducted among FSWs from January 2024 to March 2024 in Sonagachi, Kolkata, West Bengal. The inclusion criteria were specific to FSWs aged 18 years and above, who were currently working in Sonagachi and who spoke Bangla (Bengali).

Study Setting

All the participants were identified through a non-governmental organisation (NGO), Durbar Mahila Samanwaya Committee (DMSC), working for FSWs. The participants met in a private room allocated by the NGO. DMSC is an organisation of sex workers located in West Bengal, India. This helped to build connection and ensured that the study was conducted in a culturally sensitive manner. The committee is the voice of more than 60,000 sex workers, advocating for their rights and welfare. DMSC plays a crucial role in enhancing the quality of life of approximately three hundred thousand sex workers and their families across West Bengal (4).

Sampling

Convenience sampling was adopted to recruit a sample of 149 study participants. Convenience sampling allows the deliberately selected participants, providing a pragmatic approach to gather information

from a subset of the population that is feasible to reach and engage within the constraints of the study. Considering the prevalence of 78% of psychological distress among FSWs in a study conducted by Pandiyan et al. in 2012 (6) and taking a 7% margin of error at a 95% confidence interval, the sample size calculated was 135. Considering a 10% non-response rate, the sample size was 149.

Data collection tools

The questionnaire consisted of different sections. Socio-demographic data was collected using proforma. It consisted of age, religion, marital status, education, number of children and work characteristics which consisted of years of sex work, reason for entry into sex work, practice of soliciting clients, condom use, and history of tobacco and other substance use except alcohol. The Patient Health Questionnaire (PHQ 4) helps to detect anxiety and depression within the community (13-14), and they include four elements. The elements were evaluated using a 4-point Likert scale (0 = not at all to 3 = nearly every day). To obtain a psychological distress score, the total was computed by adding up the scores for each of the 4 elements. The overall score for PHQ 4 is 12. If the score for the first two questions is ≥ 3 , it indicates anxiety, and if the score for the last two questions is ≥ 3 , it indicates depression. Total scores are classified as normal (0-2), mild (3-5), moderate (6-8), and severe (9-12) (15). The Alcohol Use Disorders Identification Test (AUDIT) from the WHO was used for assessing alcohol consumption. This test comprised 10 questions, and each answer was given a score ranging from 0 to 4. The total score was obtained by summing up the scores from all 10 questions, resulting in a maximum score of 40. If the total score exceeds 40, it indicates alcohol dependence. The total scores fell within these ranges: 0-7 – Low risk, 8-15 – hazardous, 16-19 – high/harmful, 20-40 – alcohol dependence (15).

Data collection techniques

The participants were met in a private room at the NGO. Face-to-face interviews were conducted in a culturally sensitive manner. The questionnaire was interviewer-administered. Each of the interviews with the participants lasted about 15 minutes. If the participant was distressed during the data collection, the data collection was stopped and renewed once the participant was willing to continue. They were referred to counsellors at the NGO where they could get mental health services.

Ethical considerations

The necessary permissions were obtained from the The Durbar Mahila Samanwaya Committee (DMSC). Ethical clearance was obtained from from the Kasturba Medical College and Kasturba Hospital Institutional Ethics Committee-2 (711/2023) and CTRI (CTRI/2024/01/061833). The study's purpose was explained using a participant information sheet, and written informed consent was obtained. We ensured the confidentiality to all participants.

Data analysis

Data entry for the collected information was performed using Google Forms and MS Excel, while data analysis was carried out using Jamovi version 2.4.8 software. Descriptive analysis summarised the socio-demographic characteristics, work characteristics, tobacco and cannabis use, risk of alcohol consumption, ever use of substances and psychological distress. To explore potential associations between variables, inferential analysis was carried out. The statistical significance was determined using a significance level of $p < 0.05$. To identify the association between independent variables and outcome variables, the chi-square test was used. We conducted bivariate and multivariate analyses to examine the predictors of the outcome variable.

Results

Sociodemographic and Work Profile

Among the sample size of 149, a total of 130 participants were approached, 124 responded and the remaining 6 participants did not respond. The majority of the participants, 54%, belonged to the age group of 18 – 39 years. A significant portion of the participants, 63.7%, were unmarried, separated, or widowed and 59.7% had an educational level below SSLC. (Table 1). The majority of the participants, 63.7%, had already worked for more than five years (Figure 1), and 55.6% reported working in a brothel. A considerable portion of the participants, 55.6%, cited poverty as their reason for entering sex work, while 93.5% consistently used condoms with their clients. Alcohol use was also significant, with 45.2% reporting engaging in sexual activity under the influence of alcohol, whereas at their turn 54.8% were not involved in sexual activity under alcohol influence (Figure 2).

With regards to psychological distress, the study revealed that participants encounter a high risk of psychological distress (52.4%), with 25.8%

Table 1 - Sociodemographic characteristics of participants

Variables	Categories	Frequency (n=124)	%
Age (in years)	18-39	67	54.0%
	40 and above	57	46.0%
Marital status	Married	45	36.3%
	Unmarried/ Separated/ Widowed	79	63.7%
Education	Illiterate	27	21.8%
	Less than grade 10	74	59.7%
	Grade 10 and above	23	18.5%
Number of children	0	22	17.7%
	1	47	37.9%
	2	37	29.8%
	More than 2	18	14.5%

suggesting anxiety and 31.5% suggesting depression. The association between psychological distress and marital status was found to be statistically significant ($p < 0.002$). Additionally, the education level of participants and that of those with children was significantly associated with psychological distress ($p < 0.027$) and ($p < 0.033$).

In terms of substance use, the study found that 66.1% of participants reported ever use of substances and 63.7% reported use of tobacco, 4.8% of cannabis,

71.8% had low alcohol consumption and 28.2% of them had hazardous/high consumption or alcohol dependence. A significant association between engaging in sex under the influence of alcohol and ever use of substances ($p < 0.001$) was found in the study. The findings also showed that certain work characteristics - like sex under the influence of alcohol - are significantly associated with the use of tobacco and cannabis among the participants ($p = 0.046$).

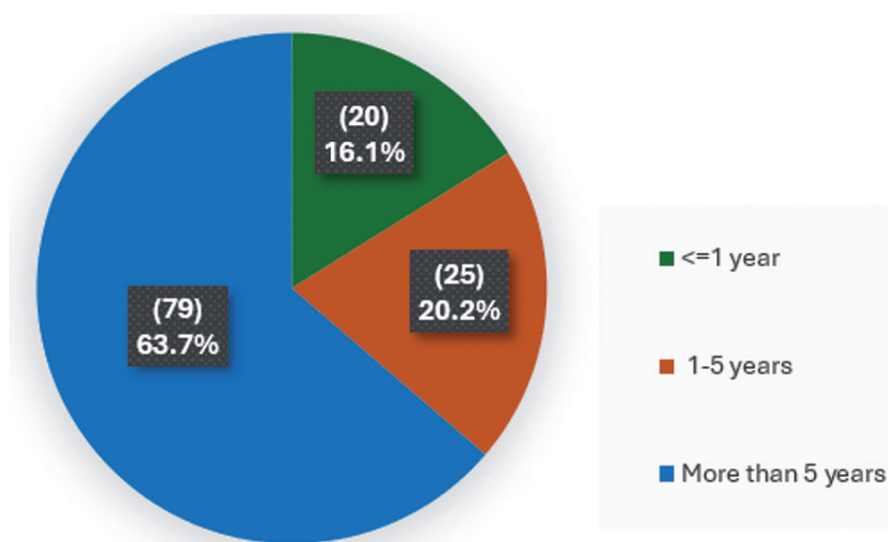


Figure 1 - Distribution of the respondents based on years of working as a sex worker (n=124)

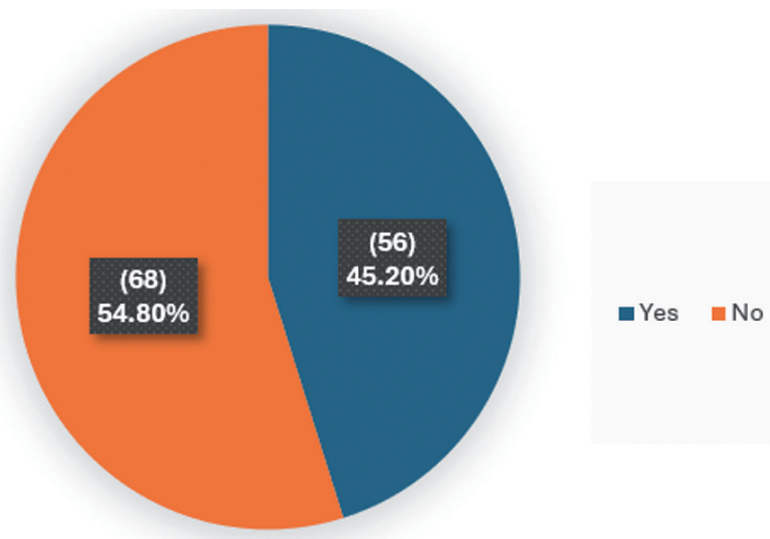


Figure 2 - Distribution of the participants based on sex under the influence of alcohol (n=124)

Regression

Bivariate and multivariate analyses were conducted to identify predictors of substance use. The factors found significant on bivariate analysis (chi-square test) were adjusted on multivariate analysis (logistic regression). The analysis examined substance use in relation to age, marital status, education level, number of children, years of work experience, place of solicitation, reasons for entering sex work, condom use with clients, and engagement in sexual activities under the influence of alcohol. The educational level of the participants emerged as significant predictor of substance use which include tobacco and cannabis use by the participants in this study. When the participant was illiterate, there were 7.032 times increased odds of using tobacco and cannabis as compared to those with education less than grade 10 (AOR 7.032, 95% CI (1.5900-31.10), $p = 0.010$). Those who had sex under the influence of alcohol had an increased odds of 2.690 times of using tobacco and cannabis as compared with those who did not engage with their clients under the influence of alcohol (AOR 2.690, 95% CI (1.1035- 6.56), $p = 0.030$) (Table 2).

In this study, the educational level of the participant was even found to be a significant predictor of alcohol consumption. When the participant had an education level less than grade 10 but could read and write, 4.623 times increased odds of hazardous/high risk/alcohol dependence as compared to those who were illiterate (AOR 4.623, 95% CI (1.025, 20.8463), $p=0.046$) (Table 2).

A chi-square test and logistic regression analysis were conducted to identify predictors of psychological distress. Psychological distress was examined in relation to various factors, including age, marital status, education level, number of children, years of working, place of solicitation, reasons for entering sex work, condom use with clients, engagement in sexual activities under the influence of alcohol, use of tobacco and cannabis, and the risk of alcohol dependence. FSWs who were married were 3.4972 times more likely to have some psychological distress (AOR 3.4972, 95% CI (1.27327-9.606), $p=0.015$). Those who mentioned poverty as the reason for entering sex work had a 3.1124 times higher likelihood of having psychological distress as compared to those who entered at their own will (AOR 3.1124, 95% CI (1.11737-8.670), $p=0.030$) (Table 4).

Discussion

The present study delved into psychological distress and substance use among FSWs. The SDG 5 specifically targets empowering women and girls. However, studies have suggested that FSWs suffer from psychological distress at a higher rate than the general population, while few studies have established the rate of psychological distress among FSWs in India. In the present study, 52.4% of the FSWs dealt with some level of psychological distress, with significant proportions struggling with anxiety which

Table 2 - Multivariate logistic regression – association with use of tobacco, cannabis and risk of alcohol consumption among participants

Variable	Categories	Odds ratio (95%CI)	Adjusted odds ratio (95% CI)	p-value
Use of tobacco and cannabis				
Age	18 – 39	1.38 (0.664, 2.89)	1.394 (0.4922, 3.95)	0.531
	40 and above (ref)	1	1	
Marital status	Married	1.97 (0.888, 4.38)	2.417 (0.9333, 6.26)	0.069
	Unmarried/widowed/separated	1	1	
Education	Illiterate	3.21 (0.946,10.89)	7.032 (1.5900, 31.10)	0.010
	Less than grade 10	1.51 (0.586, 3.87)	2.083 (0.6696, 6.48)	
	Grade 10 and above(ref)	1	1	
Number of children	0 (ref)	1	1	0.777
	1	0.842 (0.296, 2.40)	1.196 (0.3481, 4.11)	
	2	1.055 (0.351, 3.17)	1.635 (0.4523, 5.91)	
	More than 2	1.486 (0.386, 5.72)	2.303 (0.4521, 11.73)	
No. of years working (in years)	<=1 years(ref)	1	1	0.911
	1-5 years	1.42 (0.415, 4.83)	1.083 (0.2684, 4.37)	
	More than 5 years	1.15 (0.421, 3.14)	0.792 (0.2137, 2.93)	
Place of solicitation	Brothel	0.366 (0.0388, 3.45)	0.412 (0.0364, 4.66)	0.474
	Home-based	0.531 (0.0549, 5.14)	0.697 (0.0527, 9.22)	
	Public places/streets(ref)	1	1	
Reason for entry into sex work	Poverty	0.745 (0.206, 2.69)	0.470 (0.1794, 1.23)	0.125
	Forced	0.606 (0.265, 1.39)	0.344 (0.0364, 1.69)	
	At your own will(ref)	1	1	
Condom use with clients	Always	0.234 (0.0278, 1.96)	0.307 (0.0320, 2.94)	0.306
	Sometimes(ref)	1	1	
Sex under the influence of alcohol	Yes	2.16 (1.008, 4.62)	2.690 (1.1035, 6.56)	0.030
	No(ref)	1		
Risk of alcohol consumption				
Age (in years)	18 – 39	1.960 (0.870, 4.417)	2.894 (0.799, 10.4867)	0.106
	40 and above (ref)	1	1	
Marital status	Married	1.475 (0.662, 3.285)	1.273 (0.406, 3.9926)	0.679
	Unmarried/widowed/separated(ref)	1	1	

Education	Illiterate	0.818 (0.204, 3.276)	4.058 (0.527, 31.2766)	0.179
	Less than grade 10	1.837 (0.610, 5.527)	4.623 (1.025, 20.8463)	0.046
	Grade 10 and above(ref)	1	1	
Number of children	0 (ref)	1	1	
	1	1.250 (0.407, 3.835)	0.984 (0.203, 4.7543)	0.984
	2	0.857 (0.258, 2.851)	0.704 (0.122, 4.0805)	0.696
	More than 2	1.026 (0.254, 4.136)	0.805 (0.104, 6.2158)	0.835
No. of years working (in years)	<=1 years(ref)	1	1	
	1-5 years	2.667 (0.6025, 11.803)	2.693 (0.387, 18.7427)	0.317
	More than 5 years	2.473 (0.6621, 9.235)	4.106 (0.636, 26.5272)	0.138
Place of solicitation	Brothel	0.612 (0.0950, 3.95)	1.980 (0.556, 7.0567)	0.292
	Home-based	0.527 (0.0790, 3.51)	1.733 (0.133, 22.5458)	0.675
	Public places/streets(ref)	1	1	
Reason for entry into sex work	Poverty	0.853 (0.361, 2.018)	1.137 (0.341, 3.7904)	0.834
	Forced	1.343 (0.372, 4.846)	1.232 (0.209, 7.2419)	0.818
	At your own will(ref)	1	1	
Condom use with clients	Always	1.193 (0.2290, 6.21)	2.859 (0.331, 24.7105)	0.340
	Sometimes(ref)	1	1	
Sex under the influence of alcohol	Yes	14.5385 (5.0814, 41.597)	19.054 (5.609, 64.7290)	<0.001
	No(ref)	1	1	

was 25.8% and depression 31.5%. Similarly, studies from Kolkata (4), and Andhra Pradesh (16) assessed rates of anxiety and depression ranging from 28 to 45%, except the study conducted in Bangalore (6), which ranged anxiety and depression from 42% to 71% and a study from Shillong (17) found 8% generalized anxiety disorder among FSWs. In a global study, conducted in Bangladesh, Chittagong, psychological distress was found to be 38.6% (18). The present study revealed that marital status, education level and number of children are strongly associated with and influence psychological distress. In the previous study, conducted in Sonagachi, no statistical significance was found between various socio-demographic characteristics and the rate of depression. These

characteristics include age, education, number of children and years they are in sex work. Apparently, none of these factors predisposes depression among FSWs in that area (4).

Iaisuklang and Ali, in their study (17), found that 79% of FSWs use alcohol, with 8% of them reporting alcohol dependence and 3% of them reporting to take non-alcohol psychoactive substances, like tobacco and cannabis (17). However, in our study, 66.1% FSW reported an use of substances which is comparatively lower. However, it is a matter of concern that 28.2% of the participants had hazardous, high risk or alcohol dependence. In comparison with the study by Iaisuklang and Ali, tobacco use was comparatively higher at 63.7% and cannabis use was marginally

Table 3 - Multivariate logistic regression – association with ever use of substances among participants

Variable	Categories	Odds ratio (95%CI)	Adjusted odds ratio (95% CI)	p-value
Ever use of substances				
Age (in years)	18 – 39	1.28 (0.606, 2.69)	1.108 (0.4591, 3.18)	0.702
	40 and above (ref)	1	1	
Marital status	Married	1.43 (0.648, 3.15)	1.424 (0.5744, 3.53)	0.446
	Unmarried/widowed/separated(ref)	1	1	
Education	Illiterate	0.574 (0.183, 1.80)	0.618 (0.1676, 2.28)	0.469
	Less than grade 10	1.346 (0.497, 3.64)	1.638 (0.5334, 5.03)	
	Grade 10 and above(ref)	1	1	
Number of children	0 (ref)	1	1	0.480
	1	1.667 (0.561, 4.95)	1.540 (0.4653, 5.10)	
	2	0.750 (0.253, 2.22)	0.703 (0.2049, 2.41)	
	More than 2	1.143 (0.309, 4.23)	0.875 (0.2031, 3.77)	
No. of years working (in years)	<=1 years(ref)	1	1	0.221
	1-5 years	2.59 (0.726, 9.25)	2.331 (0.6010, 9.04)	
	More than 5 years	1.58 (0.582, 4.27)	1.387 (0.4137, 4.65)	
Place of solicitation	Brothel	1.22 (0.578, 2.58)	0.897 (0.3459, 2.33)	0.823
	Others (Home-based & public places/ streets) (ref)	1	1	
Reason for entry into sex work	Poverty	0.768 (0.339, 7.16)	1.038 (0.4143, 2.60)	0.936
	Forced	1.702 (0.405, 1.74)	2.331 (0.4726, 11.50)	
	At your own will (ref)	1	1	
Condom use with clients	Always	0.261 (0.0311, 2.20)	0.336 (0.0351, 3.22)	0.344
	Sometimes (ref)		1	

higher at 4.8% (17). Based on the research by Yeo et al. in South Africa, it was found that there was high prevalence of substance use with more than half of the participants being involved in consistent drinking and more than one-fourth used drugs (19).

In our research, we discovered that the likelihood of experiencing psychological distress was 3.49 times higher for women who were married as compared to those who were unmarried. Participants who cited poverty as their reason for engaging in sex

work had 3.11 times higher odds of experiencing psychological distress as compared to those who did not cite poverty. In contrast to other research, “sex workers without individual autonomy reported a significantly higher likelihood of major depression compared to those with autonomy. They also reported inconsistent condom use with regular partners, and those who had a higher prevalence of alcohol consumption in the past 30 days were more likely to have depression (16)”.

Table 4 - Multivariate logistic regression – association with psychological distress among participants

Variable	Categories	Odds ratio (95%CI)	Adjusted odds ratio (95%CI)	p-value
Psychological distress				
Age (in years)	18 - 39	1.456 (0.716, 2.96)	1.3014 (0.41470, 4.084)	0.652
	40 and above (ref)	1	1	
Marital status	Married	3.431 (1.566, 7.52)	3.4972 (1.27327, 9.606)	0.015
	Unmarried/widowed/separated	1	1	
Education	Illiterate	0.324 (0.101, 1.04)	0.2901 (0.06306, 1.334)	0.112
	Less than grade 10	1.128 (0.438, 2.91)	1.8805 (0.54644, 6.471)	0.317
	Grade 10 and above (ref)	1	1	1
Number of children	0 (ref)	1	1	1
	1	0.980 (0.350, 2.75)	0.4695 (0.12464, 1.769)	0.264
	2	3.009 (1.008, 8.98)	2.04777 (0.51303, 8.173)	0.310
	More than 2	2.889 (0.790, 10.57)	1.6691 (0.33226, 8.385)	0.534
No. of years working (in years)	<=1 years (ref)	1	1	
	1-5 years	2.250 (0.678, 7.47)	2.9338 (0.66992, 12.848)	0.153
	More than 5 years	1.703 (0.628, 4.62)	3.1172 (0.75127, 12.934)	0.117
Place of solicitation	Brothel	1.526 (0.734, 3.17)	1.3747 (0.44684, 4.229)	0.579
	Home-based (ref)	1	1	
	Public places/streets	1.761 (0.270, 11.49)	1.7183 (0.17452, 16.918)	0.643
Reason for entry into sex work	Poverty	2.031 (0.924, 4.46)	3.1124 (1.11737, 8.670)	0.030
	Forced	3.906 (1.045, 14.60)	4.9008 (0.86356, 27.813)	0.073
	At your own will(ref)	1	1	
Condom use with clients	Always(ref)	1	1	0.174
	Sometimes	2.90 (0.562, 14.96)	4.0710 (0.53770, 30.822)	
Sex under the influence of alcohol	Yes	1.845 (0.900, 3.78)	1.4303 (0.47080, 4.345)	0.528
	No(ref)	1	1	
Tobacco and cannabis	Yes	1.09 (0.522, 2.26)	0.9300 (0.35687, 2.424)	0.882
	No (ref)	1	1	
Risk of alcohol dependence	Low risk (ref)	1	1	0.698
	Hazardous/high risk/alcohol dependence	1.810 (0.812, 4.04)	1.2570 (0.39610, 3.989)	

In the present study, illiterate participants were 7.032 times increased odds of using tobacco and cannabis as compared to those with education less than grade 10. Additionally, those who had sex under the influence of alcohol had an increased odds of 2.690 times of using tobacco and cannabis. It was also found that reporting hazardous/high-risk/alcohol dependence was more likely among participants with an education level less than the 10th grade. In comparison, in a study carried out in Kenya (20), it was discovered that “women who engaged in harmful alcohol use were 2.25 times more likely to report experiencing forced sexual debut. Moreover, women engaging in harmful cannabis use were 3.26 times more likely to report engaging in the sale of sex in public places and were also 1.8 times more likely to have recently migrated for sex work. Additionally, harmful alcohol and cannabis use were found to be more prevalent among younger women under 25 years old when compared to older women over 35 years old (20).

Gender inequality is deeply linked to alcohol consumption, as it exacerbates violence against women, economic disparities, and health risks. Achieving SDG 5: Gender Equality requires integrating alcohol control strategies with gender-focused policies. Prioritizing monitoring, policy implementation, and public health interventions will be crucial for progress towards SDG 2030 goals (21). Despite its severe impact, alcohol control policies remain weak compared to tobacco regulations, lacking an international legally binding framework. Scientific evidence increasingly supports that the safest level of alcohol consumption is zero, reinforcing the need for taxation, restricted access, and treatment programs. The complex interplay of socio-economic factors and the nature of sex work places the women at risk of mental health conditions (5,12). Stronger public health policies are essential to reduce alcohol-related harm and promote sustainable development (22).

Conclusion

The study revealed concerning prevalence, and predictors of psychological distress and substance use among this population. The study findings indicate that FSWs experience significant levels of psychological distress and substance use. More than half of them experienced some amount of psychological distress including anxiety and depression in their life. There were certain factors which were associated with

psychological distress, such as marital status and reason for entering sex work. Therefore, these could be the predisposing factors for psychological distress. Additionally, there were higher levels of substance use as well among this demography. Certain factors, such as engaging in sex under the influence of alcohol and educational level, were significantly linked to substance use. Interestingly, this study found that education, sex under the influence of alcohol, marital status, and reason for entering sex work, emerged as significant predictors of use of tobacco and cannabis, risk of alcohol consumption and psychological distress. These findings suggest (a) the need for interventions targeting this vulnerable population and (b) the opportunity of policy changes.

Limitations

This study is limited by social desirability bias. Participants have a tendency to provide inaccurate data with respect to substance use and mental health due to stigma.

The study had a small sample size due to time constraints and reluctance by FSWs to participate, so a larger sample size could not be reached. This can lead to under-representation and even to some additional bias.

Riassunto

Esaminare il doppio carico: valutazione del disagio psicologico e dell'uso di sostanze tra le prostitute a Sonagachi, Kolkata, Bengala Occidentale, India

Introduzione. Il disagio psicologico e l'uso di sostanze sono un problema di salute pubblica globale. È fondamentale comprendere il disagio mentale e l'uso di sostanze delle prostitute, cosa che in India è notevolmente carente. Gli autori di questo studio indagano la prevalenza del disagio psicologico e dell'uso di sostanze tra le prostitute di Sonagachi.

Metodi. Utilizzando un campionamento di convenienza, sono stati invitati a partecipare 149 partecipanti. Gli strumenti includevano un proforma sociodemografico, un test di identificazione del disturbo da uso di alcol (AUDIT) per valutare il rischio di consumo di alcol e un questionario sulla salute del paziente (PHQ 4) utilizzato per valutare ansia e depressione.

Risultati. Nel complesso, il 52,4% ha segnalato disagio psicologico e il 66,1% delle partecipanti è risultato usare sostanze. I fattori associati al disagio psicologico sono lo stato civile, il livello di istruzione e il numero di figli. Istruzione, sesso sotto l'effetto di alcool e numero di anni di lavoro hanno previsto una maggiore probabilità di uso di tabacco, cannabis e alcool. Inoltre, il disagio psicologico

era più significativo tra le donne sposate, che lavoravano da più di 5 anni, che erano costrette a entrare nel commercio del sesso e che usavano i preservativi in modo incoerente.

Conclusioni. Istruzione, sesso sotto l'effetto dell'alcol, numero di anni di lavoro, stato civile, motivo del lavoro sessuale e uso del preservativo sono emersi come fattori predittivi significativi dell'uso di tabacco e cannabis, del rischio di consumo di alcol e del disagio psicologico.

References

1. Institute for Health Metrics and Evaluation (IHME). GBD Results. Available from: <https://vizhub.healthdata.org/gbd-results> [Last accessed: 2025 Feb 2].
2. World Health Organization (WHO). Mental health. India. Available from: <https://www.who.int/india/health-topics/mental-health> [Last accessed: 2025 Feb 2].
3. Ambekar A, Agrawal A, Rao R, Mishra AK, Khandelwal SK, Chadda RK. Magnitude of substance use in India. New Delhi: Ministry of Social Justice and Empowerment, Government of India; 2019.
4. Jana Sm, Ray P, Roi S, Piduttia J, Ghose T, Jana Sa. Depression and Its Relation with HIV Risk and Social Well-Being among the Brothel-Based Female Sex Workers in Kolkata, India. *Community Med Public Health Care*. 2017;**4**:025. <https://doi.org/10.24966/CMPh-1978/100025>.
5. Kalinowski O, Lotysh A, Kaya G, Kroehn-Liedtke F, Zerbe LK, Mihaylova H, et al. Prevalence, risk and resilience factors of mental health conditions among female sex workers: a systematic review and meta-analysis. *Front Public Health*. 2025 Jan 13;**12**:1455999. doi: 10.3389/fpubh.2024.1455999. PMID: 39877911; PMCID: PMC11773154.
6. Pandiyan K, Chandrasekhar H, Madhusudhan S. Psychological morbidity among female commercial sex workers with alcohol and drug abuse. *Indian J Psychiatry*. 2012 Oct;**54**(4):349-51. doi: 10.4103/0019-5545.104822. PMID: 23372238; PMCID: PMC3554967.
7. Beksinska A, Karlsen O, Gafos M, Beattie TS. Alcohol use and associated risk factors among female sex workers in low- and middle-income countries: A systematic review and meta-analysis. *PLOS Glob Public Health*. 2023 Jun 13;**3**(6):e0001216. doi: 10.1371/journal.pgph.0001216. PMID: 37310993; PMCID: PMC10263362.
8. Nguyen AT, Nguyen TH, Pham KC, Le TG, Bui DT, Hoang TL, et al. Intravenous drug use among street-based sex workers: a high-risk behavior for HIV transmission. *Sex Transm Dis*. 2004 Jan;**31**(1):15-9. doi: 10.1097/01.OLQ.0000105002.34902.B5. PMID: 14695953.
9. Li Q, Li X, Stanton B. Alcohol use among female sex workers and male clients: an integrative review of global literature. *Alcohol Alcohol*. 2010 Mar-Apr;**45**(2):188-99. doi: 10.1093/alcac/agg095. Epub 2010 Jan 20. PMID: 20089544; PMCID: PMC2842106.
10. Mbonye M, Nakamanya S, Nalukenge W, King R, Vandeputte J, Seeley J. 'It is like a tomato stall where someone can pick what he likes': structure and practices of female sex work in Kampala, Uganda. *BMC Public Health*. 2013 Aug 10;**13**:741. doi: 10.1186/1471-2458-13-741. PMID: 23938037; PMCID: PMC3751244.
11. World Health Organization (WHO). World Health Statistics, 2023. Available from: <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/world-health-statistics> [Last accessed: 2025 Feb 2].
12. Martín-Romo L, Sanmartín FJ, Velasco J. Invisible and stigmatized: A systematic review of mental health and risk factors among sex workers. *Acta Psychiatr Scand*. 2023 Sep;**148**(3):255-264. doi: 10.1111/acps.13559. Epub 2023 Apr 27. PMID: 37105542.
13. Materu J, Kuringe E, Nyato D, Galishi A, Mwanamsangu A, Katebalila M, et al. The psychometric properties of PHQ-4 anxiety and depression screening scale among out of school adolescent girls and young women in Tanzania: a cross-sectional study. *BMC Psychiatry*. 2020 Jun 19;**20**(1):321. doi: 10.1186/s12888-020-02735-5. PMID: 32560705; PMCID: PMC7304148.
14. Kroenke K, Spitzer RL, Williams JB, Löwe B. An ultra-brief screening scale for anxiety and depression: the PHQ-4. *Psychosomatics*. 2009 Nov-Dec;**50**(6):613-21. doi: 10.1176/appi.psy.50.6.613. PMID: 19996233.
15. Babor TF, Higgins-Biddle JC, Saunders JB, Monteiro MG. The Alcohol Use Disorders Identification Test (AUDIT) manual: Guidelines for use in primary care. 2nd Ed. Geneva: World Health Organization; 2001: 4-32 (WHO/MSD/MSB/01.6a).
16. Patel SK, Saggurti N, Pachauri S, Prabhakar P. Correlates of Mental Depression Among Female Sex Workers in Southern India. *Asia Pac J Public Health*. 2015 Nov;**27**(8):809-19. doi: 10.1177/1010539515601480. Epub 2015 Aug 25. PMID: 26307144.
17. Iaisuklang MG, Ali A. Psychiatric morbidity among female commercial sex workers. *Indian J Psychiatry*. 2017 Oct-Dec;**59**(4):465-470. doi: 10.4103/psychiatry.IndianJPsychiatry_147_16. PMID: 29497189; PMCID: PMC5806326.
18. Hengartner MP, Islam MN, Haker H, Rössler W. Mental Health and Functioning of Female Sex Workers in Chittagong, Bangladesh. *Front Psychiatry*. 2015 Dec 15;**6**:176. doi: 10.3389/fpsy.2015.00176. PMID: 26696911; PMCID: PMC4678216.
19. Yeo EJ, Hlongwane K, Otjombe K, Hopkins KL, Variava E, Martinson N, et al. Key risk factors for substance use among female sex workers in Soweto and Klerksdorp, South Africa: A cross-sectional study. *PLoS One*. 2022 Jan 21;**17**(1):e0261855. doi: 10.1371/journal.pone.0261855. PMID: 35061728; PMCID: PMC8782394.
20. Beksinska A, Nyariki E, Kabuti R, Kungu M, Babu H, Shah P, et al. Harmful Alcohol and Drug Use Is Associated with Syndemic Risk Factors among Female Sex Workers in Nairobi, Kenya. *Int J Environ Res Public Health*. 2022 Jun 14;**19**(12):7294. doi: 10.3390/ijerph19127294. PMID: 35742558; PMCID: PMC9223659.
21. UN Women. SDG 5: Achieve gender equality and empower all women and girls. 2022. Available from: <https://www.>

- unwomen.org/en/node/36060 [Last accessed: 2025 Feb 2].
22. Flor LS, Gakidou E. The burden of alcohol use: better data and strong policies towards a sustainable development. *Lancet Public Health*. 2020 Jan;**5**(1):e10-e11. doi: 10.1016/S2468-2667(19)30254-3. PMID: 31910975.

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