

## DEPRESSION, ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) AND RISKY SEXUAL BEHAVIOUR AS PREDICTORS OF SUBSTANCE USE AMONG WOMEN IN SEX WORK (WSW)

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### ABSTRACT

#### BACKGROUND

There is a substantial burden of substance use among WSW. Substance use in WSW leads to higher risky sexual behaviours and risk of sexually transmitted infections. This risk also is seen with comorbid depression, ADHD in this population.

Thus, this study was conducted to study the factors predicting substance use among WSW among depression, ADHD and risky sexual behaviour.

#### MATERIALS AND METHODS

246 consenting participants took part in the study after informed consent and Ethical Committee approval. They were administered a socio-demographic questionnaire, audit for alcohol use severity, ASRS for ADHD assessment, HIV Risk Behaviour Scale for risky sexual behaviour. Statistical analysis was done using SPSS V 19.

#### RESULTS

Those with substance use had higher income level, lower years of education than those without substance use ( $p = 0.03$  and  $0.05$ ). Those with substance use had higher risky sexual behaviours than those without substance use ( $p = 0.03$ ). They had inconsistent condom use, more than 5 partners in a single day, group sex which was more than those without substance use. Those with substance use had higher prevalence of risky sexual behaviour, ADHD and depression ( $p = 0.001$ ). When logistic regression was used, we found that there was a statistically significant odds (OR = 1.26 and 2.45) of predicting substance use using depression and risky sexual behaviour scores, but not ADHD.

#### CONCLUSION

Substance use is highly prevalent among WSM, which is associated with depression, risky sexual behaviours and ADHD. Those with depression had higher odds of having substance use. Thus, it is important to screen for these comorbidities and design interventions for the same which would reduce medical and psychological morbidity in his population.

#### KEYWORDS

Female, Sex Workers, Risk Taking, Sexual Behaviour, Substance use.

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#### BACKGROUND

In recent years, researchers have begun to explore the intersection of alcohol or drug use and sexual "risk behaviours" activities that put people at increased risk for STDs, unintended pregnancy and sexual violence. The global burden of substance use is substantial, accounting for 8.9% of productive life lost annually due to disability and premature mortality as measured in disability-adjusted life-years (DALYs).

A cross-sectional survey in Adama City Ethiopia found that a high prevalence of work-related violence (59%) and alcohol abuse among WSW (51%)<sup>(1)</sup> (Alem et al, 2006). The overlap between illicit drug use and female sex work has been identified as an important factor responsible for rising HIV prevalence among FSWs in several North-Eastern states of India.<sup>(2)</sup>

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Sex work is associated with a host of psychosocial vulnerabilities including exposure to childhood physical abuse, childhood sexual abuse, interpersonal violence in adulthood and substance uses.<sup>(3)</sup> Vanwesenbeeck showed that in a sample of 96 WSWs, the prevalence of depression was 73%, post-traumatic stress disorder was 30% when compared to those among female nurses being 53%.<sup>(4)</sup> Studies have shown depression and stress to be associated with higher levels of risky sexual behaviour.<sup>(5)</sup> Substance use contributes to a higher morbidity with depression<sup>(6)</sup> and ADHD also has recent evidence to increase risky sexual behaviour in WSW.<sup>(7)</sup> However, studies have not consistently predicted the contribution of these risk factors individually to substance use disorders. Thus, this study was conducted in this background.

#### Aims and Objectives

1. To study the patterns of substances used and association between substance use and depression, ADHD and risky sexual behaviours in this population of WSW.
2. To study factors predicting risk of substance use among depression, ADHD and risky sexual behaviour.

### Study Sample

Participants were recruited from a special clinic catering to mental health needs of WSW in Department of Psychiatry, Victoria Hospital. Patients to this clinic are brought by counsellors from voluntary agencies, which deal with preventing HIV/AIDS and STIs among WSW and to improve their overall quality of life (n = 246). All the participants were asked to register their understanding and consent to participate in the study by oral consent signed in the form by an impartial witness. The approval for the study was taken from the Institutional Ethical Committee (IEC).

246 consenting participants took part in the study. We hypothesised that substance use in WSW should be predicted by depression, risky sexual behaviours and ADHD severity. We also wanted to study the patterns of substances used, association between substance use and depression, ADHD and risky sexual behaviours in this population.

Interviews were conducted at Victoria Hospital, Bangalore. The interview was conducted by the principal investigator in a place, which ensured visual and auditory privacy.

The questionnaires used for the study was administered by the psychiatrist, clinical psychologist, social worker, postgraduate students in the special clinic catering to mental health needs of WSW.

A semi-structured interview was used to elicit the following details - Sociodemographic Data: Age, marital status and years of marriage, educational status, employment status, income, living status and occupational status. Various risky sexual behaviours were documented. Patterns of substances used were also noted.

1. Adult ADHD Self Report Scale (ASRS) was used to screen for ADHD symptoms. The ASRS was developed by the World Health Organisation and the short form of the screener consists of a checklist of six questions regarding symptoms of ADHD based on the diagnostic criteria of DSM-IV-TR. Each item requires respondents to rate on a five-point response scale from "never" [0] to "very often" [4] how frequently a particular symptom of ADHD occurred over the past six months. A cut-off of 14 for the first 6 items of the screener was used as described by Kessler, 2007.<sup>(8)</sup> In addition as described by Kessler, subjects who scored a total of 9 or more of the shaded boxes of the whole scale were only considered as having symptoms of ADHD.
2. Wender Utah Rating Scale (WURS) was used to assess presence of childhood ADHD symptoms. A diagnosis of ADHD was made if an individual scored over a cut-off of 24 on the ASRS with a WURS score of 46 or above indicating presence of ADHD symptoms in childhood in those individuals who scored above the cut-off on ASRS.
3. HIV Risk Behaviour Scale (HRBS) was used to screen for high risk sexual behaviour.<sup>(9)</sup>
4. MINI neuropsychiatric interview was used to screen for presence of psychiatric comorbidities.<sup>(10)</sup>
5. Beck's Depression inventory 2 (self-rated) was used to assess the severity of depression when present.<sup>(11)</sup>

Statistical analysis was performed using SPSS V 19 software. T-test was used to compare various continuous variables such as BDI, ASRS, HRBS scores between those with and without substance use. Pearson correlation coefficient was used to assess relationship between substance use

severity and BDI, ASRS and HRBS scores. Logistic regression was used to predict risk of substance use using ADHD, depression and risky sexual behaviour scores as predictor variables.

## RESULTS

### 1. Socio-Demographic Profile

	Substance Use (Mean, SD) (n=212)	No Substance Use (Mean, SD) (n = 42)	p value
Age (Yrs.)	30.2 (5.34)	34.3 (6.54)	0.08
Income (Rupees)	15,456.8 (4521.3)	12,324.5 (2341.4)	0.03*
Education (Yrs.)	3.61 (1.34)	4.32 (1.36)	0.05*
Years of Marriage	10.34 (3.45)	11.23 (4.34)	0.12

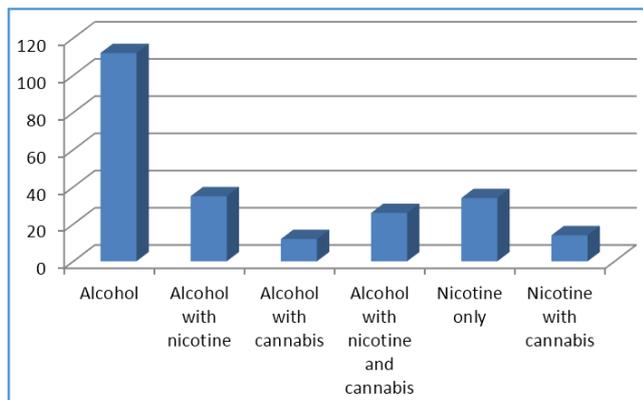
		Substance Use (n=212)	No Substance Use (n = 42)	p value
Marital Status	Married	183	23	0.002**
	Widowed	14	7	0.09
	Separated	15	12	0.04*
Living Status	Nuclear	143	26	0.12
	Joint Family	19	9	0.06
	Living Alone	50	7	0.11
Occupation	Homemaker	112	20	0.12
	Garments	30	5	0.15
	Cook/Maid	70	17	0.09

### 2. Risky Sexual Behaviours in the Sample

	Substance use (n=212)	No Substance use (n = 42)	p value
1. Consistent Condom Use	32	31	0.03*
2. More than 5 Partners	34	07	0.01*
3. Group Sex	16	08	0.02*
4. Injection Drug use before Sex	07	04	0.12
5. Alcohol Use before Sex	44	15	0.07

**Note** - Those with substance use had higher prevalence of risky sexual behaviours such as less consistent condom use, more than 5 partners in a day, group sex.

**3. Patterns of Substances Used**



**4. Comparison of Scores on Depression, Risky Sexual Behaviour, ADHD between those With and Without Substance Use**

	Substance Use	No Substance Use	T value	P value
Depression (BDI)	29.87	26.32	1.80	0.08
Risky Sexual Behaviour (HRBS)	18.65	12.55	3.21	0.001**
ASRS (ADHD)	25.08	18.66	5.32	0.001**

Note- Those with substance use had higher risky sexual behaviour, ADHD scores than those without substance use.

**5. Correlation between Alcohol use Severity with Depression, Risky Sexual Behaviour and ADHD**

Alcohol Use Severity VS	R value	P value
Depression	0.48	0.03*
Risky Sexual Behaviour	0.54	0.02*
ADHD	0.42	0.04*

**6. Multiple Logistic Regression to Predict Risk of Substance use with Depression, Risky Sexual Behaviour and ADHD as Predictor Variables**

Variables	Coeff B	Std. Error	P value	Odds Ratio	95% CI
Depression	0.38	0.04	0.04*	1.26	1.03 - 1.68
Risky Sex	0.49	0.08	0.01*	2.45	1.23 - 3.55
ADHD	0.29	0.03	0.06	1.34	0.94 - 1.67
Overall Model Fit - Chi Square = 17.665, p = 0.003*					

Note - Substance use risk could be predicted by risky sexual behaviour and depression in this sample, but not ADHD scores.

**DISCUSSION**

This was a cross-sectional study, which aimed to study the factors predicting substance use among depression, ADHD and risky sexual behaviour in WSWs in a Tertiary Care Centre with presence of a Special Clinic catering to mental health needs of this population.

**Sociodemographic Factors**

Those with substance use had higher income level, lower years of education than those without substance use. This could be probably because of higher risky sexual behaviour in those with substance use,<sup>(7)</sup> which contributed to higher income as a result of sex work. Lower educational attainment in those with substance use could be because of associated psychiatric comorbidity and psychosocial adversities.

Those with substance use were more likely to be married, probably which could be explained by cultural factors wherein those with psychological morbidity have higher likelihood to be married at an early age in this geographical background.

**Risky Sexual Behaviours**

Those with substance use had higher risky sexual behaviours than those without substance use. They had inconsistent condom use, more than 5 partners in a single day, group sex which was more than those without substance use. Higher risky sexual behaviours in those with substance use can be attributed to greater psychiatric comorbidity in this population such as depression,<sup>(5,7)</sup> perceived stress, ADHD.

**Psychiatric Comorbidity and Predicting Substance Use**

Those with substance use had higher prevalence of risky sexual behaviour, ADHD and depression. This is in concordance with existing literature, which could be explained by common biological predisposition for the same as well as higher prevalence of psychosocial adversities in this population.<sup>(12)</sup>

There was a significant correlation which was also observed between alcohol use severity and depression, risky sexual behaviour and ADHD which can be explained by the above factors.

When logistic regression was used to predict the risk of substance use in this population with depression scores, risky sexual behaviour scores and ADHD scores (which were selected in view of association with substance use severity in correlation), we found that there was a statistically significant odds of predicting substance use using depression and risky sexual behaviour scores, but not ADHD. This is in concordance with existing literature, which states that depression and risky sexual behaviour are associated with substance use.<sup>(7)</sup> Though, ADHD had a good correlation with substance use, it could be mediated by higher depression and risky sexual behaviour levels in those with ADHD.

**Limitations**

The study sample comprised of a group, which was referred by various agencies for assessment of mental health status. Thus, the findings may not be generalisable to WSW present in the community at large. HRBS is a reliable tool to assess risk behaviours for HIV, hence all risky sexual behaviours were not comprehensively evaluated. Severity of other substance use, apart from alcohol were not done as the group was small. It is a cross-sectional study and the findings would be better validated if the group could be followed up with interventions to reduce psychiatric morbidity.

**CONCLUSION**

Substance use is highly prevalent among WSM, which is associated with depression, risky sexual behaviours and

ADHD. Those with depression had a higher odds of having substance use.

Thus, it is important to screen for these comorbidities and design interventions for the same, which would reduce medical and psychological morbidity in his population.

Conflicts of Interest – None.

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