

# Prevalence of HIV Infection and Risk Factors among female sex workers in Ba Ria – Vung Tau, Vietnam



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## Introduction

The Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) still remains one of the most severe public health issues around the world with approximately 36.9 million people who were living with HIV at the end of 2014 (UNAIDS, 2015).

FSWs have been identified as a high-risk population group for the transmission and acquisition of HIV. According to recent studies from 50 countries, the probability of HIV transmission among FSWs was 13.5 times higher than for other women (Baral et al., 2012).

According to a report of the Vietnam Administration of HIV/AIDS Control (VAAC), Ba Ria – Vung Tau is one of eight provinces/cities in which the HIV rate is significantly higher than the average rate of the country (VAAC, 2013b). However, the province still has no actual data indicating the prevalence of the infection among FSWs in this population. Therefore, this research aims to assess the prevalence of HIV infections and risk factors in FSWs in the province.

**Significance of the research:** This prevalence-oriented research is essential in the providing evidence for assessment, orientation and interventional plans in the future.

## Methods

**Study Design:** A cross-sectional study design

**Target population for the study:** FSWs in Ba Ria – Vung Tau, Vietnam

**Sample methods:** The following procedures were considered: respondent-driven sampling (RDS), take-all sampling, systematic random sampling and time location sampling (TLS).

**Survey Questionnaire:** The questionnaire was compiled and modified from an existing questionnaire used in the Integrated Biological and Behavioural Surveillance (IBBS) survey among FSWs in Vietnam (MOH Vietnam, USAID, & CDC, 2011), with some additional questions.

**Biological sample collections:** HIV testing was performed using enzyme-linked immunosorbent Assay (ELISA) tests and one rapid test using immunochromatography.

**Data Management and Analysis:** A database was entered using Epidata 3.1 software and analysed using Statistical Package for the Social Sciences (SPSS) version 21.0.

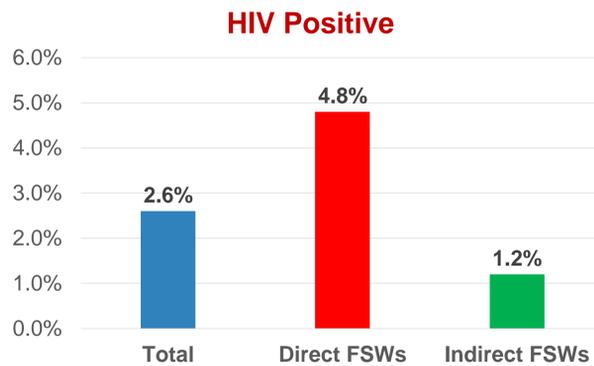
**Ethical Considerations:** The ethical considerations of the study were jointly approved prior to the start by the Human Research Ethics Committee of Griffith University and the Department of Health in Ba Ria – Vung Tau province.

## Results

### Map of Ba Ria – Vung Tau, Vietnam



## Results



### Sexual behaviours and HIV prevalence

	HIV infection		OR (95% CI)	P-value
	Total (n/%)	Positive (n/%)		
<b>Age of first sexual intercourse</b>				
18 or below	221 (52.6)	9 (81.1)	4.18 (0.89 - 19.59)	<b>0.049</b>
<b>Age of first working as FSWs</b>				
20 or below	91 (21.7)	2 (18.2)	0.79 (0.17 - 3.76)	0.776
<b>Working as FSWs</b>				
Over 2 years	183 (43.6)	8 (72.7)	3.56 (0.93 - 13.63)	<b>0.048</b>
<b>Worked as FSWs in other places</b>				
Yes	316 (75.2)	6 (54.5)	0.38 (0.11 - 1.28)	0.107
<b>Worked as FSWs abroad</b>				
Yes	31 (7.4)	3 (27.3)	5.10 (1.28 - 20.31)	<b>0.011</b>
<b>Number of paying clients in the last month</b>				
Over 15	180 (42.9)	8 (72.7)	3.67 (0.96 - 14.05)	<b>0.042</b>
<b>Type of sexual intercourse</b>				
Had oral sex	342 (81.4)	7 (63.6)	0.38 (0.11 - 1.35)	0.124
Had anal sex	74 (17.6)	6 (54.5)	6.02 (1.78 - 20.28)	<b>0.001</b>
<b>Inconsistent condom use with paying clients in recent time</b>				
New customers	61 (15.2)	6 (54.5)	7.31 (2.16 - 24.77)	<b>&lt;0.001</b>
Regular customers	88 (21.8)	6 (54.5)	4.54 (1.35 - 15.23)	<b>0.008</b>

## Results

### Alcohol and drug use and HIV prevalence

	HIV infection		OR (95% CI)	P-value
	Total (n/%)	Positive (n/%)		
<b>Ever drunk alcohol</b>				
At least once a week	346 (82.4)	10 (90.9)	2.17 (0.27 - 17.23)	0.452
<b>Ever have sex when drunk</b>				
Yes	167 (48.3)	8 (80.0)	4.45 (0.93 - 21.28)	<b>0.042</b>
<b>Using condoms during sex intercourse while drunk</b>				
Yes	105 (62.9)	2 (25.0)	5.52 (1.07 - 28.24)	<b>0.023</b>
<b>Ever heard or known about drugs and IDUs</b>				
Yes	218 (51.9)	9 (81.8)	4.30 (0.92 - 20.17)	<b>0.044</b>
<b>Ever used drugs</b>				
Yes	51 (23.4)	7 (77.8)	13.12 (2.63 - 65.41)	<b>&lt;0.001</b>
<b>Ever injected drugs</b>				
Yes	2 (0.9)	2 (22.2)	30.85 (14.89 - 63.94)	<b>&lt;0.001</b>
<b>Have any clients who inject drugs</b>				
Yes	57 (13.6)	6 (54.5)	8.42 (2.48 - 28.60)	<b>&lt;0.001</b>

## Conclusions

- A total of 166 direct and 254 indirect FSWs participated in the survey, 2.6% (11/420) FSWs were found to be HIV positive. There was a difference in HIV prevalence among direct and indirect FSWs (4.8% and 1.2%, OR 4.23; 95% CI 1.11-16.21; p=0.022).
- There were associations between HIV infection and several risk behaviors:
  - Age of first sex experience  $\leq 18$  (OR=4.18, p=0.049);
  - Worked as FSWs abroad (OR=5.10, p=0.011);
  - Number of paying clients in the last month  $>15$  (OR=3.67, p=0.042);
  - Had anal sex (OR=5.42, p=0.004);
  - Inconsistent condom use with regular customers (OR=4.54, p=0.008) and new customers (OR=7.31, p=0.001).
  - Alcohol/drugs were additional risk factors with ever having sex when drunk (OR=4.45, p=0.042);
  - Unprotected sex during sexual intercourse while drunk (OR=5.52, p=0.023);
  - Ever having used drugs (OR=13.12, p=0.001);
  - Having any clients who used drugs (OR=6.19, p=0.005) being significantly associated with HIV infection.



## Conclusions

*There is clear evidence that FSWs in Ba Ria – Vung Tau, Vietnam are highly vulnerable to HIV infection. The need to enhance the existing HIV treatment and intervention programs in order to reduce the risk of HIV infection is urgent. Improved HIV health education and a 100% condom use program should be implemented. More stringent regulation of the sex industry is required.*

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