

# UCLA

## UCLA Previously Published Works

### Title

Gender-based violence, psychological distress, sexual behaviours and binge drinking among female entertainment workers in Cambodia: a cross-sectional study

### Permalink

<https://escholarship.org/uc/item/0vx7q797>

### Journal

BMJ Open, 12(4)

### ISSN

2044-6055

### Authors

Oy, Sreymom  
Chhoun, Pheak  
Tuot, Sovannary  
et al.

### Publication Date

2022-04-01

### DOI

10.1136/bmjopen-2021-054139

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NonCommercial License, available at <https://creativecommons.org/licenses/by-nc/4.0/>

Peer reviewed

# BMJ Open Gender-based violence, psychological distress, sexual behaviours and binge drinking among female entertainment workers in Cambodia: a cross-sectional study

Sreymom Oy,<sup>1,2</sup> Pheak Chhoun,<sup>3</sup> Sovannary Tuot,<sup>3,4</sup> Carinne Brody ,<sup>5</sup> Pamina M. Gorbach,<sup>2</sup> Siyan Yi ,<sup>1,3</sup>

**To cite:** Oy S, Chhoun P, Tuot S, *et al.* Gender-based violence, psychological distress, sexual behaviours and binge drinking among female entertainment workers in Cambodia: a cross-sectional study. *BMJ Open* 2022;**12**:e054139. doi:10.1136/bmjopen-2021-054139

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-054139>).

Received 06 June 2021  
Accepted 05 April 2022



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

**Correspondence to**  
Dr Siyan Yi; [siyan@doctor.com](mailto:siyan@doctor.com)

## ABSTRACT

**Objective** To examine the relationship between gender-based violence, HIV risks, psychological distress and binge drinking among female entertainment workers (FEWs) in Cambodia.

**Design** Cross-sectional study.

**Setting** Phnom Penh and three other provinces in Cambodia.

**Participants** We recruited 600 FEWs from entertainment venues using a stratified random sampling method. Participants were eligible if they were at least 18 years old, working in the selected entertainment venues and self-identified as a FEW.

**Primary outcome measure** Binge drinking was defined as drinking more than five units of alcoholic drinks in 24 hours on at least one occasion in the past 3 months.

**Results** The prevalence of binge drinking was 76.7%. Adjusted odds of binge drinking were significantly higher among FEWs who earned >US\$250 per month than those who earned ≤US\$120 per month (adjusted OR (AOR) 2.96, 95% CI: 1.40 to 6.24), had been forced to drink more than once per month in the past 3 months than those who had never been forced to drink (AOR 5.66, 95% CI: 2.19 to 14.65), worked at karaoke bars than those working at a restaurants/café (AOR 1.85, 95% CI: 1.19 to 2.88) and experienced emotional abuse in the past 6 months than those who did not experience it (AOR 2.71, 95% CI: 1.22 to 6.02). The odds of binge drinking were significantly higher among FEWs with lower psychological distress than those with higher psychological distress (AOR 1.65, 95% CI: 1.09 to 2.49).

**Conclusions** This study highlights a high prevalence of binge drinking among FEWs and its associations with working environments, conditions and contexts. Our findings suggest that individual-based behavioural intervention may not effectively reduce binge drinking among FEWs. Structural and occupational health policy interventions may be needed to change the working environment.

## INTRODUCTION

Female entertainment workers (FEWs) in Cambodia are disproportionately

## Strengths and limitations of this study

- This is one of the few studies that determine the factors associated with binge drinking among female entertainment workers in Cambodia.
- We used the validated measures of binge drinking and psychological distress that allowed us to compare the prevalence of these variables with other studies.
- Binge drinking and other sexual practices data were self-reported; therefore, they may be subject to social desirability bias.
- The study's cross-sectional design did not allow us to draw a causal inference.

experienced issues such as violence, sexual harassment, rights abuses and lack of access to health services.<sup>1</sup> Many FEWs work in alcohol-based entertainment venues such as karaoke bars, massage parlours, restaurants or beer gardens.<sup>2 3</sup> The FEW populations also include women working as freelance sex workers in public places, including streets, parks or on call.<sup>4</sup> Frequently, FEWs are pressured to alcohol drinking during working hours, especially by their clients and supervisors.<sup>5</sup> Studies have reported high alcohol consumption rates among women working in the sex and entertainment industry across many countries.<sup>6–11</sup> In the baseline survey of the Cambodian Integrated HIV and Drug Use Prevention Intervention, 83.4% of FEWs aged ≥18 years with ≥2 sexual partners or transactional sex within the last month reported binge drinking, defined as having more than five alcoholic drinks on at least one occasion in the past 3 months.<sup>12</sup> Moreover, 23.7% of sex workers aged <29 years reported being drunk for >20 days in the last

month.<sup>13</sup> A similar study found that 33.1% of FEWs had been forced to drink alcohol more than once a month.<sup>14</sup>

Excessive drinking is correlated with adverse health and social outcomes among female sex workers (FSWs) in other countries. Alcohol use may negatively influence the ability of FSWs to negotiate safer sex with commercial sex partners.<sup>15–18</sup> For instance, a cohort study of Kenyan FSWs found that hazardous and harmful drinking, as defined by having an Alcohol Use Disorders Identification Test (AUDIT) score between 8 and 15 for hazardous drinking and having an AUDIT score  $\geq 16$  for harmful drinking, which includes alcohol dependence,<sup>19</sup> was associated with unprotected sex and a higher number of sex partners than non-drinkers.<sup>8</sup> A systematic literature review identified the health impacts of alcohol use among FSWs. The impacts include adverse physical health such as fatigue, sleep problems, acute intoxication and chronic alcoholic cirrhosis.<sup>20</sup> Alcohol drinking is also associated with mental health problems, sexual-violence victimisation, condomless sex, HIV and other sexually transmitted infections (STIs).<sup>20</sup> Likewise, a study among FSWs in China found that problem drinking (risk drinking, heavy drinking and hazardous drinking) is associated with unprotected sex and an STI history.<sup>21</sup> Furthermore, alcohol drinking is associated with illicit drug use and heavy cigarette smoking among FSWs in India and Nigeria.<sup>9 20 22</sup>

In Cambodia, the FEW populations have grown significantly over the past decade, from approximately 40 000 in 2014 to 70 000 in 2019.<sup>1 14</sup> It is worth noting that most FEWs are migrants from rural low-income families and have to provide regular financial support to their families.<sup>23</sup> The pathway from rural community livelihood to the entertainment sector is common among FEWs.<sup>14</sup> Transactional sex is also common among them.<sup>4</sup> For example, the proportion of FEWs who reported having sex in exchange for money or gifts with commercial sex partners in the past 3 months ranged from 22.5% to 28.1%.<sup>3 24 25</sup> The growing number of FEWs means more effort is needed to provide resources and healthcare for this population.

FEWs are generally at a greater risk of contracting HIV and other STIs than the general women population due to the nature of their work.<sup>26</sup> In Cambodia, the estimated HIV prevalence among pregnant women attending antenatal care aged 15–49 years was 0.6% in 2016.<sup>27</sup> The prevalence among FEWs was 3.2% in the same year.<sup>4</sup> Gender-based violence (GBV) among FEWs is also prevalent.<sup>28</sup> A Cambodian study found that 60.5% of FEWs experienced a form of GBV in their lifetime, and 37.5% experienced it in the past 6 months.<sup>29</sup> Additional to occupational risks, FEWs suffer from social stigma and discrimination, resulting in various forms of abuse and harassment in workplaces and communities and by law-enforcement authorities because of the illegality of sex work.<sup>30</sup> A study found that 43.2% of FEWs in Cambodia reported having psychological distress, 19.5% having suicidal thoughts and 7.3% attempting to commit suicide in the past 3 months.<sup>3</sup>

Heavy alcohol drinking has been shown to increase the FEWs' risk of contracting HIV and other STIs by limiting FEWs' ability to successfully negotiate and use condoms with partners.<sup>31</sup> Examining factors associated with binge drinking among FEWs is essential to design an effective intervention to reduce the binge drinking prevalence that would, in turn, reduce the incidence of HIV and STIs in this population. A recent qualitative study reported several factors linked to binge drinking among FEWs in Cambodia, such as experiencing economic shock, sustaining a family income, experiencing psychological distress, working better and drinking for social life.<sup>5</sup> No previous quantitative studies have identified factors associated with binge drinking among FEWs in Cambodia. Therefore, this study examined the associations between sociodemographic characteristics, mental health-related factors, sexual risk behaviours, GBV and binge drinking among FEWs in Cambodia.

## METHODS

### Design and study population

Data were collected in November 2018 as part of the mid-term survey of the *Mobile Link* trial.<sup>32</sup> The trial was a multisite, single-blinded randomised controlled trial with two arms. Six hundred FEWs were randomly assigned to the arms—300 for the intervention and 300 for the control arms. FEWs assigned to the intervention arm received either short messages or voice messages, depending on their choices. FEWs in the control arm received the existing standard healthcare provided by the government and non-governmental organisations. Standard healthcare included access to HIV and sexual and reproductive health services, such as free HIV and STIs testing, counselling and sexual and reproductive health services. The trial was implemented in Phnom Penh and three other provinces: Battambang, Banteay Meanchey and Siem Reap. Details of the *Mobile Link* trial have been published elsewhere.<sup>32</sup>

### Sample and sampling procedures

This study employed a stratified random sampling to recruit FEWs from entertainment venues. First, we purposively selected the capital city and three provinces because of their large FEW population sizes and high HIV burdens. Second, two study sites (operational districts) were purposively selected from the capital city and one from each province. Third, entertainment venues were classified by venue types based on a list of all entertainment venues in the study obtained from the geographic information system mapping of HIV key populations in Cambodia.<sup>33</sup> Finally, a probability proportional to size sampling method was used to randomly select FEWs from the selected venues according to their type and size. Female interviewers approached the selected FEWs to conduct the interviews. FEWs were eligible for the study if they (a) were at least 18 years old at the time of the interview, (b) were working in the selected entertainment

venues, (c) were able to communicate in Khmer, (d) could provide written informed consent to participate in the study and (e) agreed to present themselves on the day of the interview.

### Data collection training and procedures

Female data collectors who previously worked with the research team on studies related to HIV, substance abuse and GBV among key populations in Cambodia were recruited. The data collection team received 1 day training on interview techniques, confidentiality, privacy assurance and quality control skills. The interview was conducted in a place of their choice and took approximately 30 min per participant. The participants received US\$5 as time compensation.

### Questionnaire development

A structured questionnaire was developed in English and translated into Khmer, the Cambodian national language. Back-translation from Khmer to English was conducted to ensure that the contents and meaning of the original questionnaire were maintained. The Khmer questionnaire was then pretested to ensure that the participants understood the questionnaire and that the contents were culturally appropriate. The Kobo Humanitarian Response platform was used to programme the questionnaire, and the questionnaire was downloaded into the KoBoCollect application installed on tablets.

### Outcome variable measure

Alcohol drinking was assessed using the AUDIT-Consumption.<sup>34</sup> The participants were first asked how often they drank at least one can or one small bottle of beer or one glass of other alcoholic beverages in the past 3 months. If the participant responded to any quantity (once a month or less, 2–4 times a month, 2–3 times a week and  $\geq 4$  times a week), the participants were then asked, “how often did you have more than five units of alcoholic drinks in 24 hours in the past 3 months”. Binge drinking was defined as drinking more than five units of alcoholic drinks in 24 hours on at least one occasion in the past 3 months.

### Independent variables measure

The independent variables of interest comprised sociodemographic characteristics, including age groups (18–24, 25–29, 30–35 years), education levels (primary school, secondary school, high school or above), current marital status (never married, currently married, widowed/divorced), average monthly income in the past 6 months ( $\leq$ US\$120, US\$121–250,  $>$ US\$250), place of birth (rural, urban), number of children (0, 1,  $\geq 2$ ), entertainment venue (restaurant/café, karaoke bar, beer garden, massage parlour, freelance) and working duration as an entertainment worker ( $<$ 1 year, 1–2 years,  $>$ 2 years). We also collected information on transactional sex (yes, no), the number of sexual partners (0, 1, 2–3,  $>$ 3) and the frequency of condom use with non-commercial and

commercial partners (always, frequently, sometimes, never) in the past 3 months.

Regarding GBV, we assessed FEWs' experiences of emotional abuse, forced substance use, physical abuse and forced sex using three questions for each type of GBV with multiple-choice response options. The questions were (1) “What type of violence, if any, have you ever experienced in your lifetime?”; (2) “What type of violence, if any, have you experienced in the past 6 months?” and (3) “Who was the main perpetrator of the violence?” We classified GBV experiences into four categories: (1) emotional abuse (verbal threats or controlling the ability to leave the house by commercial sex partners, non-commercial sex partners, husbands, entertainment establishment owners or managers), (2) physical abuse (beating, kicking or hitting by commercial sex partners, non-commercial sex partners or husbands), (3) forced sex (by commercial sex partners, non-commercial sex partners or husbands) and (4) forced substance use (alcohol and drugs by commercial sex partners, non-commercial sex partners or husbands).

Psychological distress was measured using the 12-item General Health Questionnaire (GHQ-12).<sup>35</sup> The GHQ-12 consists of 12 questions assessed on a 4-point Likert scale, ranging from 0 to 3. Scoring was conducted through a method of the ‘0-0-1-1’. Those who responded 0 or 1 were coded as ‘0’ and those who responded 2 or 3 were coded as ‘1’. This method was used to avoid biases resulting from the tendency that participants choose to respond 0 and 3 or 1 and 2.<sup>36</sup> The mean of the total score for the entire sample was used as the cut-off to define lower or higher psychological distress among the respondents. The GHQ-12 score of  $\leq 3$  was defined as ‘low psychological distress’, and  $\geq 4$  or more was defined as ‘high psychological distress’.<sup>37</sup> The Cronbach's alpha for the GHQ-12 among this study's participants was 0.69.

### Statistical analyses

Data were imported in Excel for editing to ensure accuracy, consistency and completeness. The data were then imported into STATA V.14 (StataCorp, Texas, USA). We conducted descriptive statistics to describe the prevalence and characteristics of alcohol drinking among the participants. We used the  $\chi^2$  test (or Fisher's exact test when the sample sizes were smaller than five in one cell) for categorical variables and Student's t-test for continuous variables to compare the sociodemographic characteristics, entertainment work, GBV experiences, psychological distress and sexual behaviour characteristics among binge drinkers and non-binge drinkers.

We performed bivariate and multiple logistic regression analyses to examine the associated factors of binge drinking in the total sample of 600 FEWs and among a subgroup of 365 FEWs working in karaoke bars. In the multiple logistic regression, we first included age, education and all variables significantly associated with binge drinking at the p value  $<$ 0.20 in the bivariate logistic regression analyses in the model. Then we used the backward elimination method to eliminate variables

with the highest *p* value one-by-one from the multiple logistic regression models. Overall, five multiple logistic regression models were run. The final multiple logistic regression models were evaluated according to the model calibration with Hosmer-Lemeshow goodness-of-fit ( $p > 0.05$ ).<sup>38</sup> The ORs and adjusted ORs (AOR) with their 95% confidence intervals (CI) were calculated. In addition, we conducted sensitivity analyses, including only FEWs working in karaoke bars, given their large sample and nature of their work that may uniquely expose them to binge drinking, GBV, psychological distress and sexual risks.

### Ethical considerations

Participation was voluntary, and participants could refuse or discontinue the participation anytime. Regardless of their literacy, the interviewers verbally briefed all the participants about the study's objectives and anticipated risks and benefits of their participation. To ensure the participants' privacy and confidentiality, we conducted interviews at a private place and assigned personal identification numbers in place of their identifiers. Participants were offered escorted referrals to peer counsellors and required services on request.

### Patients and public involvement

Representatives of FEWs and community-based organisations were involved in designing, conducting and disseminating our research. We invited the key stakeholder representatives to a consultative workshop to design the study and develop the study protocol and materials. The workshop aimed to gather the stakeholders' opinions to ensure that our study addressed their critical health issues and responded to their needs. We also invited them to discuss the questionnaire to receive their feedback on its contents and wording.

## RESULTS

### Drinking prevalence and characteristics

As shown in [table 1](#), 28.1% of the participants reported drinking 10 or more cans of beer or glasses of other alcoholic beverages on a typical day in the past 3 months. The prevalence of binge drinking was 76.7% among all FEWs, 81.4% among FEWs working in karaoke bars, 68.2% among FEWs working in restaurants/cafés and 72.6% among FEWs working in other entertainment venues, including beer gardens, massage parlours and as freelance sex workers. Almost one in five (19.5%) reported having been forced to drink at least once a month in the past 3 months.

### Sociodemographic characteristics

[Table 2](#) shows that most of the participants (72.5%) were born in rural areas, and their mean age was 24.8 (standard deviation [SD] 4.0) years. More than half of them had 6 years of formal education or less, and 13% had finished grade 10 or higher. More than 40% of them had

never been married, and 29.5% were currently married or cohabitated. The proportion of participants working in karaoke bars (64.6% vs 48.6%), having monthly income of >US\$250 (42.0% vs 29.3%) and having been forced to drink more than once a month in the past 3 months (16.1% vs 3.6%) was significantly higher among binge drinkers than non-binge drinkers.

### Prevalence of gender-based violence

[Table 2](#) shows that 22.7% of participants reported having experienced GBV in the past 6 months, including emotional abuse (11.7%), forced substance use (5.7%), physical abuse (4.7%) and forced sex (0.7%). The proportion of participants who reported having experienced emotional abuse (13.5% vs 5.7%) and physical abuse (5.2% vs 2.9%) in the past 6 months was significantly higher among binge drinkers than non-binge drinkers. Sensitivity analyses, including only FEWs working in karaoke bars, showed similar sociodemographic characteristics, GBV experiences and psychological distress. However, a significantly higher proportion of binge drinkers were born in rural areas than non-binge drinkers (73.4% vs 57.4%) (online supplemental table 1).

### Sexual behaviours and condom use

As shown in [table 3](#), 25.5% of the study participants reported having sex with one or more commercial sex partners in the past 3 months. The proportion of participants who reported having sexual intercourse in the past 3 months (79.1% vs 58.6%) and always using condoms when having sexual intercourse with non-commercial partners (19.2% vs 14.3%) was significantly higher among binge drinkers than non-binge drinkers. Overall, sexual behaviours and condom use of the total participants were similar to those of FEWs working in karaoke bars only (online supplemental table 2).

### Factors associated with binge drinking

[Table 4](#) shows the results of bivariate and multiple logistic regression analyses. In bivariate analyses, the odds of binge drinking in the past 3 months were significantly higher among participants with an average monthly income of >US\$250 and US\$121–250 than those with an average income of ≤US\$120 (OR 3.26, 95% CI: 1.64 to 6.49; OR 2.06, 95% CI: 1.07 to 3.95). We also found that the participants who experienced forced drinking more than once per month were 5.68 times more likely to experience binge drinking than those who did not experience it in the past 3 months (OR 5.68, 95% CI: 2.24 to 14.41). Additionally, the odds of binge drinking in the past 3 months were significantly higher among participants working in karaoke bars than those working at restaurants/cafés (OR 2.04, 95% CI: 1.34 to 3.08) and among participants who experienced emotional abuse than those who did not experience it in the past 6 months (OR 2.57, 95% CI: 1.19 to 5.51).

After adjustment, the odds of binge drinking remained significantly higher among participants with an average

**Table 1** Prevalence and characteristics of alcohol drinking among female entertainment workers stratified by type of entertainment venues

Alcohol drinking in the past 3 months	Total (n=600)	Type of entertainment venues		
		Karaoke bar (n=365)	Restaurant/Café (n=173)	Other* (n=62)
Frequency of drinking at least one can of beer or one glass of wine				
Never	20 (3.3)	4 (1.1)	9 (5.2)	7 (11.3)
Once a month or less	35 (5.8)	18 (4.9)	14 (8.1)	3 (4.8)
2–4 times a month	82 (13.7)	53 (14.5)	24 (13.9)	5 (8.1)
2–3 times a week	93 (15.5)	62 (16.9)	29 (16.8)	2 (3.2)
4 or more times a week	370 (61.7)	228 (62.5)	97 (56.1)	45 (72.6)
Number of standard drinks containing alcohol on a typical day				
1–2	106 (18.3)	35 (9.7)	63 (38.4)	8 (14.6)
3–4	129 (22.2)	76 (21.1)	45 (27.4)	8 (14.6)
5–6	129 (22.2)	90 (24.9)	21 (12.8)	18 (32.7)
7–9	53 (9.1)	37 (10.3)	11 (6.7)	5 (9.1)
10 or more	163 (28.1)	123 (34.1)	24 (14.6)	16 (29.1)
Frequency of drinking more than five drinks in 24 hours				
Never	120 (20.7)	64 (17.7)	46 (28.1)	10 (18.2)
Less than once a month	39 (6.7)	23 (6.4)	15 (9.2)	1 (1.8)
Once a month	36 (6.2)	18 (4.9)	14 (8.6)	4 (7.3)
1–3 times a week	118 (20.3)	81 (22.4)	32 (19.5)	5 (9.1)
≥4 times a week	267 (46.0)	175 (48.5)	57 (34.8)	35 (63.6)
Had binge drinking at least once†	460 (76.7)	297 (81.4)	118 (68.2)	45 (72.6)
Frequency of forced drinking				
Never	404 (67.3)	245 (67.1)	116 (67.1)	43 (69.4)
≤1 time per month	117 (19.5)	75 (20.6)	33 (19.1)	9 (14.5)
>1 time per month	79 (13.2)	45 (12.3)	24 (13.9)	10 (16.1)

Values are numbers (%).

\*Other venues included beer gardens, massage parlours and freelance.

†Binge drinking was defined as drinking more than five units of alcoholic drinks in 24 hours on at least one occasion in the past 3 months.

monthly income of >US\$250 than those with an average income of ≤US\$120 (AOR 2.96, 95% CI: 1.40 to 6.24). Furthermore, participants who experienced forced drinking more than once per month were 5.66 times more likely to experience binge drinking than those who did not experience it in the past 3 months (AOR 5.66, 95% CI: 2.19 to 14.65). We also found that the participants who worked in karaoke bars had a significantly higher odds of binge drinking than those working at restaurants/cafés (AOR 1.85, 95% CI: 1.19 to 2.88) and among participants who experienced emotional abuse than those who did not experience it in the past 6 months (AOR 2.71, 95% CI: 1.22 to 6.02). Interestingly, the odds of binge drinking were significantly higher among participants with lower psychological distress than those with higher psychological distress (AOR 1.65, 95% CI: 1.09 to 2.49).

Among participants who worked at karaoke bars, the odds of binge drinking were significantly higher among those who were born in rural areas than those who were

born in urban areas (AOR 0.51, 95% CI: 0.28 to 0.92), had sexual intercourse in the past 3 months than those who did not (AOR 2.94, 95% CI: 1.64 to 5.29) and those with lower psychological distress than those with higher psychological distress (AOR 2.15, 95% CI: 1.22 to 3.81) (online supplemental table 3).

## DISCUSSION

This study explored the magnitude of binge drinking and its relationships with GBV, psychological distress and sexual behaviours among FEWs in Cambodia, a key population working in an environment prone to HIV risks and substance abuse. We found an overall prevalence of binge drinking in the past 3 months of 76.7% and 81.4% among FEWs working at karaoke bars. A prevalence of binge drinking of 83.4% has been reported in another study of Cambodian FEWs who were more heavily engaged in commercial sex (reporting two or more different sexual partners within the last month).<sup>12</sup> In our study,

**Table 2** Comparison of sociodemographic characteristics, GBV and psychological distress among binge drinkers and non-binge drinkers

Characteristics	Total n=600	Binge drinking*		P value†
		Yes (n=460)	No (n=140)	
Type of venue best describes the current job in the entertainment				0.002
Restaurant/Café	173 (28.8)	118 (25.7)	55 (39.3)	
Karaoke bar	365 (60.8)	297 (64.6)	68 (48.6)	
Beer garden/massage parlour/freelance	62 (10.3)	45 (9.8)	17 (12.1)	
Age group in years (mean±SD)	24.8±4.0	24.9±4.0	24.4±4.1	0.19
18–24	280 (46.7)	214 (46.5)	66 (47.1)	0.52
25–29	239 (39.8)	180 (39.1)	59 (42.1)	
30–35	81 (13.5)	66 (14.4)	15 (10.7)	
Education level (in year)				0.15
Primary school/no schooling (0–6)	309 (51.5)	245 (53.3)	64 (45.7)	
Secondary school (7–9)	213 (35.5)	161 (35.0)	52 (37.1)	
High school or above (≥10)	78 (13.0)	54 (11.7)	24 (17.1)	
Current marital status				0.80
Never married	243 (40.5)	183 (39.8)	60 (42.9)	
Currently married	180 (30.0)	139 (30.2)	41 (29.3)	
Widowed/Divorced	177 (29.5)	138 (30.0)	39 (27.9)	
Level of monthly income (US\$)				0.002
≤120	44 (7.3)	26 (5.7)	18 (12.9)	
121–250	322 (53.7)	241 (52.4)	81 (57.9)	
>250	234 (39.0)	193 (42.0)	41 (29.3)	
Born in rural area	435 (72.5)	336 (73.0)	99 (70.7)	0.59
Current type of house				0.56
Their own/Family house	77 (12.8)	55 (12.0)	22 (15.7)	
Rental house on their own	161 (26.8)	126 (27.4)	35 (25.0)	
Rental house with family	150 (25.0)	112 (24.4)	38 (27.1)	
Rental house with friends	55 (9.2)	41 (8.9)	14 (10.0)	
Dormitory at their workplace	157 (26.2)	126 (27.4)	31 (22.1)	
Number of children				0.36
0	305 (50.8)	229 (49.8)	76 (54.3)	
1	188 (31.3)	151 (32.8)	37 (26.4)	
≥2	107 (17.8)	80 (17.4)	27 (19.3)	
Duration of work as entertainment workers				0.62
<1 year	226 (37.7)	171 (37.2)	55 (39.3)	
1–2 years	196 (32.7)	155 (33.7)	41 (29.3)	
>2 years	178 (29.7)	134 (29.1)	44 (31.4)	
GBV experiences in the past 6 months				0.047
Emotional abuse	70 (11.7)	62 (13.5)	8 (5.7)	
Forced substance use	34 (5.7)	25 (5.4)	9 (6.4)	
Physical abuse	28 (4.7)	24 (5.2)	4 (2.9)	
Forced sex	4 (0.7)	4 (0.9)	0 (0.0)	
High psychological distress (≥4)‡	235 (39.2)	171 (37.2)	64 (45.7)	0.007

Values are numbers (%) for categorical variables and mean (SD) for continuous variables.

\*Binge drinking was defined as drinking more than five units of alcoholic drinks in 24 hours on at least one occasion in the past 3 months.

† $\chi^2$  test or Fisher's exact test (when sample sizes were smaller than five in one cell) was used for categorical variables, and Student's t-test was used for continuous variables.

‡Psychological distress was assessed using the GHQ-12. The GHQ-12 score of ≥4 was used to define 'high psychological distress'.

GBV, gender-based violence; GHQ-12, 12-item General Health Questionnaire.

**Table 3** Comparison of sexual behaviours among binge drinkers and non-binge drinkers

Sexual behaviours in the past 3 months	Total (n=600)	Binge drinking*		P value†
		Yes (n=460)	No (n=140)	
Had sexual intercourse	446 (74.3)	364 (79.1)	82 (58.6)	<0.001
Condoms use in last sex with a non-commercial partner	98 (27.1)	85 (29.1)	13 (18.6)	0.08
Frequency of condom use with non-commercial partners				0.049
Always	66 (18.2)	56 (19.2)	10 (14.3)	
Frequently	8 (2.2)	7 (2.4)	1 (1.4)	
Sometimes	31 (8.6)	30 (10.3)	1 (1.4)	
Never	257 (71.0)	199 (68.2)	58 (82.9)	
Sex with commercial partners	153 (34.3)	130 (35.7)	23 (28.1)	0.19
Frequency of having sex with commercial partners				0.61
Daily/A few times a week/Weekly	35 (22.9)	31 (23.9)	4 (17.4)	
Monthly	26 (17.0)	23 (17.7)	3 (13.0)	
Once in a while, when needed to	92 (60.1)	76 (58.5)	16 (69.6)	
Number of commercial sex partners				0.045
0 partner	447 (74.5)	330 (71.7)	117 (83.6)	
1 partner	64 (10.7)	54 (11.7)	10 (7.1)	
2–3 partners	46 (7.7)	40 (8.7)	6 (4.3)	
>3 partners	43 (7.2)	36 (7.8)	7 (5.0)	
Condoms use in last sex with a commercial partners	142 (92.8)	120 (92.3)	22 (95.7)	0.57
Frequency of condom use with commercial partners				0.32
Always	119 (77.8)	98 (75.4)	21 (91.3)	
Frequently	8 (5.2)	8 (6.2)	0 (0.0)	
Sometimes	19 (12.4)	18 (13.9)	1 (4.4)	
Never	7 (4.6)	6 (4.6)	1 (4.4)	

Values are numbers (%).

\*Binge drinking was defined as drinking more than five units of alcoholic drinks in 24 hours on at least one occasion in the past 3 months.

† $\chi^2$  test or Fisher's exact test (when sample sizes were smaller than five in one cell) was used for categorical variables.

only 25.5% of participants reported having sex with one or more commercial sex partners in the past 3 months, which may explain the difference in the binge-drinking prevalence. Consistent with our findings, the prevalence of alcohol drinking among FSWs in other countries also appears high, ranging from 67.8% to 88.5%.<sup>6 9 10 39</sup>

We identified a significant relationship between binge drinking among FEWs and higher monthly income. Evidence suggests that FEWs discuss receiving better tips from commercial sex partners or monetary incentives from their bosses for drinking.<sup>5</sup> FEWs also discussed how they use alcohol to reduce shyness to perform their job better.<sup>5</sup> These might explain the correlation between binge drinking and higher monthly income among FEWs in Cambodia. Another plausible explanation for this correlation was suggested in the literature, as other studies have noted this same pattern. Higher income was associated with increases in higher-risk drinking among Kenyan FSWs.<sup>8</sup> As the level of risk for drinking increased, the median number of commercial sex partners also

increased, from three in the past week among non-drinkers and low-risk drinkers to six partners in the past week among harmful drinkers.<sup>8</sup>

Our findings suggest that lower psychological distress was associated with binge drinking. FEWs with lower psychological distress were 1.7 times more likely to report binge drinking than those who had higher psychological distress. A literature review shows that alcohol use was correlated with adverse mental health problems.<sup>20</sup> Therefore, we expected FEWs with higher psychological distress would be more likely to be binge drinkers. The possible explanation for our finding is that those who thought they had an issue with mental health might decide not to drink. In a qualitative study in Cambodia, FEWs expressed feeling shy working in entertainment venues. Alcohol drinking helped them forget those feelings and perform the job better, resulting in better earnings.<sup>5</sup> Once FEWs earn better, they are less likely to be distressed, which may explain why those who have lower psychological distress were associated with binge drinking. This finding



**Table 4** Factors associated with binge drinking among female entertainment workers (n=600)

Characteristics	Bivariate logistic regression		Multiple logistic regression*	
	OR (95% CI)	P value	AOR (95% CI)	P value
Age (years)	1.03 (0.98 to 1.08)	0.19	1.02 (0.97 to 1.07)	0.46
Education level (in years)				
High school or above (≥10)	Reference		Reference	
Secondary school (7–9)	1.38 (0.78 to 2.44)	0.28	1.19 (0.64 to 2.20)	0.58
Primary school/no schooling (0–6)	1.70 (0.98 to 2.96)	0.06	1.49 (0.82 to 2.71)	0.19
Average monthly income (US\$)				
≤120	Reference		Reference	
121–250	2.06 (1.07 to 3.95)	0.03	1.98 (0.98 to 3.99)	0.06
>250	3.26 (1.64 to 6.49)	0.001	2.96 (1.40 to 6.24)	0.004
Level of psychological distress				
Higher (GHQ-12 ≥4)	Reference		Reference	
Lower (GHQ-12 ≤3)	1.42 (0.97 to 2.09)	0.07	1.65 (1.09 to 2.49)	0.02
Frequency of forced drinking in the past 3 months				
Never	Reference		Reference	
1 time per month	1.57 (0.95 to 2.59)	0.08	1.64 (0.96 to 2.78)	0.07
>1 time per month	5.68 (2.24 to 14.41)	<0.001	5.66 (2.19 to 14.65)	<0.001
Type of venue best describes the current job in the entertainment				
Restaurant/Café	Reference		Reference	
Karaoke bar	2.04 (1.34 to 3.08)	0.001	1.85 (1.19 to 2.88)	0.006
Beer garden/Massage parlour/Freelance	1.23 (0.65 to 2.35)	0.52	0.92 (0.46 to 1.85)	0.82
Experience emotional abuse in the past 6 months				
No	Reference		Reference	
Yes	2.57 (1.19 to 5.51)	0.02	2.71 (1.22 to 6.02)	0.01

\*Adjusted for variables significantly associated with binge drinking at the p value ≤0.20 in the bivariate logistic regression analyses and those that remained statistically significant in five multiple logistic regression models using the backward elimination method.

†Psychological distress was assessed using the GHQ-12. The GHQ-12 score of ≥4 was used to define 'high psychological distress'. AOR, adjusted OR; GHQ-12, 12-item General Health Questionnaire.

emphasises the social need to support the FEWs in Cambodia with their health and psychological well-being.

In our study, FEWs who worked in karaoke bars had a higher propensity to engage in binge drinking than those who worked in restaurants/cafés, beer gardens, massage parlours or freelance. This finding is consistent with previous studies, which have discussed how karaoke bars are a place where clients go for singing and a place for drinking and entertaining with women.<sup>17 40</sup> In such settings, FEWs can also be pressured by supervisors and clients to drink.<sup>17 40</sup> Our findings also showed that FEWs who experienced forced drinking four times or more in the past 3 months were significantly more likely to report binge drinking. These findings highlight the need to target karaoke bars to improve their working conditions and reduce forced alcohol and drug use. Additionally, interventions that help FEWs transit to other safer occupations, such as hairdressing, should also be an alternative.

Binge drinkers reported experiencing more emotional abuse in the past 6 months than non-binge drinkers. Emotional abuse is a type of GBV that has received less

attention from researchers, policymakers and intervention programmes. Emotional abuse is associated with several social, economic and health problems.<sup>41</sup> In line with this finding, in a qualitative study in Cambodia, FEWs shared their experience in excessive drinking to cope with the challenges in life and jobs.<sup>5</sup> Similarly, a Tanzanian study showed that FSWs who reported hazardous or harmful drinking were two times more likely to experience GBV than those who reported less hazardous or harmful drinking.<sup>38</sup>

Alcohol consumption has been associated with the global burden of diseases and substantial health loss.<sup>42</sup> Alcohol consumption particularly becomes a significant public health concern among FSWs because hazardous and harmful drinking is correlated with sexual risk behaviours, such as condomless sex and a higher number of sexual partners, than those who were abstained from alcohol drinking.<sup>8 43</sup> Findings from this study provide critical information for programme implementation and policy to reduce the prevalence of binge drinking among FEWs in Cambodia. The high

binge-drinking prevalence among Cambodian FEWs implicates the need for occupational health intervention programmes to mitigate alcohol use among FEWs. For instance, the WHO's Brief Intervention for Hazardous and Harmful Drinking<sup>19</sup> effectively reduced self-reporting alcohol consumption among non-dependent and non-treatment-seeking FSWs in Mombasa, Kenya.<sup>44</sup>

Additionally, findings from our study indicate that individual-level interventions would not be sufficient to reduce binge alcohol consumption among FEWs in Cambodia since the risk factors were primarily environmental, occupational and structural. For instance, we found that binge drinkers were more likely to make more money, were forced to drink at work, mainly worked in the karaoke bars and experienced emotional abuse. An intervention promoting individual health behaviours to FEWs might not affect these factors. Therefore, it requires interventions addressing the structural and social contexts.<sup>45</sup>

This study has several limitations. First, the study's cross-sectional design did not allow us to draw a causal inference between risk factors and binge drinking. For example, a higher proportion of binge drinkers reported experiencing emotional abuse in the past 6 months than non-binge drinkers. Yet, as this finding was based on a cross-sectional association, the temporal relationship between GBV and binge drinking could not be determined. Future longitudinal studies are required to investigate this temporal relationship. Alternatively, qualitative studies to explore FEWs' experience of GBV might help researchers to understand in-depth whether experience GBV might lead to binge drinking. Second, social desirability bias<sup>46</sup> might be present since we asked women about sensitive issues such as GBV, sexual practices and substance use. Women might be less likely to report this type of sensitive information, resulting in underestimating the prevalence of the study variables. Moreover, since half of the participants received an intervention, they might be more likely to have been exposed to health education and services than other FEWs who were not. Therefore, the results from this study might not be generalisable to other FEWs in Cambodia.

Additionally, the small sample size in some subpopulations is another limitation of this study. For instance, FEWs working in beer gardens are likely to be involved in heavy alcohol drinking at work. However, due to the small sample size, we grouped them with FEWs working in massage parlours and as freelance sex workers. Finally, we could not include physical and sexual abuse in the multiple logistic regression, given the small sample size.

## CONCLUSIONS

This study highlights a relatively high prevalence of binge drinking among FEWs in Cambodia. Factors

associated with binge drinking were those linked to working environments and working conditions. Binge drinking was mainly reported by FEWs working in karaoke bars and those who experienced forced drinking as part of the job requirement. FEWs who experienced emotional abuse, defined as verbal threats or having the ability to leave the house not being under their control, were more likely to experience binge drinking than those who did not experience it. These findings can be used to design interventions to reduce binge drinking among FEWs by providing safer working environments and addressing work-related violence, such as emotional abuse by clients and entertainment establishment managers. Our study suggests that individual-based behavioural interventions may not be sufficient in reducing binge drinking among FEWs unless accompanied by structural and occupational health policy interventions that change these exploitative working environments.

### Author affiliations

<sup>1</sup>Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, Singapore

<sup>2</sup>Department of Epidemiology, University of California Los Angeles, Los Angeles, CA, USA

<sup>3</sup>KHANA Center for Population Health Research, Phnom Penh, Cambodia

<sup>4</sup>Department of Community and Global Health, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan

<sup>5</sup>Public Health Program, Touro University California, Vallejo, CA, USA

**Acknowledgments** We thank the national HIV programme staff, KHANA, implementing partners, data collection teams, community outreach workers and FEWs for their contribution to the project. We also thank Dr Chan Hang Saing for his contributions to the revisions of the manuscript. The University of California Global Health Institute's Center of Expertise on Women's Health, Gender, and Empowerment supported the development of this research.

**Contributors** CB and SY conceived the parent study, obtained the research grant and supervised the project implementation. ST and PC were responsible for project implementation, training and data collection. SO conducted literature reviews, analysed the data and drafted the manuscript. PMG advised on the study design, data analyses and manuscript writing. All authors provided critical comments for revisions and approved the final manuscript. SY is the study guarantor and confirms that he accepts full responsibility for the work, has access to the data and controls the decision to publish the paper.

**Funding** The Mobile Link project was supported by the L' Initiative (16SANIN210) of the Ministry of Foreign Affairs and International Development, France, through Expertise France. SO was a graduate student supported by the Fogarty funded UCLA/Cambodia HIV/AIDS Training Program in Data Management & Analysis (1D43TW009590-01A1). SO and SY were supported by Saw Swee Hock School of Public Health, National University of Singapore, through the UHS-SSHSPH Integrated Research Program (USIRP-R-608-000-247-750). SY was supported NUS Start-Up Grant (R608000304133).

**Disclaimer** The funders had no role in study design, data collection and analysis, decision to publish or manuscript preparation.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the 'Methods' section for further details.

**Patient consent for publication** Consent obtained directly from patient(s)

**Ethics approval** The National Ethics Committee for Health Research (No. 142NECHR) of the Ministry of Health in Cambodia, the Institutional Review Board of Touro University California (No. PH-0117) and the University of California, Los Angeles (No. 20-001053) approved this study.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Data are available on reasonable request. Data used for this study can be accessed on request from the Principal Investigator (SY) at siyan@doctor.com.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

#### ORCID iDs

Carinne Brody <http://orcid.org/0000-0001-9376-5528>

Siyan Yi <http://orcid.org/0000-0002-3045-5386>

#### REFERENCES

- Oxfam Cambodia. *Entertainment workers: social protection for the most marginalized informal workers*, 2019.
- Australian People for Health Education and Development Abroad. Cambodia – addressing HIV vulnerabilities of indirect sex workers during the financial crisis: Situation analysis, strategies and entry points for HIV/AIDS workplace education [Internet]. Bangkok, 2011. Available: [https://www.ilo.org/wcmsp5/groups/public/-asia/-ro-bangkok/documents/publication/wcms\\_165487.pdf](https://www.ilo.org/wcmsp5/groups/public/-asia/-ro-bangkok/documents/publication/wcms_165487.pdf)
- Brody C, Chhoun P, Tuot S. HIV risk and psychological distress among female entertainment workers in Cambodia: a cross-sectional study. *BMC Public Health* 2016;16:1–10.
- Mun P, Tuot S, Heng S. *National integrated biological and behavioral survey among female entertainment workers in Cambodia, 2016*. Phnom Penh, Cambodia, 2017.
- Brody C, Kaplan KC, Tuot S, et al. "We Cannot Avoid Drinking": Alcohol Use among Female Entertainment Workers in Cambodia. *Subst Use Misuse* 2020;55:602–12.
- Witte SS, Batsukh A, Chang M. Sexual risk behaviors, alcohol abuse, and intimate partner violence among sex workers in Mongolia: implications for HIV prevention intervention development. *J Prev Interv Community* 2010;38:89–103.
- Chen Y, Li X, Shen Z, et al. Alcohol and sexual risk: an event-level analysis in commercial sex setting. *Addict Behav* 2013;38:2888–92.
- Chersich MF, Bosire W, King'ola N. Effects of hazardous and harmful alcohol use on HIV incidence and sexual behaviour: a cohort study of Kenyan female sex workers. *Global Health* 2014;10:1–11.
- Odukoya OO, Sekoni AO, Onajole AT, et al. Alcohol consumption and cigarette smoking pattern among brothel-based female sex workers in two local government areas in Lagos state, Nigeria. *Afr Health Sci* 2013;13:490–7.
- Fernandes FRP, Mousquer GJ, Castro LS, et al. HIV seroprevalence and high-risk sexual behavior among female sex workers in central Brazil. *AIDS Care* 2014;26:1095–9.
- Surratt H. Sex work in the Caribbean Basin: patterns of substance use and HIV risk among migrant sex workers in the US virgin islands. *AIDS Care* 2007;19:1274–82.
- Lee J-Y, Page K, Stein E, et al. Who's that SMARTgirl? Reaching Cambodian female entertainment and sex workers with HIV prevention services. *AIDS Behav* 2020;24:738–45.
- Couture M-C, Sansothy N, Sapphon V, et al. Young women engaged in sex work in Phnom Penh, Cambodia, have high incidence of HIV and sexually transmitted infections, and amphetamine-type stimulant use: new challenges to HIV prevention and risk. *Sex Transm Dis* 2011;38:33–9.
- Brody C, Chhoun P, Tuot S, et al. Childhood conditions, pathways to entertainment work and current practices of female entertainment workers in Cambodia: baseline findings from the mobile link trial. *PLoS One* 2019;14:e0216578.
- Brody C, Reno R, Chhoun P, et al. Female entertainment Workers and condom use negotiation in post-100% condom use Era Cambodia. *Arch Sex Behav* 2020;49:3065–74.
- Chiao C, Morisky DE, Rosenberg R, et al. The relationship between HIV/sexually transmitted infection risk and alcohol use during commercial sex episodes: results from the study of female commercial sex workers in the Philippines. *Subst Use Misuse* 2006;41:1509–33.
- Hsu L-N, Howard R, Torriente AM, et al. Promoting occupational safety and health for Cambodian entertainment sector workers. *New Solut* 2016;26:301–13.
- Leddy AM, Underwood C, Decker MR, et al. Adapting the risk environment framework to understand substance use, gender-based violence, and HIV risk behaviors among female sex workers in Tanzania. *AIDS Behav* 2018;22:3296–306.
- Babor TF, Higgins-Biddle JC. *Brief intervention for hazardous and harmful drinking: a manual for use in primary care*. World Health Organization, 2001.
- Li Q, Li X, Stanton B. Alcohol use among female sex workers and male clients: an integrative review of global literature. *Alcohol Alcohol* 2010;45:188–99.
- Chen Y, Li X, Zhang C, et al. Alcohol use and sexual risks: use of the alcohol use disorders identification test (audit) among female sex workers in China. *Health Care Women Int* 2013;34:122–38.
- Medhi GK, Mahanta J, Kermode M, et al. Factors associated with history of drug use among female sex workers (FSW) in a high HIV prevalence state of India. *BMC Public Health* 2012;12:273.
- IOM and ILO. Risks and rewards : outcomes of labour migration in South-East Asia [Internet], 2017. Available: <https://thailand.iom.int/risks-and-rewards-outcomes-labour-migration-south-east-asia>
- Yi S, Tuot S, Chhoun P, et al. The impact of a community-based HIV and sexual reproductive health program on sexual and healthcare-seeking behaviors of female entertainment workers in Cambodia. *BMC Infect Dis* 2015;15:1–9.
- Yi S, Tuot S, Chhoun P, et al. Factors associated with induced abortion among female entertainment workers: a cross-sectional study in Cambodia. *BMJ Open* 2015;5:e007947.
- Baral S, Beyrer C, Muessig K, et al. Burden of HIV among female sex workers in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Infect Dis* 2012;12:538–49.
- National Center for HIV/AIDS Dermatology and STD. *Annual report 2016*. Phnom Penh, 2017.
- FHI 360. SMARTgirl Program Review: Providing HIV/AIDS Prevention and Care for Entertainment Workers [Internet]. Phnom Penh, 2012. Available: [https://www.fhi360.org/sites/default/files/media/documents/Program Review - SMARTgirl%2C Providing HIV/AIDS Prevention and Care for Entertainment Workers%2C Reporting Period October 2008-June 2010.pdf](https://www.fhi360.org/sites/default/files/media/documents/Program%20Review%20Providing%20HIV/AIDS%20Prevention%20and%20Care%20for%20Entertainment%20Workers%20Reporting%20Period%20October%202008-June%202010.pdf)
- Wieten CW, Chhoun P, Tuot S, et al. Gender-based violence and factors associated with victimization among female entertainment workers in Cambodia: a cross-sectional study. *J Interpers Violence* 2022;37:NP3427–48.
- Wong WCW, Holroyd E, Bingham A. Stigma and sex work from the perspective of female sex workers in Hong Kong. *Sociol Health Illn* 2011;33:50–65.
- Leddy AM, Kerrigan D, Kennedy CE, et al. 'You already drank my beer, I can decide anything': using structuration theory to explore the dynamics of alcohol use, gender-based violence and HIV risk among female sex workers in Tanzania. *Cult Health Sex* 2018;20:1409–23.
- Brody C, Tuot S, Chhoun P. Mobile Link - A theory-based messaging intervention for improving sexual and reproductive health of female entertainment workers in Cambodia: Study protocol of a randomized controlled trial. *Trials* 2018;19:1–14.
- National Center for HIV/AIDS Dermatology and STD (NCHADS). *Report on the first comprehensive GIS mapping of key populations at risk of HIV infection in Cambodia*. Phnom Penh, 2014.
- Bush K, Kivlahan DR, McDonell MB. ACQUIP for the ACQIP. The audit alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. *Arch Intern Med [Internet]* 1998;158:1789–95.
- Goldberg DP. The detection of psychiatric illness by questionnaire: a technique for the identification and assessment of non-psychotic psychiatric illness. *Oxford U. Press* 1972.
- Goldberg DP, Williams P. *A user's guide to the General Health Questionnaire*. Windsor: nferNelson, 1988.
- Goldberg DP, Oldehinkel T, Ormel J. Why GHQ threshold varies from one place to another. *Psychol Med* 1998;28:915–21.
- Hendrickson ZM, Leddy AM, Galai N, et al. Work-related mobility and experiences of gender-based violence among female sex workers in Iringa, Tanzania: a cross-sectional analysis of baseline data from project Shikamana. *BMJ Open* 2018;8:1–11.
- Sample SJ, Pitpitan EV, Chavarin CV, et al. Prevalence and correlates of hazardous drinking among female sex workers in 13 Mexican cities. *Alcohol Alcohol* 2016;51:450–6.

- 40 Couture M-C, Page K, Sansothy N, *et al.* High prevalence of unhealthy alcohol use and comparison of self-reported alcohol consumption to phosphatidylethanol among women engaged in sex work and their male clients in Cambodia. *Drug Alcohol Depend* 2016;165:29–37.
- 41 Couture M-C, Evans JL, Draughon Moret J, *et al.* Syndemic psychosocial health conditions associated with recent client-perpetrated violence against female entertainment and sex workers in Cambodia. *Arch Sex Behav* 2020;49:3055–64.
- 42 GBD 2016 Alcohol Collaborators. Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the global burden of disease study 2016. *Lancet* 2018;392:1015–35.
- 43 Wang B, Li X, Stanton B, *et al.* Alcohol use, unprotected sex, and sexually transmitted infections among female sex workers in China. *Sex Transm Dis* 2010;37:629–36.
- 44 L'Engle KL, Mwarogo P, Kingola N, *et al.* A randomized controlled trial of a brief intervention to reduce alcohol use among female sex workers in Mombasa, Kenya. *J Acquir Immune Defic Syndr* 2014;67:446–53.
- 45 Lancaster KE, MacLean SA, Lungu T, *et al.* Socioecological factors related to hazardous alcohol use among female sex workers in Lilongwe, Malawi: a mixed methods study. *Subst Use Misuse* 2018;53:782–91.
- 46 Guest G, Bunce A, Johnson L, *et al.* Fear, hope and social desirability bias among women at high risk for HIV in West Africa. *J Fam Plann Reprod Health Care* 2005;31:285–7.