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Psychological distress among re-education through labour camp detainees in Guangxi Autonomous Region, China

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Abstract

Background: There is currently no information about the prevalence of, and factors contributing to psychological distress experienced by re-education through labour camp detainees in China.

Methods: A cross-sectional face-to-face survey was conducted in three labour camps in Guangxi, China. The questionnaire covered socio-demographic characteristics; sexually transmissible infections (STIs); drug use; psychological distress (K-10); and health service usage and access inside the labour camps. K-10 scores were categorised as ≤ 30 (low to moderate distress) and >30 or more (highly distressed). Univariate and multivariate logistic regression models identified factors independently associated with high K-10 scores for men and women separately.

Results: In total, 755 detainees, 576 (76%) men and 179 (24%) women, participated in the health survey. The study found 11.6% men versus 11.2% women detainees experienced high psychological distress, but no significant gender differences were observed ($p > 0.05$). Multivariate logistic regression showed that multiple physical health problems were significantly associated with high psychological distress among men.

Conclusion: Drug treatment and forensic mental health services need to be established in detention centres in China to treat more than 10% of detainees with drug use and mental health disorders.

Keywords

prisoners, China, psychological distress, K-10, labour camps

Introduction

Mental and behavioural disorders account for an estimated 7.4% of the global burden of disease (Murray et al., 2012). In China, projected estimates indicate that 173 million or 12% of the population suffer from a diagnosable mental health disorder, of these 91% have never received any professional help for their condition (Phillips et al., 2009). Many with mental and behavioural disorders are imprisoned and are often neglected from surveys of the general population such as the World Health Organization (WHO) Global Burden of Disease Study (Murray et al., 2012) and the World Mental Health Surveys (Kessler et al., 2015). Around 10.75 million people are held in penal institutions and detention centres throughout the world with more than half held in the United States of America (2.29 million), Russia (810,000) and China (2.3 million) (Walmsley, 2011). Prisoners are noted for having high rates of mental and physical illness and substance abuse (Butler et al., 2011; Fazel & Baillargeon, 2011; Fazel & Seewald, 2012; Ibrahim et al., 2015; Mir et al., 2015; Mundt et al., 2013; Mundt et al., 2015; Mundt et al., 2015; Murrie et al., 2009; Naidoo & Mkize, 2012).

We conducted a survey of the physical and mental health status of detainees in re-education through labour camps (hereafter referred to as labour camps in China) in March 2011 (Yap et al., 2013, 2015; Zhang et al., 2015). Labour camps (*laojiaosuo*) contain a mix of drug users and non-drug users, imprisoned for minor offenses such as petty theft, gambling, sex work, illicit drug use, drug dealing and religious or political dissent. In 2008, 160 000 individuals were reportedly held in 350 labour camps throughout China (China Daily, 2013; Fu, 2005; Zhang et al., 2011). During the study, labour camps underwent major reform. The reform eliminated labour camps, as well as, compulsory drug detoxification centres, both were incorporated into a single entity now known as "isolated compulsory drug rehabilitation" or compulsory isolation centres (NPC, 2007). It should be noted that during the study, "re-education through labour camps" were also officially known as "isolated compulsory

drug rehabilitation centres” and both these names were used interchangeably by Chinese officials in the Guangxi Autonomous Region during the transition period, although the latter name was used solely after 2013.

Currently, there is no information about the prevalence of, and factors associated with psychological distress among detainees in China. This is the first study to examine adult detainees’ mental health in labour camps in China with a focus on psychological distress.

Methods

The study was conducted in March 2011. Following discussions with the Provincial Center for Disease Control and the Re-education Through Labour Administration Bureau which is responsible for the overall administration of the labour camps, three out of seven separate labour camps (one female and two male) in the region agreed to participate in the study.

In each labour camp, detainees were housed in shared rooms and dormitories in multistoried accommodation blocks. These accommodation blocks were randomly selected and men and women aged 18 years and over and living in the selected blocks were invited to participate in the study. However, in each labour camp, most HIV-positive detainees were accommodated in a separate facility so that antiretroviral therapy (ART) could be delivered more efficiently by medical staff and to protect HIV-negative detainees. We deliberately selected the accommodation blocks housing HIV-positive detainees (3 facilities housing 47 men and 25 women); in case, they were missed in the random selection process. The majority of HIV-positive detainees in the labour camps were included in our survey. The study design has been described in detail elsewhere (Yap et al., 2015, 2013).

Using a questionnaire, face-to-face interviews were conducted by local medical students with detainees in a range of settings throughout the labour camp including sports grounds, factories inside the camps, and just outside the gates of the labour camps. No labour camp staff were present during the interviews. A small monetary incentive was provided to participants.

The questionnaire was pilot tested among former and current labour camp detainees prior to use. Former detainees identified that they had previously been incarcerated in a labour camp to researchers. The questionnaire covered: sociodemographic characteristics, sexually transmissible infections (STI) including HIV, HIV-testing history, sexual and drug use behaviours, distress measured in the Kessler Psychological Distress Scale (K-10 here onwards), and respondent’s health service usage and their views on health care access inside the labour camp (Yap et al., 2013).

As part of this survey, the K-10 scale was administered. The K-10 is a simple measure of non-specific psychological distress in the anxiety-depression continuum. Previous research has proven its reliability and validity in Chinese populations (Chan et al., 2014; Huang et al., 2009; Lee et al., 2012). The K-10 scale is a 10-item screening questionnaire intended to yield a global measure of psychosocial distresses based on questions about the level of anxiety and depressive symptoms in the most recent 4-week period (Andrews & Slade, 2001). The K-10 scale has been shown to be accurate and sensitive in predicting serious mental illness (Kessler et al., 2003).

Participants were required to provide written consent before they could participate in the study. The consent form included detailed information about the selection of subjects, the purpose of the study, any risks that may be involved in the study participation, that any information collected by the study would remain confidential, that their decision to participate or not would not affect their future treatment in the labour camp, and that they were free to leave the study at any time during the survey.

Ethics

Ethics approval was obtained from the Human Research Ethics Committees at the National Center for AIDS/STD Control and Prevention (Chinese Center for Disease Control and Prevention, China CDC), and the UNSW Australia (UNSW HREC9125). Permission was also granted to conduct the study from the Provincial Center for Disease Control and the Re-education Through Labour Administration (Yap et al., 2013).

Analysis

K-10 scores were calculated and dichotomised as ≤ 30 (low to moderate distress) and >30 or more (highly distressed) which have been used elsewhere (Andrews & Slade, 2001; Stolk et al., 2014). For analysis, low and moderate distress scores ($K-10 \leq 30$) were combined for better discrimination using the high score cut-off ($K-10 > 30$). Data were analysed separately for men and women using the statistical software SAS 9.2 (SAS Institute, 2011). We calculated descriptive statistics, frequencies and percentages for the categorical variables. Multivariate logistic regression models were used to identify factors independently associated with high K-10 scores for men and women separately. First, univariate regression analysis was conducted for each predictor of interest and presented statistically significant predictors in Table 1. Following this, a multivariate regression analysis was conducted on the significant predictors and the K-10 score. Indicators with collinearity were then further filtered out from the regression model and hence, we obtained the most significant risk factors for severe psychological stress. We ran collinearity diagnostics for all variables $p < 0.05$ and kept the main variables in the model. Backward stepwise variable selection in logistic regression was used. We compared the self-reported health conditions, symptoms of physical illness and health care use and access in labour camps between the “highly distressed” group and the “low/moderate distressed” group. A p value of less than 0.05 was considered significant.

Results

Out of a total of 3290 detainees in three labour camps during the survey period, in total 755 (23%) of detainees were selected to participate in the survey: 576 (76%) men and 179 (24%) women, representing 21% and 33% of the total male and female population respectively in the three labour camps

Table 1. Severe psychological distress (K-10 score >30) and associated factors among labour camp detainees, by sex.

Description	Men ^c			Women ^c				
	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)
Total Surveyed		576	11.60%		179	11.20%		
Demographic characteristics								
Age group								
<25	88	2.30%	<i>ref.</i>	<i>ref.</i>	15	6.70%	<i>ref.</i>	<i>ref.</i>
25–34	246	14.20%	7.13 (1.68–30.31)**	4.49 (1.02–19.65)*	82	14.60%	2.4 (0.29–19.98)	
35–44	188	10.60%	5.12 (1.17–22.41)**	3.57 (0.78–16.24)	58	3.40%	0.5 (0.04–5.92)	
45+	54	18.50%	9.77 (2.05–46.56)**	6.85 (1.35–34.72)*	24	20.80%	3.68 (0.39–35.14)	
Marital status								
Single (never married)	282	11.00%	<i>ref.</i>	<i>ref.</i>	68	7.40%	<i>ref.</i>	<i>ref.</i>
Married/cohabiting	236	12.30%	1.14 (0.64–2.03)	–	79	11.40%	1.49 (0.45–4.97)	
Divorced/separated/Widow	57	12.30%	1.03 (0.95–1.11)	–	32	18.80%	2.29 (0.39–13.32)	
Missing/unknown	1	0.00%	–	–	–	–	–	–
Education								
Junior high and below	486	13.00%	<i>ref.</i>	<i>ref.</i>	166	12.00%	<i>ref.</i>	<i>ref.</i>
Senior high and above	90	4.40%	0.31 (0.11–0.88)*	–	13	0.00%	–	–
Employment before labour camps								
No	279	12.50%	<i>ref.</i>	<i>ref.</i>	105	11.40%	<i>ref.</i>	<i>ref.</i>
Yes	297	10.80%	0.96 (0.71–1.98)	–	74	10.80%	0.87 (0.41–2.75)	–
General health								
In general, would you say your health is?								
Excellent	25	8.00%	<i>ref.</i>	<i>ref.</i>	8	0.00%	–	–
Very good	85	3.53%	0.42 (0.07–2.67)	0.7 (0.1–4.67)	35	5.71%	<i>ref.</i>	<i>ref.</i>
Good	108	1.85%	0.22 (0.03–1.62)	0.33 (0.04–2.55)	45	4.44%	0.77 (0.1–5.74)	
Fair	260	10.38%	1.33 (0.3–5.97)	1.67 (0.36–7.89)	76	15.79%	3.09 (0.65–14.65)	
Poor	97	34.02%	5.93 (1.32–26.7)^a	5.2 (1.09–24.92)^a	15	26.67%	6 (0.96–37.38)	
Sexual behaviour outside of camp								
Sexual orientation								
Heterosexual	569	11.40%	<i>ref.</i>	–	176	10.20%	<i>ref.</i>	<i>ref.</i>
Homosexual	0	0%	–	–	2	50%	8.78 (0.53–146.44)	–
Bisexual	6	33.30%	3.88 (0.7–21.58)	–	1	100.00%	–	–
Last sexual partner								
Regular	450	10.90%	<i>ref.</i>	–	158	10.90%	<i>ref.</i>	<i>ref.</i>
Casual	66	12.10%	1.77 (0.7–4.51)	–	9	12.10%	1.27 (0.7–4.51)	
Commercial	38	26.30%	2.32 (0.86–5.52)	–	12	26.30%	1.56 (0.32–7.67)	
Missing/No response	5	0.00%	0	–	–	–	–	–
Condom use with last sexual partner								
No	447	12.80%	<i>ref.</i>	–	126	11.10%	<i>ref.</i>	<i>ref.</i>
Yes	108	9.30%	0.81 (0.56–2.63)	–	53	11.30%	1.02 (0.37–2.82)	
Someone paid you for sex in the last 12 months								
No	553	12.20%	<i>ref.</i>	–	133	9.80%	<i>ref.</i>	<i>ref.</i>
Yes	5	0.00%	–	–	46	15.20%	1.66 (0.62–4.45)	
Missing/No response	1	0.00%	0	–	–	–	–	–

(continued)

Table 1. Continued

Description	Men ^c				Women ^c			
	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)
<i>You paid someone for sex in the last 12 months</i>								
No	329	10.00%	<i>ref.</i>	-	178	11.14%	-	-
Yes	229	14.80%	1.57(0.94-2.62)	-	1	0.00%	-	-
Missing/No response	1	0.00%	0	-	0	0.00%	-	-
<i>Condom use with a sex worker last time sex</i>								
No	78	15.40%	<i>ref.</i>	-	0	0.00%	-	-
Yes	99	6.10%	0.35 (0.13-0.99)*	-	1	0.00%	-	-
<i>Drug use behaviours outside camp</i>								
Ever used drugs in the community	142	1.40%	<i>ref.</i>	-	30	23.3%	<i>ref.</i>	-
Yes	433	15.00%	6.57 (2.48-14.37)^b	-	149	8.7%	0.31 (0.11-0.87)^a	-
Ever injected in the community	90	7.70%	<i>ref.</i>	-	129	7.80%	<i>ref.</i>	-
No	340	17.06%	3.66 (1.1-12.15)^a	-	19	15.80%	2.23 (0.55-8.97)	-
Yes	291	15.80%	<i>ref.</i>	-	113	7.10%	<i>ref.</i>	-
Re-used someone else's needle and syringes last time you injected	47	25.50%	2.14 (0.94-4.87)	-	15	13.30%	2.23 (0.42-11.73)	-
Yes	429	9.60%	<i>ref.</i>	-	114	11.40%	<i>ref.</i>	-
Ever been on a methadone program	141	17.70%	2.03 (1.19-3.46)^b	-	65	10.80%	1.07 (0.4-2.82)	-
No	263	6.10%	<i>ref.</i>	-	60	11.60%	<i>ref.</i>	-
Yes	110	13.60%	2.92 (0.96-3.16)	-	47	14.90%	1.32 (0.83-2.85)	-
≥2 times	203	17.70%	3.17 (0.87-4.12)	-	72	8.30%	0.82 (0.56-3.68)	-
<i>History of incarceration</i>								
No. of times in a compulsory detoxification treatment centre (CDTC)	418	10.00%	<i>ref.</i>	-	129	11.60%	<i>ref.</i>	-
Never	158	15.80%	1.49 (1.13-1.96)**	-	50	10.00%	0.84 (0.29-2.46)	-
Once	151	2%	<i>ref.</i>	-	32	22%	<i>ref.</i>	-
≥2 times	424	15.10%	8.75 (2.7-28.28)**	-	147	8.80%	0.3 (0.11-0.85)*	-
First time	528	9.80%	<i>ref.</i>	-	153	10.50%	<i>ref.</i>	-
2 times	47	32%	4.16 (2.12-8.16)**	-	25	12%	1.1 (0.3-4.06)	-
Current offence	566	11.30%	<i>ref.</i>	-	178	10.70%	-	-
Non-drug related	9	33.30%	3.93 (0.96-16.1)	-	0	0.00%	-	-
Drug related	424	15.10%	5.42 (1.6-18.41)**	-	147	8.80%	0.3 (0.11-0.85)*	-
<i>Self-reported ever infected status</i>								
HIV infection	528	9.80%	<i>ref.</i>	-	153	10.50%	<i>ref.</i>	-
No	47	32%	2.48 (1.14-5.42)*	-	25	12%	1.1 (0.3-4.06)	-
Yes	566	11.30%	<i>ref.</i>	-	178	10.70%	-	-
HAV infection	9	33.30%	3.93 (0.96-16.1)	-	0	0.00%	-	-
No	566	11.30%	<i>ref.</i>	-	178	10.70%	-	-
Yes	9	33.30%	3.93 (0.96-16.1)	-	0	0.00%	-	-

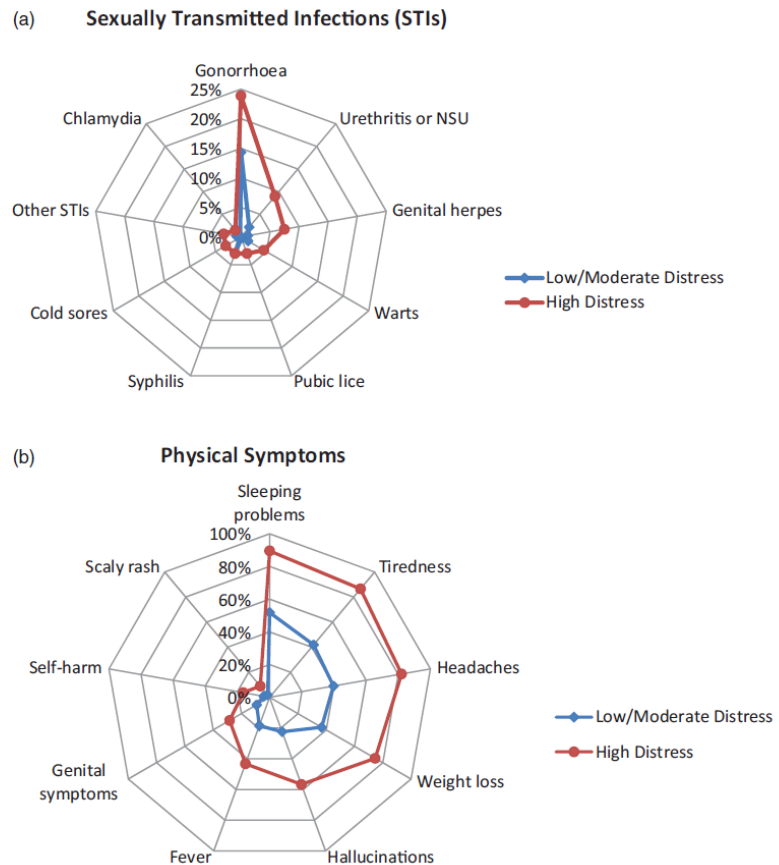
HBV infection													
No	545	10.60%	<i>ref.</i>		175	10.90%							
Yes	30	30.00%	3.61 (1.58–8.24)**		3	0.00%							
HCV infection													
No	555	11.00%	<i>ref.</i>		165	11.50%							
Yes	20	30.00%	3.48 (1.29–9.38)**		13	0.00%							
TB infection													
No	565	11.90%	<i>ref.</i>		178	10.70%							
Yes	10	0%	N/A		0	0.00%							
STI infection													
No	455	9.01%	<i>ref.</i>		150	9.30%							
Yes	121	21.50%	2.76 (1.61–4.74)**	2.05 (1.15–3.67)*	29	20.70%	<i>ref.</i>						2.53 (0.8–4.06)
Self-reported current infection status													
STI Infection													
No	115	19.13%	<i>ref.</i>		23	21.74%							
Yes	6	66.70%	8.45 (1.45–49.13)*	6.73 (1.04–43.6)*	6	16.67%	<i>ref.</i>						1.39 (0.13–14.78)
TB Infection													
No	6	0.00%	N/A		6	0.00%							
Yes	4	0%			0	0%							
Attitude toward health services													
Satisfied with your health care in the camp													
Agree	262	7.63%	<i>ref.</i>		166	10.84%							
Not sure	244	18.44%	2.74 (1.56–4.79)	2.33 (1.3–4.18)**	8	25%	<i>ref.</i>						1 (0.29–3.37)
Disagree	70	2.86%	0.36 (0.08–1.56)	0.34 (0.07–1.53)	5	0%							
Easy access to a health worker													
Agree	369	8.40%	<i>ref.</i>		174	4.60%							
Not sure	157	21.02%	2.9 (1.71–4.94)	2.59 (1.44–4.65)**	3	66.70%	<i>ref.</i>						2.11 (0.56–7.92)
Disagree	50	6.00%	0.7 (0.2–2.37)	1.1 (0.3–4.08)	2	0%							0

^a $p < 0.05$.

^b $p < 0.01$.

^cChi-square tests found no significant gender associations between men (11.6%) and women (11.2%) detainees experiencing high psychological distress ($\chi^2 = 0.0282, p > 0.05$).

Figure 1. Male detainees (a) Prevalence of self-reported current STI status among low/moderately and highly distressed male detainees. (b) Prevalence of self-reported physical symptoms experienced by low/moderately and highly distressed male detainees
 Genital symptoms – “Small blisters that turn into scabs on the genital area”, “Chancres sores (painless red sores) on the genital area”, “Soft, flesh-coloured warts around the genital area” and “Pain when urinating”.



(Yap et al., 2013). An additional 29 detainees were excluded from the survey because they were under 18 years of age (Yap et al., 2013). The survey response rate was 100%.

The majority of detainees surveyed were aged between 21 and 40 years (78%), of Han ethnicity (64%), had completed at least junior middle school (46%), and around half had never been married (46%). For most participants (73%), it was their first time in a labour camp, with most having spent a total of less than two years incarcerated (79%), mainly for drug-related offences (76%) (Table 1).

There was no statistically significant difference in the proportion of men and women detainees reporting high psychological distress (11.6% vs. 11.2%, $p=0.867$). Multivariate logistic regression, however, showed multiple variables significantly associated with high psychological distress among men, but not among women. Among men, high psychological distress was associated with age 25 years and over, being incarcerated for a drug-related offence, ever had a diagnosis of HIV or a STI, self-reported currently being infected with a STI, reported that their health was generally “poor”, and were “unsure” whether or not they were satisfied with health care services in the labour camps. For women detainees, the analysis showed that none of the risk factors under investigation were statistically significant in association with high psychological distress in the labour camps (Table 1).

A detailed description of STIs and other physical symptoms experienced by highly distressed men and women detainees are shown in Figures 1 and 2. Men who were highly distressed were more likely to report having ever been infected with gonorrhoea than men with lower levels of psychological distress (Figure 1a). Among women with high levels of distress, gonorrhoea and bacterial vaginosis were more frequently reported (Figure 2a). Both men and women who were highly distressed reported experiencing symptoms including, lack of sleep, headaches, tiredness and weight loss (Figures 1b and 2b). Men, in particular, reported hallucinations in the last month, while highly distressed women reported menstrual irregularities (Figures 1b and 2b).

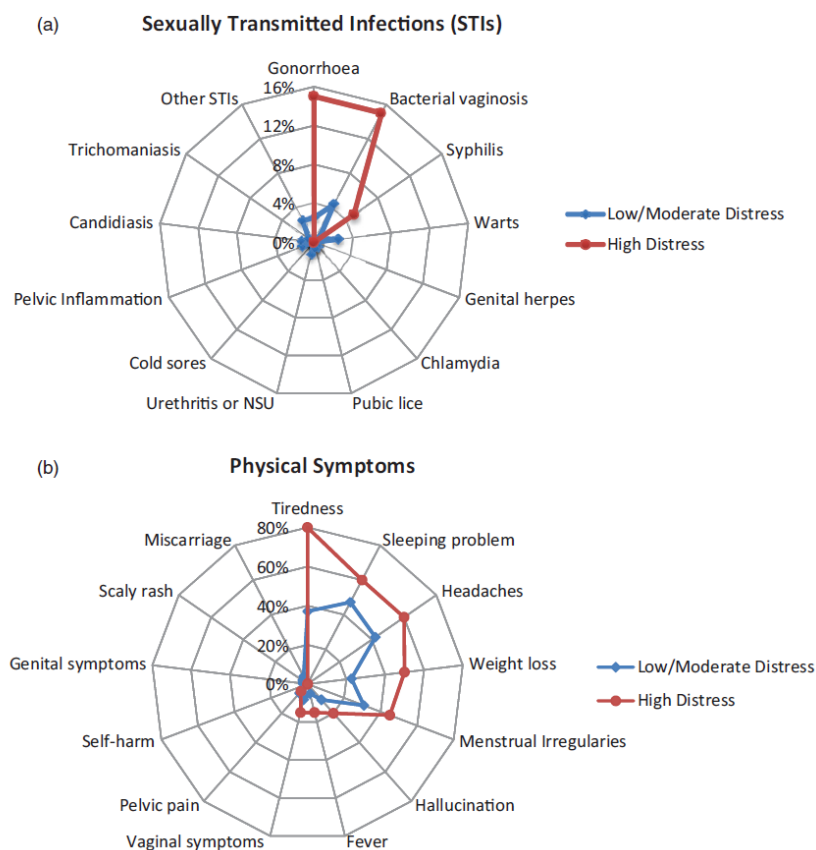
Discussion

We found a high prevalence of high psychological distress (11.2% vs. 11.6%) in female and male labour camps detainees. Several factors were significantly associated with high psychological distress among male detainees, while no factors were found to be significantly associated with female detainees experiencing high psychological distress.

In contrast, prisoner mental health studies performed elsewhere found women experienced a higher prevalence of psychological distress than men. In one Australian study, the prevalence of “high” psychological distress ($K-10>30$) was

Figure 2. Women detainees (a) Prevalence of self-reported current STI status among low/moderately and highly distressed female detainees. (b) Prevalence of self-reported physical symptoms experienced by low/moderately and highly distressed female detainees.

Vaginal symptoms – Itching around the vagina and/or discharge from the vagina
 Genital symptoms – “Small blisters that turn into scabs on the genital area”, “Chancere sores (painless red sores) on the genital area”, “Soft, flesh-coloured warts around the genital area” and “Pain when urinating”.



higher among female prisoners than in males (26% vs.12%), with a higher proportion of women having a history of a mental health disorder (41% vs. 30%) (AIHW, 2012).

A comparison of labour camp men with women detainees and the general population in rural areas of China found moderate to high levels of psychological distress more prevalent among women than men (38% vs. 27%) (Feng et al., 2013). However, a study among adolescents in the general population in China, reported no significant gender differences in the prevalence of psychological distress (Huang et al., 2009).

The findings from this study corroborate the results from other studies where drugs users had typically higher levels of psychological distress. Specific, multiple, and polydrug use were more likely associated with psychological distress among drug users (Kelly et al., 2015; Booth et al., 2010).

In this study, medical comorbidities, HIV and current STI, were significantly associated with high K-10 scores among male detainees in labour camps. The relationship between medical comorbidity and its association with psychological distress has been reported elsewhere (Byles et al., 2014; Li et al., 2009; Piane & Smith, 2014; Strine et al., 2006).

Other factors, such as poorer health care in the labour camps, may be a contributing factor among male detainees experiencing high psychological distress. Although male detainees were more likely to report that they were “unsure” when compared to women rather than “dissatisfied” with their access to and the quality of health care services in the labour camp, this may be both cultural and research artefact. There was a tendency among detainees not to want to report anything negative about the system, particularly men, even though researchers assured detainees that their answers were confidential. Referred to as the Confucian “doctrine of the mean” or the “Golden Mean” in Chinese culture, detainees were “...taking neutralization” as their belief... and “...[avoiding] extreme thoughts and behaviors...” (p.462) (Chen & Ling, 2010).

A limitation of this study was that we deliberately sampled facilities housing most HIV-positive detainees in the labour camps in our survey, potentially biasing our sample. Another limitation was that respondents could have provided socially and politically desirable responses, hence the 100% response rate, despite assurances that they would not face any negative consequences if they did not wish to participate in the study or answer particular questions.

Conclusions

Around one-tenth of men and women detainees experienced high psychological distress in labour camps in China. Further studies, particularly qualitative studies, are needed to

determine the prevalence of specific mental health issues and to determine reasons for or causes of high psychological distress so that effective interventions and treatments could be devised. Drug treatment and forensic mental health services need to be established in detention centres in China to treat more than 10% of the detainees with drug use and mental health disorders.

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Declaration of interest

Three of the coauthors are connected with the National or Provincial Center for Disease Control (CDC), China Ministry of Health. This study was funded by Australian Development Research Award (ADRA) (#49528).

Disclaimer

The opinions expressed herein reflect the collective views of the coauthors and do not necessarily represent the official position of the National Center for AIDS/STD Control and Prevention, Chinese Center for Diseases Control and Prevention, or the funding agency, AusAID.

Patient consent

Obtained.

References

- AIHW. (2012). The mental health of prison entrants in Australia. Bulletin 104. Australian Institute of Health and Welfare. Canberra, Australia. Available from: <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=10737422198&libID=10737422198>.
- Andrews G, Slade T. (2001). Interpreting scores on the Kessler Psychological Distress Scale (K10). *Aust N Z J Public Health*, 25, 494–7.
- Booth BM, Curran G, Han X, et al. (2010). Longitudinal relationship between psychological distress and multiple substance use: Results from a three-year multisite natural-history study of rural stimulant users. *J Stud Alcohol Drugs*, 71, 258–67.
- Butler T, Indig D, Allnutt S, Mamoon H. (2011). Co-occurring mental illness and substance use disorder among Australian prisoners. *Drug Alcohol Rev*, 30, 188–94.
- Byles JE, Robinson I, Banks E, et al. (2014). Psychological distress and comorbid physical conditions: disease or disability? *Depress Anxiety*, 31, 524–32.
- Chan S, Chak T, Fung T. (2014). Reliability and validity of K10 and K6 in screening depressive symptoms in Hong Kong adolescents. *Vulnerable Child Youth Stud*, 9, 75–85.
- Chen J, Ling Y. (2010). CEO golden-mean thinking, ambidextrous orientation and organizational performance in Chinese context. *Nankai Bus Rev Int*, 1, 460–79.
- China Daily. (2013). China to reform re-education through labor system. Available from: http://www.chinadaily.com.cn/china/2013-01/07/content_16092600.htm. [last accessed 11 Jul 2013].
- Fazel S, Baillargeon J. (2011). The health of prisoners. *Lancet*, 377, 956–65.
- Fazel S, Seewald K. (2012). Severe mental illness in 33,588 prisoners worldwide: systematic review and meta-regression analysis. *Br J Psychiatry*, 200, 364–73.
- Feng D, Ji L, Xu L. (2013). The influence of social support, lifestyle and functional disability on psychological distress in rural China: structural equation modelling. *Aust J Rural Health*, 21, 13–9.
- Fu H. (2005). Re-education through labour in historical perspective. *China Q*, 184, 811–30.
- Huang JP, Xia W, Sun CH, et al. (2009). Psychological distress and its correlates in Chinese adolescents. *Aust N Z J Psychiatry*, 43, 674–80; quiz 81.
- Ibrahim A, Esena RK, Aikins M, et al. (2015). Assessment of mental distress among prison inmates in Ghana's correctional system: A cross-sectional study using the Kessler Psychological Distress Scale. *Int J Ment Health Syst*, 9, 17.
- Kelly A, Chana G, Mason W, Williams J. (2015). Brief report: The relationship between psychological distress and adolescent polydrug use. *Psychol Addict Behav*, 29, 787–93.
- Kessler RC, Barker PR, Colpe LJ, et al. (2003). Screening for serious mental illness in the general population. *Arch Gen Psychiatr*, 60, 184–9.
- Kessler RC, Sampson NA, Berglund P, et al. (2015). Anxious and non-anxious major depressive disorder in the World Health Organization World Mental Health Surveys. *Epidemiol Psychiatr Sci*, 24, 210–26.
- Lee S, Tsang A, Ng KL, et al. (2012). Performance of the 6-item Kessler scale for measuring serious mental illness in Hong Kong. *Compr Psychiatry*, 53, 584–92.
- Li C, Ford ES, Zhao G, et al. (2009). Association between diagnosed diabetes and serious psychological distress among U.S. adults: The Behavioral Risk Factor Surveillance System, 2007. *Int J Public Health*, 54, 43–51.
- Mir J, Kastner S, Priebe S, et al. (2015). Treating substance abuse is not enough: comorbidities in consecutively admitted female prisoners. *Addict Behav*, 46, 25–30.
- Mundt AP, Alvarado R, Fritsch R, et al. (2013). Prevalence rates of mental disorders in Chilean prisons. *PLoS One*, 8, e69109.
- Mundt AP, Kastner S, Larrain S, et al. (2015). Prevalence of mental disorders at admission to the penal justice system in emerging countries: a study from Chile. *Epidemiol Psychiatr Sci*, 25, 441–449.
- Mundt AP, Kastner S, Mir J, Priebe S. (2015). Did female prisoners with mental disorders receive psychiatric treatment before imprisonment? *BMC Psychiatry*, 15, 5. doi:10.1186/s12888-015-0387-z.
- Murray CJ, Vos T, Lozano R, et al. (2012). Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. *Lancet*, 380, 2197–223.
- Murrie DC, Henderson CE, Vincent GM, et al. (2009). Psychiatric symptoms among juveniles incarcerated in adult prison. *Psychiatr Serv*, 60, 1092–7.
- Naidoo S, Mkize DL. (2012). Prevalence of mental disorders in a prison population in Durban, South Africa. *Afr J Psychiatry*, 15, 30–5.
- NPC. (2007). Anti-Drug Law of the People's Republic of China. Order of the President of the People's Republic of China No.79. Effective date 1 June 2008. Standing Committee of the National People's Congress. Available from: http://www.npc.gov.cn/englishnpc/Law/2009-02/20/content_1471610.htm. [last accessed 25 Nov 2014].
- Phillips MR, Zhang J, Shi Q, et al. (2009). Prevalence, treatment, and associated disability of mental disorders in four provinces in China during 2001-05: an epidemiological survey. *Lancet*, 373, 2041–53.
- Piane GM, Smith TC. (2014). Building an evidence base for the co-occurrence of chronic disease and psychiatric distress and impairment. *Prev Chronic Dis*, 11, E188.
- SAS Institute. (2011). The SAS system for Windows. Release 9.2. Cary, NC: SAS Institute.
- Stolk Y, Kaplan I, Szwarc J. (2014). Clinical use of the Kessler psychological distress scales with culturally diverse groups. *Int J Methods Psychiatr Res*, 23, 161–83.

- Strine TW, Chapman DP, Balluz LS. (2006). Population-based U.S. study of severe headaches in adults: psychological distress and comorbidities. *Headache*, 46, 223–32.
- Walmsley R. World Prison Population List (2011/19th Edition). International Centre for Prisons Studies. Available from: <http://www.idcr.org.uk/wp-content/uploads/2010/09/WPPL-9-22.pdf>.
- Yap L, Reekie J, Liu W, et al. (2015). HIV testing in reeducation through labour camps in Guangxi Autonomous Region, China (a cross-sectional survey). *Sex Transm Infect*, 91, 401–6.
- Yap L, Wu Z, Liu W, et al. (2013). The health and wellbeing of re-education-through-labour camp (laojiaosuo) detainees in a south-western China region: summary report. Sydney: The Kirby Institute, University of New South Wales.
- Zhang L, Liu J, Huang K. (2011). The role of criminal justice system in treating drug abusers: the Chinese experience. *J Subst Abuse Treat*, 41, 45–54.
- Zhang L, Yap L, Reekie J, et al. (2015). Drug use and HIV infection status of detainees in re-education through labour camps in Guangxi Province, China. *Int J Environ Res Public Health*, 12, 4502–19