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## Abstract

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**Background** Female sex workers are considered a reservoir of HIV and their psychological health has a role to play in HIV infections. In China, commercial sex workers were reported to account for nearly 50% of heterosexual transmission of HIV. Therefore, HIV prevention targeted at mental health could be an innovative strategy in controlling the infection. We aimed to provide an evidence-based resilience-promoting intervention targeting mental health and ultimately safe sexual practices of female sex workers.

**Methods** This randomised controlled trial was done at three Hong Kong non-governmental organisations, namely Action for REACH OUT, JJJ Association, and the Society of Rehabilitation and Crime Prevention. Participants in this study were women (aged  $\geq 18$  years) who had worked as a sex worker in the previous 6 months. We randomly assigned participants to either intervention or usual care (control) according to a predetermined, computer-generated randomisation list. Both group facilitator and participants were unmasked to the group allocation, but an independent researcher who was masked to the treatment allocation administered the questionnaires. About half of the participants were permanent residents of Hong Kong whereas the other half were from mainland China. The six-session resilience-promoting intervention was designed to improve the coping skills, self-esteem, and self-efficacy (ie, the belief of an individuals' ability to control their actions to achieve desired goal), as measured by Brief-COPE, the Rosenberg Self-esteem Scale, and the Generalised Self-efficacy Scale of female sex workers. Questionnaires were administered by an independent assessor at baseline, post-treatment, and at 3 months follow-up. Participants in the control group received standard service, which included outreach visits, screening for HIV or sexually transmitted infections, and social activities provided by non-governmental organisations. The primary outcome of this study was the resilience scores measured by Connor-Davidson Resilience Scale. We analysed the differences between the two groups using the intention-to-treat analysis. This study was approved by the University of Hong Kong/Hospital Authority Hong Kong West Cluster Internal Review Board (UW 12-220). Verbal informed consent was obtained from all participants.

**Findings** 127 female sex workers were randomly assigned: 64 joined the control group and 63 joined intervention group. There were significant differences on the score on resilience, self-esteem, and mental health status between groups at post-intervention and 3 month follow-up. We found that condom use in the intervention group at 3-month follow-up was improved compared with the control group. After controlling for marital status and family size, improved resilience scores were associated with intervention group assignment (odds ratio 2.95 [95% CI 1.19–7.35];  $p=0.021$ ) and self-efficacy (1.13 [1.03–1.24];  $p=0.006$ ).

**Interpretation** Our findings suggest that resilience-promoting intervention programme was effective in improving the mental health status among Chinese female sex workers. This programme is an innovative approach to HIV prevention by promoting both psychological well-being and safe sex for this high-risk population.

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## Contributors

All authors contributed to the development of the intervention, provided guidance on methodology, and reviewed the abstract. W C-W led the overall research project and W W-Y conducted the intervention. W W-Y and W C-W prepared the first draft of the abstract and finalised based on comments from other authors. All authors have seen and approved the final version of the abstract for publication.

## Declaration of interests

We declare no competing interests.