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Development and evaluation of a mental health promotion intervention among  
Chinese women living in Japan

(在日中国人母親へのメンタルヘルス促進の介入プログラムの開発・評価)

**Background:** Chinese women have constituted the largest foreign female population in Japan since 2006. Mental health problems among immigrant women have been observed in countries with high immigration rates. Immigrant women in Japan, and in particular Chinese mothers, lack adequate and effective social support mechanisms which leads to distress and social isolation. Following the outbreak of coronavirus disease 2019 (COVID-19), Chinese women living in Japan is highly concerned about COVID-19, which was significantly associated with their poor psychological wellbeing. It is necessary to provide appropriate social support to improve the mental health of Chinese women living in Japan. However, few studies focused on improving immigrant women's mental health in Japan, including Chinese women.

**Aims:** This study aims to develop a mental health promotion intervention and evaluate the effect of the intervention among Chinese women living in Japan.

**Methods and Results:** This study was systematically conducted as follows.

**Study I:** A systematic review was performed to identify and analyse the effectiveness of previous interventions for improving immigrant women's mental health. This systematic review used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis checklist. Studies from December 1948–August 2021 were retrieved from four databases: MEDLINE, CINAHL, EMBASE, and Cochrane Library. The data were summarized using narrative analysis. Eight studies met the inclusion criteria and were included in the final analyses. There was a lack of effective interventions to improve immigrant women's mental health. Depression as a significant variable was emphasized in the evaluation of immigrant women's mental health. All possible providers of future clinical interventions for immigrant women should first consider the needs of the targeted immigrant women.

**Study II:** A qualitative study was conducted to explore the parenting and mental health promotion needs of Chinese women living in Japan and provide recommendations to guide

interventions. Semi-structured in-depth interviews were conducted. Participants included 15 Chinese women aged 28–39 years who were pregnant or rearing a child younger than six years old in Japan. Thematic analysis was performed for data analysis. More than half of the participants experienced mental health problems, such as depressive symptoms and parenting stress. Four themes relating to their needs were identified: concrete support, information provision, caring and understanding, and social network building. Information provision and social network building were emphasized as practical social support mechanisms to improve the mental health of Chinese women living in Japan.

**Study III:** An Internet-based intervention was developed, which involved the participants utilising an information provision application and attending online parenting workshops. Meanwhile, a quasi-experimental pre- and post-intervention test with a control group design was used to evaluate the effect of the intervention. Sixty-four Chinese women who were rearing a child younger than six years old were recruited from online groups. The intervention group (IG,  $n=32$ ) participated in the online workshops once a week for six weeks and accessed the application, whereas the control group (CG,  $n=32$ ) did not. The outcome measures included mental health distress, depression, social support, and parenting stress, applying the 12-item General Health Questionnaire, the Center for Epidemiological Studies Depression Scale, the Child-rearing Stress Scale, and the Multidimensional Scale of Perceived Social Support, respectively. Data were collected during the period February to April 2022. Data analysis was performed using repeated-measures analysis of variance. We found that the intervention group showed a significant improvement in mental health distress ( $F = 9.555$ ,  $p = 0.003$ ,  $\eta^2 = 0.134$ ) and a decrease in depression ( $F = 13.078$ ,  $p = 0.001$ ,  $\eta^2 = 0.174$ ) compared with the control group. There were no significant differences in social support ( $F = 0.128$ ,  $p = 0.722$ ,  $\eta^2 = 0.002$ ) and parenting stress ( $F = 0.390$ ,  $p = 0.535$ ,  $\eta^2 = 0.006$ ) between the groups. The participants in the intervention group highly appraised the mental health promotion programme, especially the online parenting workshops.

**Conclusions:** The intervention significantly improved the depression and mental health distress of Chinese women living in Japan, but did not affect social support and parenting stress. The long-term effect of the Internet-based intervention with more than two repeated measures should be considered for future evaluation. The findings suggest that informational provision applications and online parenting workshops could be utilised to assist foreign women with multicultural backgrounds in attempting to improve their mental health status and quality of life. This study makes a significant contribution to the future practice of cross-cultural healthcare since Internet-based interventions to address immigrant women's mental health difficulties are lacking, even though access to the Internet is widely available.