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GENERAL ARTICLE

Factors related to psychological distress in young and middle-aged Japanese residents in Thailand: a cross-sectional study

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ABSTRACT

The number of Japanese residents in Thailand exceeded 70,000 in 2016, and the number of Japanese businesspeople and their families is expected to increase. Overseas Japanese residents suffer from psychological distress related to living in religiously, culturally, and historically different environments. These stresses can cause mental illness. Several sociodemographic and lifestyle factors are related to psychological distress among overseas Japanese residents. However, no studies have investigated which factors have the greatest influence on psychological distress among Japanese residents in Thailand. This cross-sectional study aimed to collectively examine the factors related to psychological distress among young and middle-aged Japanese residents in Thailand. This study included 92 young and middle-aged Japanese residents in Thailand. Young and middle-aged status was defined as being aged from 25 to 65 years, based on the criteria of the Ministry of Health, Labour and Welfare in Japan. The data were collected using a self-registered online questionnaire system. The 12-item General Health Questionnaire was used to measure psychological distress and was the dependent variable. Participants' sex, age, body mass index, family structure, language proficiency, and length of stay were assessed as sociodemographic factors, and lifestyle factors such as job status and physical activity were assessed as independent variables. Multiple regression analysis was performed to determine the factors predicting psychological distress. The results revealed that family structure ($\beta = 0.24$, $p < 0.05$) and physical activity ($\beta = 0.21$, $p < 0.05$) were significant factors. Living alone in Thailand and physical inactivity were associated with greater psychological distress. This study was the first to clarify the factors predicting psychological distress among young and middle-aged Japanese residents in Thailand. The current results may be helpful for supporting health-services providers to develop management programs for improved treatment of psychological distress among Japanese residents in Thailand.

Keywords: Japanese; Thailand; Psychological distress; Sociodemographic factor; Lifestyle

INTRODUCTION

Thailand has a long and friendly relationship with Japan. As Thailand has made remarkable progress in economic development, the economic relationship between the two countries has become closer in the last decade. According to the basic data of the Ministry of Foreign Affairs in Japan[1], number of Japanese residents in Thailand was over 70,000 in 2016, which is the second highest among Asian countries. In addition, the Thai government has developed the "Eastern Economic Corridor (EEC)", a national project to create core economic areas in the Association of Southeast Asian Nations (ASEAN) under the Thailand 4.0 scheme. With the EEC project, the Thai government aims to welcome investment and overseas expansion of companies from Japan. Thus, the number of Japanese companies and Japanese businesspeople residing in Thailand, including their families, is expected to increase[2].

Overseas Japanese residents often suffer from physical and psychological distress because they are forced to live in the religiously, culturally, climatically and historically different environments, and these factors are related to mental illness. A previous study reported that psychological distress among Japanese living in Southeast Asia assessed by the General Health Questionnaire (GHQ) was worse than that among Japanese people living in Japan, due to differences in climate and lifestyle compared with Japan[3]. Toh clarified that 15.7% of Japanese businessmen in Kuwait had psychological stress-related diseases, and some of them were very serious[4]. Data from the Ministry of Health, Labour and Welfare in Japan indicated that 4.3% of the Japanese population experienced mental illness, and the prevalence of mental illness among overseas Japanese residents is higher than the rate reported by the Ministry[5]. Furthermore, Ookubo reported that although Japanese businesspeople wished to receive psychological support while staying in Thailand, few companies took psychological support into consideration, and few companies had knowledge regarding how to support their staff[6]. These findings indicate that health-services providers should undertake more effort to clarify the factors related to psychological distress among Japanese working-age residents in Thailand.

Several factors are related to psychological distress in overseas Japanese residents. There have been previous studies investigating sociodemographic factors related with psychological distress: sex, age, body mass index (BMI), family structure, language proficiency, and length of stay were related to psychological distress in overseas Japanese residents[7-12]. Furthermore, lifestyle factors such as job status and physical activity were the significant factors related to psychological distress in overseas Japanese residents[3, 12]. These potentially influential factors also have complex relationships and influences on psychological distress among Japanese residents in Thailand. To manage psychological distress appropriately, it is necessary to clarify the relationship between psychological distress and these potential factors. However, no previous studies have investigated which factors have the greatest influence on psychological distress among Japanese residents in Thailand.

The aim of the current cross-sectional study was to collectively examine the factors related to psychological distress in young and middle-aged Japanese residents in Thailand, including sociodemographic and lifestyle factors.

METHODS

Study design and Participants

This cross-sectional study was conducted between July 2018 and February

2019. This study complied with the principles of the Declaration of Helsinki and was approved by the institutional review board of Kanagawa University of Human Services (approved number: 71-9). All the measured parameters were collected by the SurveyMonkey, a web self-registered questionnaire system. This questionnaire system was administered to participants living in Thailand through the Japanese Association in Thailand, and participants answered the questions by themselves. The purpose of this study was explained to the participants on the web system. All participants consented before participating in the study.

The inclusion criteria were: young and middle-aged Japanese residents in Thailand, who had lived in Thailand for more than 30 days. The Ministry of Health, Labour and Welfare in Japan promotes the Health Japan 21, a national health promotion movement in the 21 century[13]. In this policy, young and middle age was defined as from 25 years old to 65 years old based on the current Japanese lifestyle and structures of social and diseases. This age is treated as working age. Based on this definition, young and middle age is defined between 25 and 65 years old in this study. The exclusion criteria in the current study included: being under 25 years old, and being over 65 years old, who had lived in Thailand for less than 30 days.

Dependent Variable

The 12-item General Health Questionnaire (GHQ-12) in Japanese was used to measure psychological distress and was the dependent variable (Appendix 1). The GHQ-12 is the shortest version of the GHQ and it is used worldwide to measure psychological distress. The application of a standardized measure of the GHQ-12 is useful for clinicians and researchers in screening the cases mentally disturbed, monitoring the generic mental health of participants[14]. This assessment tool is consisted of questions not to relate with aspects of races, religious, cultures and societies, so that it is useful in international comparative study. The GHQ-12 is reported to be a reliable and validated test for quantifying psychological distress among Japanese people[14]. The GHQ-12 comprises 12 questions, with each item scored from 0 to 3 (a Likert scale of 0-1-2-3), yielding a total score within the range 36 (distress) to 0 (no distress). The Cronbach's Alpha value for the Likert scale was 0.9[15].

Independent variables

All potential predictors were chosen from the results of previous studies[3, 7-12]. Participant's sex, age, BMI, family structure, language proficiency, and length of stay were assessed as sociodemographic factors, and lifestyle factors such as job status and physical activity were also assessed in this study.

Participants' sex was recorded, and male sex was coded as 0. The BMI was calculated using the body weight in kilograms and height in meters (kg/m^2). Family structure was defined based on a previous study[16] as Japanese people who lived in Thailand with their family at the time of the investigation, and those living alone were coded as 1. Language proficiency was treated as a binary variable and was based on subjects' response to the question. The participants who are able to speak Thai for owning daily life were assessed. Participants who are able to speak Thai was coded as 0.

Participants were asked job status as a lifestyle factor. Participants who do not have a job in Thailand were coded as 1. Physical activity was defined based on the criteria of the Ministry of Health, Labour and Welfare in Japan[13]. Participants were asked "Are you physically active which is defined as exercising more than twice a week, more than 30 minutes, more than 1 year?" Participants who responded yes were classified as physically active (coded

as 0), while participants who responded no were classified as physically inactive (coded as 1).

Statistical analyses

Descriptive statistics were calculated for the study variables. A multiple regression analysis was performed to determine the factors predicting psychological distress. The score of GHQ-12 was treated as the dependent variable, and potential predictive factors such as sex, age, BMI, family structure, language proficiency, length of stay, job status, and physical activity were entered into the model using the stepwise method. Regression coefficients with 95% confidence intervals and associated *t*-test, and standardized coefficients were examined. To examine the appropriateness of the regression analyses, residuals were examined for normality, variance inflation factors (VIF) were used for judging multicollinearity among independent variables and the Durbin-Watson ratio was used for autocorrelation in the model. All statistical analyses were conducted using SPSS version 25.0 software for Windows, and the significance level was set at p =0.05.

Sample size

We used G*power 3.1 for estimating sample size. The alpha value was set at 0.05, and the power was set at 0.80. Based on a previous study, the hypothesized effect size, Cohen's f^2, was estimated as 0.35[17, 18]. The number of predictors was eight. Consequently, it was estimated that a total of 52 cases was required in this study.

RESULTS

A total of 115 participants completed the survey. However, 23 participants were excluded because they were non-young and middle age. Therefore, 92 participants (51 men and 41 women) with a mean age of 43.9 ± 9.5 years (mean ± SD) were included in this study. Baseline characteristics of the participants are shown in Table 1. The mean GHQ-12 score was 11.9 points and the mean length of stay in Thailand was 80.9 months. The percentage of participants reporting that those who live in Thailand with family was 47.8%. In addition, the percentage of participants reporting that they were physically active was 34.8%.

Table 1: Baseline characteristics of the participants (n = 92)

GHQ-12, mean (SD)	11.9	(5.2)
Sex, male, *n* (%)	51	(55.4)
Age (years), mean (SD)	43.9	(9.5)
BMI (kg/m^2), mean (SD)	21.8	(2.7)
Family structure, those who live with family, *n* (%)	44	(47.8)
Language proficiency, those who can speak Thai, *n* (%)	48.0	(52.1)
Length of stay (months), mean (SD)	80.9	(97.1)
Job status, those who no having a job in Thailand, *n* (%)	25	(27.1)
Physical activity, those who are physically inactive, *n* (%)	32	(34.8)

GHQ-12, 12-item General Health Questionnaire; n, number; SD, standard deviation; BMI, body mass index.

Results for the regression analysis is available in Table 2. Family structure (standardized partial regression coefficient: $\beta = 0.24$, $p < 0.05$) and physical activity ($\beta = 0.21$, $p < 0.05$) were selected as significant factors. Living alone in Thailand and being physically inactive were associated with more severe psychological distress, after accounting for other potentially important factors. All assumptions for the regression analyses were met and the analyses were deemed appropriate. Residual were normally distributed. The VIF of above model was 1.000 and it was judged that there was no significant multicollinearity in the model. The Durbin-Watson ratio of above model was 2.05. There were no autocorrelations in the sample.

Table 2: Result of multiple regression analysis

Dependent variable	Independent variables	B	95% CI	β	P value	ANOVA	R^2
GHQ-12						p<0.05	0.085
	Family structure	2.48	0.42-4.53	0.24	0.018		
	Physical activity	2.32	0.16-4.47	0.21	0.035		

B, partial regression coefficient; β, standardized partial regression coefficient; 95% CI, 95% confidence interval; ANOVA, analysis of variance; R^2, multiple correlation coefficient adjusted for the degrees of freedom; GHQ-12, 12-item general health questionnaire.

Significance level was set at P =0.05.

DISCUSSION

This study examined the relationship between psychological distress and sociodemographic and lifestyle factors in young and middle-aged Japanese residents in Thailand. Family structure and physical activity were significantly related with GHQ-12 after accounting for other important factors. This result revealed that those living alone in Thailand, and those who self-report as being physically inactive, based on the Ministry of Health, Labour and Welfare in Japan definition, are indicators of young and middle-aged Japanese residents in Thailand experiencing poor psychological distress. Results can be used to support health-services providers to develop a management program for better treatment of psychological distress among Japanese residents in Thailand.

Family structure was identified as the factor that has the greatest influence on psychological distress among Japanese residents in Thailand. The presence of family may enable familial support to support individuals suffering from psychological distress. Previous national survey in Australia investigating the relationship between depression and familial support in 8,841 working-aged participants, and showed that familial support was significantly related with incidence of depression: those who did not have any familial support had more than a three-fold increased odds of the past year depression[19]. Sekito reported that communication with family was associated with psychological distress-related

deterioration of Japanese residents in Thailand[20]. Therefore, it may be necessary to develop interventions that aid communication of people living alone in Thailand, to more effectively manage psychological distress. In Japan, there is a service called the "Japan Health Care Line", which is a telephone-based health counseling system for Japanese overseas residents used in 55 countries[8]. It may be useful to use such a system in Thailand to support individuals to manage psychological distress. This study was the first to clarify the relationship between psychological distress and family structure in young and middle-aged Japanese residents in Thailand.

In contrast, physical activity was also selected as a significant factor. Participants that reported themselves as being physically inactive demonstrated poor GHQ-12 score than participants who did as physically active. Physical activity and exercise habit are related to psychological distress positively. A systematic review suggested that combining a psychological distress management program with exercise interventions may reduce mental illness[21]. Krause et al. investigated the relationship among psychological distress, social support, physical activity, and depressive symptoms with data provided by a nationwide survey of Japanese, and this investigation revealed that more frequent physical exercise was associated with less psychological distress[22]. Moreover, the data suggested that some types of stressors tended to diminish the frequency of physical activity. According to a previous study which investigated the environment and the level of physical activity of Japanese residents in Thailand, they live in an environment where regular physical activity could be obtained easily in excellent sports clubs similar to those in industrialized countries[23]. Consequently, young and middle-aged Japanese residents in Thailand should utilize such a good environment to promote physical activity for preventing psychological distress.

Family structure and physical activity were identified as significant factors in this study. This result suggests that a combined program involving communication and physical exercise may be effective for managing psychological distress among young and middle-aged Japanese residents in Thailand. Physical therapy may be one of the useful interventions including communication and exercise. In fact, previous studies showed that physical therapy reduced psychological distress, and physical therapy can also improve physical functions[24, 25]. Business enterprises and their health-services providers may be able to consider giving a physical therapy as a program to young and middle-aged Japanese residents in Thailand for maintaining better psychological health.

This study had several limitations. First, we used a web-based self-registered questionnaire system to collect data. There is a possibility that selection bias was involved in this study because those who could not access the system were not able to respond. Second, independent variables such as family structure, language proficiency, job status, and physical activity were assessed with a self-report measure, and more objective measures of these variables should be considered. Third, other medical interventions, exercise level, and lifestyle factors were not recorded in the data. Future studies should consider these additional potentially influential factors. Finally, while the GHQ-12 was used in this study, qualitative data should be collected to clarify the relationship between psychological distress and potentially influential factors among young and middle-aged Japanese residents in Thailand in more detail.

RECOMMENDATION

Family structure and physical activity were significantly related to psychological distress among young and middle-aged Japanese residents in Thailand. This result indicates that health-services providers should focus on family structure and physical activity to maintain better psychological health when developing management programs for young and middle-aged Japanese residents in Thailand.

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Appendix 1: The 12-item General Health Questionnaire (GHQ-12) items

Have you…
1. Been able to concentrate on whatever you are doing?
2. Lost much sleep over worry?
3. Felt that you were playing a useful part in things?
4. Felt capable of making decisions about things?
5. Felt constantly under strain?
6. Felt that you could not overcome your difficulties?
7. Been able to enjoy your normal day-to-day activities?
8. Been able to face up to your problems?
9. Been feeling unhappy and depressed?
10. Been losing confidence in yourself?
11. Been thinking of yourself as a worthless person?
12. Been feeling reasonably happy, all things considered?