

Does migrant workers develop higher health risk behaviors from less social support and higher work stress than their college in originate country? - Relationship between work stress, social support and health risk behaviors among Thai workers in Thailand and Taiwan

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Abstract

Background

The study aims at comparing social support, work stress and health risk behaviors (HRBs) between Thai workers in Thailand and Taiwan, and to determine the associations between factors among migrant workers.

Methods

Cross-sectional study was conducted by self-reported survey among Thai workers in Thailand and Taiwan in manufacturing industry between October 2019 and October 2020. Interpersonal Support Evaluation List-12, Job Content Questionnaire and questions regarding smoking and drinking behaviors were used to collect workers' ISS, work stress and HRBs. There were 223 participants in Thailand and 86 participants in Taiwan included in final analysis. Chi-square test, t-test and logistic regression were applied for analysis.

Results

Thai migrant workers in Taiwan had significantly lower social support and higher psychological stress in work than workers in Thailand. However, workers in Thailand had higher percentage of smokers while there were more drinkers with high drinking frequency among migrant workers in Taiwan. Participants' educational level and working country were the significant factors predicting their smoking and drinking behaviors while the association among ISS, work stress and HRBs were not found. Workers with lower educational level had significantly higher risk of being smokers. In addition, migrant workers in Taiwan had significantly higher likelihood of having risky drinking behaviors than their colleges in Thailand (OR = 2.02 and 2.21).

Conclusions

Though migrant workers had poor social support and high stress at work compared with their college in originate country, these factors did not lead them directly to develop smoking and drinking behaviors.

Background

In the era of globalization, the role of migrant workers is important and non-negligible. Recent estimates by the International Labor Office showed that there were 164 million migrant workers, constitute 4.7% of all workers around the world (1). They not only fulfill the gap of workforce shortage for host countries, but also contribute to the economic development for both their originate and host countries. However, migrant workers often face higher physical and mental health risks due to social-economic burden and

insufficient protection in their work and life (2, 3). In addition, the recent review study showed the inadequate research and international research collaboration on the issue (4).

Previous studies mainly focused on immigrants which concentrated on the impact of insufficient social support on immigrant's health. While social support is important for newcomers to adopt to a new environment, previous finding showed that insufficient social support of immigrants led them to develop stress and further impacted on their physical and mental health (5–9). Studies also pointed out the impact of discrimination in employment on immigrants' psychological health like anxiety and depression which resulted in isolation and addiction to drugs or alcohol (10).

Instead of concentrating on social support, studies on migrant workers often focused on their acculturative stress and work-related psychosocial factors, demonstrating the high stress and its significant impact on migrant workers' mental health (11). While "willpower to resist bad health behaviors was depleted after a long and stressful day"(12), studies also reflected the impact of stress on migrant workers' smoking and drinking behaviors as a way of coping with their stress (13).

However, majority of studies on migrant workers either conducted on migrant workers in host country only or among migrant workers and their colleges in the host countries (14). These study designs cannot rule out the impact of culture on self-reported social support and work stress. Also, such approach cannot answer the question that if migrant workers' low social support and high work stress is due to their movement from home to the host country, and the question that if the different social support and work stress due to their movement from home to host country lead them to develop health risk behaviors.

In order to resolve the above issues, we conducted this study with the design of comparing migrant workers' social support, work stress and health risk behaviors among migrant workers and their college in originate country. Our assumption is that compared with college in their originate country, migrant workers will have lower social support and higher work stress, which might lead them to develop health risk behaviors. Due to geographical accessibility, Thai workers are the fourth group of migrant workers in Taiwan in recent years (15). Therefore, we conducted the study among Thai workers in Thailand and Taiwan based on the international research collaboration between Taiwan and Thailand.

Methods

Study design

We conducted a cross-sectional, self-administrated questionnaire survey among Thai workers in Thailand and Taiwan from October 2019 to October 2020. While the majority of Thai migrant workers were employed in manufacturing factories during 2019 in Taiwan (15), the participants were targeted on workers of manufacturing industry who aged between 20 to 60 years with ability to read and write Thai language in Thailand and Taiwan.

For Thai workers in Thailand, we conducted the survey in a motor vehicles factory near Bangkok based on accessibility from October to November 2019. For Thai workers in Taiwan, due to the impact of COVID-19 epidemic which increasing the burden of factory visit, we conducted the survey with convenience sampling strategy and collected the data directly from four religious places such as Thai Buddhist temples from May to October 2020.

Written informed consent was obtained from all participants. The research proposal for this study was approved by both the Joint Institutional Review Board (JIRB) at Taipei Medical University, Taiwan (NO: N201909020), and the Ethical Review Committee for Human Research, Faculty of Public Health (PHIRB), Mahidol University, Thailand (NO: 109/2562).

Participants

For Thai workers in Thailand, 228 participants fulfilled and returned the questionnaire. The response rate is 95%. For Thai workers in Taiwan, 86 out of 92 migrant workers completed the questionnaire. The response rate is 93.47%. After excluding questionnaires with more than 2 blank answers, there were 309 participants included in our final analysis (223 from Thailand and 86 from Taiwan).

Measurements

Participants' general characteristics including sex, age, education level, marital status, having children under 12 years old or not, and living conditions were collected. Participants' work conditions including work experience abroad, monthly salary, current work tenure, working hours per week, sleeping hours per day were also collected for analysis.

Interpersonal social support

We used Interpersonal Support Evaluation List-12 (ISEL-12) (16), a shortened version of the original ISEL-40 (17) to evaluate participants' interpersonal social support (ISS). The ISEL-12 yields an overall score, describing perceived social support and three subscales representing perceived availability of "appraisal support" (advice or guidance), "belonging support" (empathy, acceptance, concern), and "tangible social support" (help or assistance, such as material or financial assistance) (16, 18). Each dimension is measured by four items on a four-point scale ranging from "definitely true" to "definitely false." The ISEL-12 was employed across migrant studies with satisfied reliability ($\alpha = 0.80-0.90$) and validity. While there is no valid Thai version of ISEL-12, we converted the English version to Thai and verified the sample internal consistency.

Work stress

Work stress is measured by the standardized Thai version of Karasek's Job Content Questionnaire (JCQ) (19-22). The 22-item questionnaire (core questions) consists of three scales: "job control," "psychological demands," and "workplace social support." The "job control" consist of two subscales: "skill discretion (6 items)" and "decision authority (3 items)". The "psychological demands" scale is the sum of five items. The "workplace social support" scale consist of two subscales: "supervisor support (4 items)" and

“coworker support (4 items)”. The above items were scored using a four-point Likert scale in which a score of 1 indicates strong disagreement and a score of 4 indicates strong agreement. JCQ Center Global ApS permission was granted to reproduce the questionnaire used in this study under license number 37285290653.

Participants’ health risk behaviors

Participants’ health risk behaviors including smoking and drinking behaviors are measured by 3 questions. Following the Global Adult Tobacco Survey (GATS) (23), participants were asked about their smoking status as “current smoker”, “ex-smoker” or “never-smoker”. Their alcohol use behavior was evaluated by questions taken from Alcohol Use Disorders Identification Test (AUDIT) (24). Participants were asked about their drinking status as “current drinker”, “ex-drinker” or “never-drinker”. Moreover, information of their drinking frequency was also collected. Participants’ drinking status and drinking frequency were further combined to form their “drinking risk behavior” (appendix).

Statistical analysis

The scores of ISS were classified into “strong” and “weak” social support groups by using the median score as cut-off point (range 0–36, median = 20). Similarly, work stress including job control, psychological job demand, and workplace social support scores were dichotomized by mean cut-off points to be “high” and “low” groups for analysis. Regarding health risk behaviors, current smokers were deemed as high-risk group, while ex-smokers and never-smokers were deemed as low-risk group for analysis. And the score of “drinking risk behavior” was classified into “high” and “low” risk group by using the median as cut-off point (range 0–5, median = 3).

Then individual characteristics, ISS, work stress including job control, psychological job demands and workplace social support, health risk behaviors including smoking and drinking behaviors between Thai workers in Thailand and Taiwan were compared using the Chi-square test. T-test was also used to compare the continuous variables like ISS score between groups. Bivariate analysis was first applied to examine the correlations between variables. Logistic regression analysis was then applied to examine the association between ISS, work stress and health risk behaviors with the control of significant confounders. Moreover, we ran the regression model by each JCQ domain to see the impact of each work stress domain on migrants’ health risk behaviors.

The software SAS program (SAS Institute, 1989) version 9.4 for Windows was used for the study. The significance level and confidence interval (CI) were set at $\alpha = 0.05$ and 95%.

Results

Comparisons of individual characteristics between Thai workers in Thailand and Taiwan

Participants’ age, educational level and living conditions were significantly different between Thai workers in Thailand and Taiwan (Table 1). Majority of Thai workers in Thailand were young aged

between 20 and 29 years old, whereas migrant workers in Taiwan were mainly middle-aged between 30 and 39 years old (Mean age [Thailand: 33.52 ± 9.41 ; Taiwan: 37.28 ± 6.54]). Similar with distribution of age, there were more Thai workers in Taiwan married with more than one child under 12 years old. However, in terms of educational level, there were significant less migrants in Taiwan had bachelor's degree or higher than workers in Thailand (Thailand: 21.8%; Taiwan: 6.0%). Regarding living condition, majority of workers in Thailand lived with their families (57.7%), while most migrants in Taiwan lived with their friends or colleagues (50.0%).

Table 1
Comparison of individual characteristics of Thai workers in Thailand and Taiwan

	Thailand (N = 223)	Taiwan (N = 86)	
Variables	n (%)	n (%)	p-value
Sex			
Male	154 (69.4%)	61 (70.9%)	0.789
Female	68 (30.6%)	25 (29.1%)	
Age group			
20–29	88 (41.5%)	9 (11.1%)	< 0.001***
30–39	61 (28.8%)	46 (56.8%)	
40–60	63 (29.7%)	26 (32.1%)	
Education			
Elementary and junior high school	54 (25.0%)	38 (45.8%)	< 0.001***
High school level	115 (53.2%)	40 (48.2%)	
Bachelor's degree or higher	47 (21.8%)	5 (6.0%)	
Marital status			
Single	108 (49.3%)	32 (37.2%)	0.073*
Married	93 (42.5%)	41 (47.7%)	
Others (divorced, widow)	18 (8.2%)	13 (15.1%)	
Have children under 12 years old			
Yes	61 (30.8%)	29 (39.3%)	0.167
No	137 (69.2%)	44 (60.3%)	
Living conditions			
Alone	17 (7.7%)	8 (9.5%)	< 0.001***
Partner or spouse	68 (30.9%)	17 (20.2%)	
Family members	127 (57.7%)	17 (20.2%)	
Friends or colleague	4 (1.8%)	42 (50.0%)	
Others	4 (1.8%)	–	
*p < 0.1, ** p < 0.05, *** p < 0.01			

Comparisons of working condition between Thai workers in Thailand and Taiwan

There were 57.7% Thai workers in Thailand engaged in their first job, while 40% Thai workers in Taiwan had previously worked abroad (Table 2). Also, workers in Thailand had significantly higher percentage of staying in the current job for longer years. The difference of income is statistically significant between workers in two countries that Thai workers in Taiwan had higher income than their colleges in Thailand.

The working hours and sleeping hours were also significantly different between Thai workers in Thailand and Taiwan. On average, migrants in Taiwan worked fewer hours per week and slept more hours per day than workers in Thailand.

Table 2
Comparisons of working condition between Thai workers in Thailand and Taiwan

	Thailand (N = 223)	Taiwan (N = 86)	
Variables	n (%)	n (%)	p-value
Working condition			
Work abroad experience			
Yes	1 (0.5%)	32 (40.0%)	< 0.001***
No (First Job)	123 (57.7%)	39 (48.8%)	
No (Done more than one job)	89 (41.8%)	9 (11.3%)	
Salary per month			
<15,000 THB	128 (63.4%)	2 (2.4%)	< 0.001***
15,000–20,000 THB	54 (26.7%)	12 (14.5%)	
20,000–25,000 THB	14 (6.9%)	59 (71.1%)	
>25,000 THB	6 (3.0%)	10 (12.0%)	
Current tenure			
<5 years	100 (48.8%)	49 (62.0%)	0.045**
Above 5 years (including)	105 (51.2%)	30 (38.0%)	
	Mean (SD)	Mean (SD)	
Working hours per week \bar{x}	47.99 (2.19)	46.30 (11.38)	0.040**
Sleeping hours per day \bar{x}	6.90 (1.07)	7.73 (1.87)	< 0.001***
*p < 0.1, ** p < 0.05, *** p < 0.01			

Comparisons of interpersonal social support, work stress and health risk behaviors between Thai workers in Thailand and Taiwan

The percentage of workers with strong ISS was significantly higher among Thai workers in Thailand (Table 3). Similarly, the average ISS score of migrants in Taiwan was significantly lower than the score of workers in Thailand (Thailand: 21.79 ± 4.99 ; Taiwan: 19.69 ± 4.50). Regarding work stress, the percentage of workers with high psychological job demands was significantly higher among Thai workers in Taiwan. However, the job control and workplace social support were not significantly different between groups.

The percentage of current smokers was higher among workers in Thailand than in Taiwan (Thailand: 38.0%; Taiwan: 25.6%). In contrast, the percentage of high-risk drinkers was significantly higher among Thai workers in Taiwan than in Thailand (54.9% vs 38.9%). Though the percentage of drinkers among two groups were not significantly different, Thai workers in Taiwan drink more frequently than their college in Thailand.

Table 3

Comparisons of interpersonal social support and work stress between Thai workers in Thailand and Taiwan

	Thailand (N = 223)	Taiwan (N = 86)	
Variables	n (%)	n (%)	p-value
Social support			
Weak ISS (scores < 20)	83 (37.2%)	49 (57.0%)	0.002***
Strong ISS (scores \geq 20)	140 (62.8%)	37 (43.0%)	
Work stress			
Job control ☒			
Low control (scores < 70)	102 (45.7%)	45 (57.3%)	0.299
High control (scores \geq 70)	121 (54.3%)	41 (47.7%)	
Psychological job demands ☒			
Low demand (scores < 30)	100 (44.8%)	18 (20.9%)	< 0.001***
High demand (scores \geq 30)	123 (55.2%)	68 (79.1%)	
Workplace social support (WSS) ☒			
Low WSS (scores < 25)	146 (65.5%)	56 (67.5%)	0.743
High WSS (scores \geq 25)	77 (34.5%)	27 (32.5%)	
Smoking behavior			
Smoking risk			
High risk (Current smokers)	82 (38.0%)	22 (25.6%)	0.041**
Low risk (Ex-smoker and never smoke)	134 (62.0%)	64 (74.4%)	
Drinking behavior			
Drinker status			
Drinker	140 (65.4%)	61 (70.9%)	0.628
Ex-drinker	17 (7.9%)	5 (5.8%)	
Never	57 (26.6%)	20 (23.3%)	
Frequency of alcohol intake			

^a drinking risk is the combination of drinker status and drinking frequency.

*p < 0.1, ** p < 0.05, *** p < 0.01

	Thailand (N = 223)	Taiwan (N = 86)	
>2 times a week	36 (17.2%)	29 (35.4%)	0.006***
2–4 times a month	45 (21.5%)	16 (19.5%)	
Monthly or less	55 (26.3%)	12 (14.6%)	
Never	73 (34.9%)	25 (30.5%)	
Drinking risk ^a			
High risk (score = 4 ~ 5)	81 (38.9%)	45 (54.9%)	0.014**
Low risk (score = 0 ~ 3)	127 (61.1%)	37 (45.1%)	
^a drinking risk is the combination of drinker status and drinking frequency.			
*p < 0.1, ** p < 0.05, *** p < 0.01			

Associations between ISS, work stress and health risk behaviors by logistic regression analysis

Associations between ISS, work stress, and health risk behaviors by logistic regression analysis are shown in Table 4. In terms of smoking, working regions, sex, age and education were significant predictors of high-risk smoking behavior (Model 1–3). Migrant workers in Taiwan had significantly lower risk of having smoking behavior than workers in Thailand. Workers with educational level as high school and elementary or junior high school had 4 and 8 times more likely to have high-risk smoking behavior, respectively, than those with bachelor or higher degree workers. However, ISS and work stress including job control, psychological job demands, and workplace social support were not associated with migrants' smoking behavior.

Table 4. Factors associated with high-risk smoking, drinking and frequency among workers by logistic regression model

All data are shown in OR (95% CI). *p<0.05

For drinking behavior, workers' working region and sex were significantly associated with their drinking risk behavior (Model 4–6). Migrants in Taiwan were twice as likely to engage in high-risk drinking behaviors than their college in Thailand. Furthermore, male workers were 8 times more likely to engage in high-risk drinking behaviors than female workers. Associations among ISS, work stress and migrant workers' drinking behaviors were not found.

Variables	Smoking crude OR	Model 1	Model 2	Model 3	Drinking crude OR	Model 4	Model 5	Model 6
Working region								
Thailand	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Taiwan	0.56* (0.32- 0.98)	0.32* (0.15- 0.69)	0.36* (0.17- 0.80)	0.30* (0.14- 0.67)	1.91* (1.14- 3.20)	2.02* (1.04- 3.93)	2.21* (1.11- 4.42)	1.92 (0.98- 3.78)
Sex								
Female	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Male	90.24* (12.35- 659.64)	114.43* (15.20- 861.43)	114.00* (15.12- 859.21)	111.25* (14.77- 838.23)	9.13* (4.58- 18.22)	8.77* (4.26- 18.07)	8.65* (4.21- 17.75)	8.70* (4.21- 17.98)
Age group								
20-29	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
30-39	0.51* (0.29- 0.92)	0.68 (0.30- 1.52)	0.68 (0.30- 1.52)	0.64 (0.29- 1.43)	0.91 (0.51- 1.62)	0.85 (0.42- 1.71)	0.85 (0.42- 1.70)	0.82 (0.41- 1.66)
40-60	0.36* (0.19- 0.68)	0.23* (0.10- 0.55)	0.24* (0.10- 0.56)	0.23* (0.10- 0.55)	1.03 (0.57- 1.88)	0.89 (0.43- 1.83)	0.91 (0.44- 1.90)	0.86 (0.42- 1.79)
Education								
Bachelor's degree or higher	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
High school level	4.03* (1.70- 9.54)	4.21* (1.54- 11.51)	4.34* (1.58- 11.87)	4.26* (1.56- 11.65)	2.54* (1.26- 5.09)	1.91 (0.85- 4.28)	1.90 (0.85- 4.24)	2.03 (0.90- 4.57)
Elementary or junior high school	3.93* (1.59- 9.68)	7.91* (2.52- 24.77)	7.98* (2.55- 24.91)	8.38* (2.70- 26.06)	2.09 (0.99- 4.42)	1.41 (0.57- 3.48)	1.37 (0.56- 3.38)	1.42 (0.58- 3.51)
Interpersonal social support (ISS)								
Strong ISS (scores ≥ 20)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Weak ISS (scores < 20)	2.00* (1.23- 3.23)	1.31 (0.67- 2.56)	1.35 (0.71- 2.58)	1.41 (0.72- 2.75)	1.59 (1.00- 2.55)	1.09 (0.61- 1.97)	1.08 (0.61- 1.92)	1.05 (0.58- 1.89)

Job control								
High control (scores ≥ 70)	(ref)	(ref)	–	–	(ref)	(ref)	–	–
Low control (scores <70)	1.35 (0.84- 2.17)	1.24 (0.64- 2.39)	–	–	1.09 (0.68- 1.73)	1.07 (0.60- 1.90)	–	–
Psychological job demands								
High demand (scores ≥ 30)	(ref)	–	(ref)	–	(ref)	–	(ref)	–
Low demand (scores <30)	1.90* (1.17- 3.08)	–	1.61 (0.83- 3.12)	–	1.18 (0.73- 1.90)	–	1.36 (0.76- 2.44)	–
Workplace social support (WSS)								
High WSS (scores ≥ 25)	(ref)	–	–	(ref)	(ref)	–	–	(ref)
Low WSS (scores <25)	0.93 (0.56- 1.53)	–	–	1.11 (0.56- 2.21)	1.23 (0.75- 2.00)	–	–	1.53 (0.84- 2.79)

Discussion

To our knowledge, this is the first study regarding the impact of social support and work stress on health risk behaviors among Thai workers in Thailand and Taiwan. With the study design as targeting on workers in the same industry from their originate and host countries, the reporting bias from cultural perspective is controlled. Although the enrolment ratio of domestic and migrant workers was 2.6:1, we identified strong statistical power in a number of factors between groups. This study result has demonstrated that migrant workers in Taiwan perceived a weak interpersonal social support and high psychological job demands compared with workers in Thailand. Workers in Thailand had higher percentage of smokers while there were more drinkers with high drinking frequency among migrant workers in Taiwan. In addition, different with our assumption that low ISS and high work stress might lead migrant workers to develop health risk behaviors, their educational level and working country were the significant factors predicting their smoking and drinking behaviors. Workers with lower educational level had significantly higher risk of being smokers, and migrant workers in Taiwan had significantly higher likelihood of having risky drinking behaviors than their colleges in Thailand.

Not surprisingly, migrant workers in Taiwan reported significantly lower social support than their colleges in Thailand. Leaving one's country of origin to work in another implies a drop or absence of prior social support (25), so migrant workers' social support is lower than their colleges in Thailand. Even though our

participants worked in the same industry with similar nature and job control of work, migrant workers still reported higher psychological job demands than their college in Thailand. From subjective perspective, migrant workers' working hours per week are significantly less and they had more sleeping hours per day than their colleges in Thailand. Objectively, job control and workplace social support are similar between two groups. However, the self-reported psychological job demand remained significantly higher among migrant workers. One of the possible reasons for the phenomenon might be the burden of language and culture in the workplace (26). Different management approach in the factory might also contribute to the finding. Further study is recommended to understand the reason behind.

With the study design as comparing migrant workers with their college in originate country, we found that workers in Thailand had higher percentage of smokers while there were more drinkers with high drinking frequency among migrant workers in Taiwan. Different with previous finding that increased stress levels of migrant workers can lead to consuming alcohol and smoking (10), our study showed the different direction of changes of different health behaviors. This finding indicated the possible influence of national policy regarding unhealthy product on workers' health behavior. According to the global data, Thailand has a higher excise tax on alcoholic beverages than Taiwan (27). Combined with comparatively higher income of migrant workers than workers in Thailand, alcoholic beverage is more accessible for migrant workers in Taiwan. Another possible explanation for the phenomenon is the cultural norm of Thailand that drinking is considered as a form of social activity. While migrant workers might seek for social connections to compensate for a lack of social support, they might drink more due to their increased social events. Further study is recommended to understand the reason behind the finding.

Surprisingly, the impact of migrant workers' low ISS and high work stress on smoking and drinking behaviors were not found in our study. Instead, their educational level and working region were the significant factors predicting their smoking and drinking behaviors. Like what we mentioned above, the national policy on unhealthy products might be the reason for the finding that migrant workers in Taiwan had significantly higher likelihood of having risky drinking behaviors than their colleges in Thailand. The finding that workers' educational status is associated with their smoking behaviors echoed the previous findings (28, 29). The study result that workers with lower educational level had significantly higher risk of being smokers reflected again the importance of education on workers' health risk behaviors.

Limitations

There are several limitations in our study. First, the different recruitment strategy due to the impact of COVID-19 pandemic might lead to selection bias of migrant workers in Taiwan. While migrant workers who showed in the religious place might be more active with stronger social network, our study finding might overestimate the social support of migrant workers in Taiwan. Second, we might underestimate workers' health risk behaviors due to self-report bias. Third, our finding can only be considered an association rather than a cause because of the cross-sectional design of the study.

Conclusion

In conclusion, we found that migrant workers in Taiwan had poor social support and experienced high stress at work in comparison with workers in Thailand. They had higher drinking behavior but less smoking behavior than workers in Thailand. In addition, migrant workers' smoking and drinking behavior were not associated with social support and work stress, but linked to their individual characteristics, particularly their level of education. Based on our research findings, we suggest the need to establish a robust social network for migrant workers in order to enhance their social support. Also, health promotion regarding ill-health behaviors is recommended in workplace. Further study on the impact of national policy on health behaviors, especially exercise tax in different environments are recommended.

Declarations

Ethics approval and consent to participate

The research proposal for this study was approved by both the Joint Institutional Review Board (JIRB) at Taipei Medical University, Taiwan (NO: N201909020), and the Ethical Review Committee for Human Research, Faculty of Public Health (PHIRB), Mahidol University, Thailand (NO: 109/2562).

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author, FJT, upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

For this article, CPL participated in literature review, data collection, data analyses, discussion and drafted the manuscript. MT and FJT conceived the study and manuscript editing. All authors read and approved the final version of the manuscript.

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