

Depressive symptoms prevalence and its associated factors among cross border migrants in Thailand, 2023: a cross-sectional mixed-method study

Naruemon Sikhiwat (✉ naruemon.s@ihpp.thaigov.net)

International Health Policy Program, Ministry of Public Health

Kullatida Rajsiri

International Health Policy Program, Ministry of Public Health

Jordanna Nunes

Faculty of Medicine Ramathibodi Hospital, Mahidol University

Sonvane Uansri

International Health Policy Program, Ministry of Public Health

Nitjanan Panapong

International Health Policy Program, Ministry of Public Health

Watinee Kunpeuk

International Health Policy Program, Ministry of Public Health

Rujira Adhibai

International Health Policy Program, Ministry of Public Health

Saruttaya Wongsuwanphon

Division of Epidemiology, Department of Disease Control, Ministry of Public Health

Rapeepong Suphanchaimat

International Health Policy Program, Ministry of Public Health

Research Article

Keywords: depressive symptoms, prevalence, migrants, Thailand

Posted Date: January 2nd, 2024

DOI: <https://doi.org/10.21203/rs.3.rs-3805817/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background: Depression constitutes a substantial portion of global mental health concerns. Among migrant populations, access to mental healthcare is often hindered by various barriers, potentially leading to undiagnosed depressive symptoms. Thailand has hosted a large number of cross-border migrants from its neighboring countries, especially, Cambodia, Laos PDR and Myanmar (CLM), for years. However, little is known about the prevalence of depressive symptoms and its associated factors amongst migrants in Thailand, and this comes the objective of this study.

Methods: We conducted a cross-sectional mixed-method study to assess the prevalence of depressive symptoms and identify its associated factors. Quantitative data were collected through a paper-based questionnaire which comprised demographic characteristics and depressive symptoms screening questions by the Department of Mental Health, the Thai Ministry of Public Health. Multiple logistic regression analysis was used to determine the related factors of depressive symptoms. Qualitative data were gathered by in-depth interviews with civic group representatives and migrants. Content analysis with inductive coding was applied.

Results: A total of 431 participants were included in the analysis, with the majority being female (73.3%) and from Myanmar (97.9%). The prevalence of depressive symptoms was 11.8%, categorized as mild (9.7%), moderate (1.6%), and severe (0.5%) respectively. Factors associated with reduced likelihood of depressive symptoms included having public insurance, completing at least high school education, and being employed, while alcohol consumption increased the odds of depressive symptoms. Qualitative analysis highlighted the protective role of public insurance against depressive symptoms. Besides, from the interviews, some migrants consumed alcohol as a coping mechanism towards depressive symptoms.

Conclusion: This study reveals a noteworthy prevalence of depressive symptoms among cross-border migrants in Thailand. Significant factors included being insured by public insurance scheme, obtaining favorable education background and being employed. A better understanding of how these factors contribute to depressive symptoms is vital in designing comprehensive mental health policies to address the mental well-being of migrants. Further studies that reach out to all types of migrants and expand the scope of mental health beyond depressive symptoms are recommended.

Background

In 2019, an estimated 970 million individuals worldwide were documented as experiencing mental disorders. Notably, depression emerged as the second most common disorder, constituting 28.9% of the global mental disorder prevalence. Additionally, it remained a persistent leading contributor to years lived with disability (YLDs), representing 5.6% of the total YLDs in 2019 (1). Significantly, depression is closely associated with an elevated risk of suicide (2–5), which contributes substantially to preventable mortality among individuals afflicted with mental disorders (6).

There has been the development of diverse assessment tools aimed at early detection of depression (7). However, an individual's initial evaluation for depressive symptoms and professional diagnosis for major depression is often hindered by various factors such as limited awareness, stigma, mistrust of health service providers, and restricted access to healthcare (8, 9). Consequently, depressive symptoms usually remain undetected until turning to depressive disorder in later stages, particularly within marginalized groups, such as migrants and refugees, who typically experience health disparities in the host country (10–13).

Globalization has led to an increase in international migrants, accounting for 3.6% of the world population in 2020 (14). Cross-border migration is well recognized for inducing heightened stress levels, which could in turn develop into depression. The contributory causes for this condition include past traumatic events along the journey, acculturation process, and experiences of discrimination in the new country (15–17). There have been reports indicating a heightened prevalence of depression, anxiety, and post-traumatic stress disorder among migrants (18–20).

As for migrants in Thailand, there were approximately 2.6 million registered migrant workers in October 2023 (21) with an unknown number of undocumented migrants including refugees and asylum seekers. Their health disparities were largely attributed to precarious legal status, communication difficulty, and unsafe living conditions (22, 23). During the COVID-19 pandemic, depression was reported as one of the prominent mental health concerns among Myanmar migrant workers in Thailand. The imposition of lockdown measures significantly impacted this situation, resulting in substantial repercussions such as job layoffs and the inability to renew legal documents (24). The uncertainties stemming from these events have huge potential to inducing prolonged emotional stress and constraining access to healthcare services, on top of the existing stress and anxiety that persisted before the pandemic.

Amid the increasing migrant population in the country, there exists a paucity of evidence addressing mental health concerns, particularly depressive symptoms as early sign of major depression. An exploration of this issue is imperative to inform the development of comprehensive health policy approach to protect mental well-being of migrants. Consequently, this study aims to investigate the prevalence of depressive symptoms among migrants in Thailand and identify any potential factors associated with the symptoms.

In 2019, an estimated 970 million individuals worldwide were documented as experiencing mental disorders. Notably, depression emerged as the second most common disorder, constituting 28.9% of the global mental disorder prevalence. Additionally, it remained a persistent leading contributor to YLDs, representing 5.6% of the total YLDs in 2019 (1). Significantly, depression is closely associated with an elevated risk of suicide (2–5), which contributes substantially to preventable mortality among individuals afflicted with mental disorders (6).

There has been the development of diverse assessment tools aimed at early detection of depression (7). However, an individual's initial evaluation for depressive symptoms and professional diagnosis for major depression is often hindered by various factors such as limited awareness, stigma, mistrust with health

service providers, and restricted access to healthcare (8, 9). Consequently, depressive symptoms usually remain undetected until turning to depressive disorder in later stages, particularly within marginalized groups, such as migrants and refugees, who typically experience health disparities in the host country (10–13).

Globalization has led to an increase in international migrants, accounting for 3.6% of the world population in 2020 (14). Cross-border migration is well recognized for inducing heightened stress levels, which could in turn develop into depression. The contributory causes for this condition include past traumatic events along the journey, acculturation process, and experiences of discrimination in the new country (15–17). There have been reports indicating a heightened prevalence of depression, anxiety, and post-traumatic stress disorder among migrants (18–20).

As for migrants in Thailand, there were approximately 2.6 million registered migrant workers in October 2023 (21) with an unknown number of undocumented migrants including refugees and asylum seekers. Their health disparities were largely attributed to precarious legal status, communication difficulty, and unsafe living conditions (22, 23). During the COVID-19 pandemic, depression was reported as one of the prominent mental health concerns among Myanmar migrant workers in Thailand. The imposition of lockdown measures significantly impacted this situation, resulting in substantial repercussions such as job layoffs and the inability to renew legal documents (24). The uncertainties stemming from these events have huge potential to induce prolonged emotional stress and constraining access to healthcare services, on top of the existing stress and anxiety that persisted before the pandemic.

Amid the increasing migrant population in the country, there exists a paucity of evidence addressing mental health concerns, particularly depressive symptoms as early sign of major depression. An exploration of this issue is imperative to inform the development of comprehensive health policy approach to protect mental well-being of migrants. Consequently, this study aims to investigate the prevalence of depressive symptoms among migrants in Thailand and identify any potential factors associated with the symptoms.

Methods

Study design & population

Quantitative study

We conducted a cross-sectional the study on Migrants from Cambodian, Laos PDR, and Myanmar migrants (CLM) in four provinces: Samut Sakhon, Ranong, Tak, and Chiang Rai between April 2023 to June 2023. These provinces were chosen as they are densely populated areas of migrants.

Qualitative study

We divided the interview participants into two groups: (i) representatives of non-governmental organizations (NGOs) that had extensive work experience with migrants, and (ii) CLM migrants as health

service users.

Sampling & sample size

Quantitative study

This study used a convenience sampling method. We coordinated local NGOs in the four provinces to select migrant-populated communities where the researchers could access. The selected samples focused on those aged 15 years and above, regardless of their citizenship or insurance statuses.

The sample size was calculated by the following formula (Cochran,1977): $N = \frac{P(1-P)Z^2}{e^2}$.

Given an acceptable error of 5% with 95% confidence (Z-score $z = 1.96$) and the estimated prevalence of depressive symptoms from the previous study was 39%, the number of estimated samples was 369 (25). Considering a non-response rate of 20%, we basically aimed to recruit 461 participants. However, in the actual fieldwork, we could recruit 480 participants then, we excluded 49 participants who were not CLM migrants. Finally, the total of sample size was 431—slightly fewer than expected participant number (but still larger than the estimated sample size without accounting for non-responders.)

Qualitative study

We conducted a qualitative interview with representatives of NGOs purposively selected in the field. These NGOs were selected because they had been working closely with CLM migrants for years ($N = 6$). After that, we used a random snowball sampling to select seven more CLM migrants—making 13 interviewees in total. These migrants had potential for developing depressive symptoms as identified by local NGOs. All interviewees were aged at least 15 years.

Data collection and variable management

Quantitative study

We collected the data through a paper-based questionnaire that was translated into four languages: including Khmer, Burmese, Laotian, and Thai. In addition, we provided an interpreter to assist the research team during the questionnaire sessions. The questionnaire administration usually took about 30–45 minutes. For the validation process, we validated the questionnaire with two additional experts in the migrant health research field and tested the questionnaire with 10 CLM participants to assess face validity.

The questionnaire was divided into two parts. In the first part, demographic characteristics were collected; including sex (male versus female), age (years), education (from uneducated to bachelor degree or above), occupation (employed versus unemployed), income of an individual 8,000 (in THB), length of

stay in Thailand (shorter than a year, 1–2 years, 3–4 years, and > 4 years), health insurance (no insurance, Health Insurance Card Scheme [HICS]—public insurance provided by the Ministry of Public Health [MOPH], and other types of insurance [such as private insurance or any insurance schemes provided by NGOs]), and alcohol consumption (never, up to once a month, up to fortnightly, and at least twice weekly).

In the second part, we assessed depressive symptoms via a standard questionnaire for depressive symptoms screening (9Q) from the Department of Mental Health, the MOPH (26). It consisted of nine question items of the Major Depressive Disorder (MDD) symptoms which occurred over two previous weeks (e.g., “over the last 2 weeks, how often have you been feeling down, depressed, or hopeless, 0 = not at all and 3 = every day”). Each question was rated zero to three. A total score of less than 7 was defined as no depressive symptoms, 7–12 as mild, 13–18 as moderate, and 19 or above as severe.

Qualitative study

We used in-depth interviews by a semi-structured interview guide. Most interviews took place in the workplace of NGO representatives and in the public hospitals. The interview was recorded via a digital voice recorder. It took about 30–60 minutes per each participant. The interview questions were centered around their perception or experience towards CLM migrants facing depressive symptoms and factors related to mental healthcare.

Data Analysis

Quantitative study

The demographic characteristics and the prevalence of depressive symptoms were analyzed by descriptive statistics. Categorical variables were presented by frequencies and percentages. Continuous variables were presented as mean (with standard deviation) and median (with interquartile range).

We used the Chi-square test to determine the association between each demographic characteristic variable and depressive symptoms (univariable analysis). The results were shown in form of crude odd ratios (COR) and 95% confidence interval (CI). After that, the variables demonstrating statistical significance ($p < 0.05$) were incorporated into the multivariable logistic regression. The results from multivariable logistic regression were shown in the form of adjusted odds ratios (AOR) and 95% CI. All statistical analyses were performed by RStudio 4.2.2 software. Noted that for interpretation convenience, we transformed continuous variables and multi-strata categorical variables to binary variables. For instance, (continuous) income variable was changed to ‘below or equal to the median’ and ‘above median’. Another example was education variable, which was adjusted to ‘below high school’ and ‘high school and above’.

Qualitative study

We analyzed qualitative data by content analysis method. Data were gathered through in-depth interviews. Excel program was used for assisting in the coding process, which was composed of four steps: data organizing, manual free coding, data clustering and data interpretation (27). We identified themes that were related with quantitative results.

Results

Quantitative results

Demographics of study participants

A total of 480 migrants were screened and deemed eligible for this study. All questionnaires were returned (100% response rate). Subsequently, 49 participants were excluded as they were not CLM nationals. Consequently, the final sample size for subsequent analysis was 431. Most participants were female (73.3%) and over half were aged 30–44 years (51.5%). Furthermore, 100 participants (23.2%) were aged 15–29 years. Only 8 participants (1.9%) were over 60 years old. The majority of participants were Myanmar (97.9%) followed by Laotian (1.9%) and Cambodian (0.2%).

We found 382 migrants (88.6%) living in Thailand for over 4 years, while only a small proportion (3.0%) remained within the country for under a year. Regarding education level, just over half (58.5%) had finished high school and approximately 30.9% completed primary school. A very small proportion had acquired diploma or bachelor degree (3.3%). Most of the participants were employed (79.4%).

Just over half (55.9%) were insured by the HICS. The remainders had no health insurance and would use self-payment (39.9%) or enjoyed private insurance funds (4.2%). The mean income among participants was 7,476 THB/month, with the median income of 8,000 (The interquartile range (IQR) spans from 5,000 to 10,000 THB/month between the first quartile (Q1) and third quartile (Q3)). Most participants never drank alcohol (87.9%). About 5.8% drank once a month or less and approximately 6.3% drank alcohol more than this level. More details are shown in Table 1.

Table 1
Demographic characteristics

Participants characteristics		Number (N = 431)	Percent
Sex	Male	115	26.7%
	Female	316	73.3%
Age group (years)	15–29	100	23.2%
	30–44	222	51.5%
	45–59	101	23.4%
	60+	8	1.9%
Nationality	Cambodian	1	0.2%
	Laotian	8	1.9%
	Myanmar	422	97.9%
Health insurance	No health insurance	172	39.9%
	Health Insurance Card Scheme (HICS)	241	55.9%
	Private insurance funds	18	4.2%
Length of stay in Thailand (years)	< 1	13	3.0%
	1–2	19	4.4%
	3–4	17	3.9%
	> 4	382	88.6%
Education	Uneducated	31	7.2%
	Kindergarten	1	0.2%
	Primary School	133	30.9%
	High School	252	58.5%
	Diploma	8	1.9%
	Bachelor	6	1.4%
Employment	Unemployed	89	20.6%
	Employed	342	79.4%

Note: US\$ 1 equals 35.2 THB (as of December 6, 2023).

Participants characteristics		Number (N = 431)	Percent
Mean income per month (standard deviation)		7,476 (4,795) THB/month	
Median income per month (Q1-Q3)		8,000 (5,000–10,000) THB/month	
Number of alcoholic drinks	Never	379	87.9%
	Once a month or less	25	5.8%
	At least fortnightly	10	2.3%
	Twice weekly or more	17	4.0%
Note: US\$ 1 equals 35.2 THB (as of December 6, 2023).			

Associations between demographic characteristics and depressive symptoms

The distribution of depressive symptom scores among study participants is depicted in Fig. 1. The majority of participants were assessed as having no depressive symptoms (88.2%). The overall prevalence of depressive symptoms was 11.8% which was further classified into mild (9.7%), moderate (1.6%) and severe (0.5%).

As summarized in Table 2, univariable and multivariable logistic regression analyses were applied. Having HICS (AOR, 0.46; 95% CI, 0.23–0.92; $p = 0.029$), completing at least high school education (AOR, 0.43; 95% CI, 0.23–0.8; $p = 0.008$) and being employed (AOR, 0.47; 95% CI, 0.24–0.92; $p = 0.027$) were shown to reduce the odds of having depressive symptoms by over 50%. A history of alcohol consumption doubled the odds of depressive symptoms (AOR, 2.43; 95% CI, 1.14–5.15; $p = 0.021$). Longer length of stay was related with lower odds of depressive symptoms though statistical significance was found only in univariable analysis.

Although male sex (COR, 0.93; 95% CI, 0.48–1.82; $p = 0.838$) and length of stay in Thailand for ≥ 4 years (AOR, 0.59; 95% CI, 0.26–1.34; $p = 0.208$) were less likely to report depressive symptoms, and aged > 37 years (COR, 1.54; 95% CI, 0.86–2.78; $p = 0.149$) and monthly income $> 8,000$ THB (COR, 1.1; 95% CI, 0.61–1.97; $p = 0.758$) were more likely to, these were not significant.

Table 2

Univariable and multivariable logistic regression analyses to identify factors associated with symptoms of depression among migrants.

Participants characteristics		No symptom		Having symptoms		COR (95%CI)	AOR (95%CI)
		N = 380		N = 51			
		N	percent	n	percent		
Sex	Male	102	88.7%	13	11.3%	0.93 (0.48–1.82)	-
	Female	278	88.0%	38	12.0%	Ref.	-
Age group (years)	≤ 37 (below and equal to the median)	205	90.3%	22	9.7%	Ref.	-
	> 37 (above the median)	175	85.8%	29	14.2%	1.54 (0.86–2.78)	-
Health insurance	No health insurance	139	80.8%	33	19.2%	Ref.	Ref.
	Health Insurance Card Scheme (HICS)	225	93.4%	16	6.6%	0.30 ^{***} (0.16–0.56)	0.46 [*] (0.23–0.92)
	Private insurance funds	16	88.9%	2	11.1%	0.53 (0.12–2.4)	0.55 (0.11–2.71)
Length of stay in Thailand (years)	< 4	38	77.6%	11	22.4%	Ref.	Ref.
	≥ 4	342	89.5%	40	10.5%	0.40 [*] (0.19–0.85)	0.59 (0.26–1.34)
Education	Below high school	136	82.4%	29	17.6%	Ref.	Ref.
	High school and above	244	91.7%	22	8.3%	0.42 ^{**} (0.23–0.76)	0.43 ^{**} (0.23–0.8)
Employment	Unemployed	70	78.7%	19	21.3%	Ref.	Ref.

Note: US\$ 1 equals 35.2 THB (as of December 6, 2023); Significance codes: ^{***} p < 0.001, ^{**} p < 0.01, and ^{*} p < 0.05

	Employed	310	90.6%	32	9.4%	0.38** (0.20–0.71)	0.47* (0.24–0.92)
Income per month (THB/month)	≤ 8,000 (below and equal to the median)	195	88.6%	25	11.4%	Ref.	
	> 8,000 (above the median)	185	87.7%	26	12.3%	1.1 (0.61–1.97)	
Alcohol use	Non-alcoholic drinking	341	90.0%	38	10.0%	Ref.	Ref.
	Drinker (at least once a month or less)	39	75.0%	13	25.0%	2.99** (1.47–6.09)	2.43* (1.14–5.15)
Note: US\$ 1 equals 35.2 THB (as of December 6, 2023); Significance codes: *** p < 0.001, ** p < 0.01, and * p < 0.05							

Qualitative results

We could identify three main themes from the interview: (i) role of public health insurance as a protective factor against depressive symptoms, (ii) being employed as a factor to reduce depressive symptoms and (iii) alcohol consumption and substance use as means for coping with depressive symptoms.

Role of health insurance as a protective factor against depressive symptoms.

Some migrants reported the benefit of public health insurance that could safeguard them from excessive treatment cost. The main public health insurance scheme for CLM migrants in Thailand is the HICS, managed by the MOPH. It is a pre-paid insurance for an annual cost of 1,600 THB plus 500 THB for initial health check (2,100 THB in total). There is no co-payment upfront at the registered hospitals (except 30 THB fee for each visit). The benefit of the HICS is almost the same as the benefit for the Universal Coverage Scheme (UCS) for Thai citizens (covering outpatient care, inpatient care, emergency service, high-cost treatment and basic disease prevention programs).

“At first, I was not concerned whether I had health insurance or not. But I needed to seek medical treatment. At that time, I had not yet acquired any health insurance... Therefore, I had to pay all the medical expenses by myself, which was a long-term treatment. The cost of medication was around 200–300 THB per month, and I would seek medical treatment every two months... Following news from Facebook, I learned that there was government health insurance available. Consequently, (after being insured by the HICS) I did not have to pay for the treatment by myself.” – Male migrant worker, 27 years old

"I had to pay 480 THB a month for my own treatment. My family paid me for the first two or three months. Then my mom said she could not afford it anymore; she wanted me to stop the treatment but I did not want to. I am depressed. I wanted to get a cure. So, I paid for my own health insurance coverage for 2,100 THB a year... I feel so much better since I have been treated." – Female migrant worker, 25 years old

Being employed is one of the factors that can reduce depressive symptoms.

Employment constituted a pivotal factor among various determinants. The absence of employment resulted in income loss, leading to financial stress, as highlighted in the interviews. An exemplary quote from the interviews was as follows.

"During the period when I did not have a job, I felt lots of stress. This was because finding a job was difficult... This was because I did not have any income. I needed income to support daily expenses." – Female migrant psychiatric patient, 25 years old.

Alcohol consumption and substance use as a gateway to depression.

Some interviewees highlighted that substance abuse and alcohol use became a method of coping with stresses, especially during COVID-19 period. Moreover, alcohol consumption was pronounced in some of occupation sectors as fishery businesses.

"Stress is mostly related to alcohol addiction. During the COVID-19 pandemic, many migrants became alcohol addicted." – Thai NGO representative, 34 years old

"Migrant workers in the fishing sector usually use substances when facing stressful situations or mental health problems. This is because it is easy to obtain, cheap, and they do not have better ways to cope with stress. Moreover, they use almost all types of substances..." – Thai NGO representative, 35 years old.

Discussion

This study is amongst the first few studies that explore the situation of depressive symptoms amongst cross-border migrants in Thailand. Overall, we discovered that about 11.8% of migrants in our study reported depression symptoms. This figure is approximately similar to that reported in earlier literature.

A Recent study by Kaesornsri et al (2019) revealed that 11.9% of Myanmar migrants in Samut Sakhon exhibited symptoms of depression and/or anxiety (28). Chomchoei et al (2020) found a prevalence of depression of 12.0% amongst hill-tribe adults in Thailand. The majority of the hill-tribe populations predominantly reside along the Thai-Myanmar border. To this end, it is possible that their lifestyles and daily cultures could be similar with that of Myanmar migrants (29).

Seemingly, the prevalence of depressive symptoms amongst our study samples was far smaller than that of the Thai population. The MOPH (2019), announced that the national prevalence of depression

amongst Thai citizens was about 2.2% (1.5 million) (30). However, this figure should be carefully interpreted when compared with our findings as the 2.2% figure was derived from extrapolation, not solely originated from the primary survey. Moreover, the reported 2.2% figure was focused on depression diagnosis, rather than depressive symptom per se, and this discrepancy could be compounded by the difference in the timing of the studies. The depression prevalence amongst Thais in specific settings was notably high, relatively close or even higher than our figure. Pariwatcharakul et al (2020) suggested the prevalence of 9.8% amongst Thai junior doctors (31). Thongtang et al (2002) reported a 12.8% depression prevalence amongst the Thai elders in Bangkok, where 8.2% reported only depressive symptomatology (32).

Noteworthy, our prevalence percentage, though appearing high, is still far smaller than the prevalence amongst urban refugees and asylum seekers (URAS) in Thailand (33). Prior evidence unveiled that about 39.5% of URAS were positive for depressive symptom screening. The findings can be partly explained by the limited policies in Thailand aimed at supporting living standards for URAS, as compared to relatively more supportive policies for CLM migrants. As Thailand is not a party of the 1951 Refugee Convention, the country's mandate in protecting the well-being of URAS is not strong compared with the policy direction to protect the welfare of CLM migrants (though some operational constraints exist during policy implementation)—as committed by the Thai Government in many global health platforms, such as the World Health Assembly (WHA) Resolution 61.17 (34) and the Global Compact for Safe, Orderly and Regular Migration (A/RES/73/195) by the United Nations (35). URAS are neither eligible to applying for public health insurance nor being issued for a work permit. Therefore, URAS are mainly taken care by civic groups and charitable agencies, but merely by public health facilities.

Concerning factors associated with depressive symptoms, based on the findings above, it is clear that acquisition of public health insurance (namely, the HICS), longer length of stay in Thailand, completing at least high school education, and being employed significantly served as protective effects against depressive symptoms, while history of alcohol consumption revealed the opposite. Similar finding was noted in the US where Medicare coverage was significantly associated with a reduction in the probability of depressive symptoms reported among immigrants in poor socioeconomic households (36). Interestingly, voluntary private insurance schemes did not hold a significant protective effect against depression. A possible explanation could be private insurance enrolment is not widespread among migrants in the informal sector setting, a trend observed in the majority of participants in our study. One of the private insurance arrangements for migrants (as operated by an international NGO in our study areas, Tak) provides a variety of benefit packages (such as school plan insurance, insurance for people with chronic diseases, and insurance for maternity care) (37). Though it seems to accommodate a wide range of healthcare need for migrants, this may not align with the nature of migrants in Thailand and the health system design in Thailand—where migrants tend to favor comprehensive state-run insurance with almost zero copayment at point of care. Besides, according to the MOPH regulation, the HICS eligible facilities are mainly public hospitals a where most people utilize.

Moreover, the pre-requisite to acquire public insurance is that (formerly illegal) migrants need to undertake a nationality verification (NV) process stipulated by the document. The final product of the process is not just public insurance acquisition but also clearing up their illegal immigration status. In other words, the NV is not just a matter of insurance but also an issuance of legitimate work and residence permits—one of the core determinants for addressing the precarious legal status of migrants (38).

According to a systematic review on migrants' mental health and employment by Ornek et al (2022), precarious employment is tightly linked with detrimental effects on mental health. The term precarious employment in this regard encompasses not only a lack of job, but also conditions that contribute to job insecurity, such as lack of worker rights and protection, engaging with non-contract work, lack of employment compensation, unpredictable working schedules, and exposure to unfair and authoritarian treatment (39). Migrants in specific occupations tend to face greater health risk, such as fishery or construction work, are inclined to report depressive symptoms than those in less risky settings. This finding is also supported by our qualitative interview that migrant in fishery industry faced higher degree of stress than those in other settings. Migrant workers in the fishery business usually experience extended and demanding shifts, either offshore or in-land work. Some even face poor living conditions on crowded boats or in port areas, where maintaining adequate hygiene standards is often impractical (40, 41). In turn, migrants in precarious employment could be more susceptible to depressive symptoms compared to their counterparts in more stable forms of employment.

A longer length of stay in Thailand was also related to lower odds of self-reported depressive symptoms. This notion was supported by a study in Canada by Urqia et al (2012), suggesting that recent immigrants were at higher risk of postpartum depression than Canadian-born women of European descent (42). Another study by Sesti et al (2022) flagged a contradictory report as long-stay immigrants tended to face higher risk of depressive symptoms than the short stayers (43). Sesti et al (2022) referred to this phenomenon as “exhausted migrant effect” (or the “immigrant paradox”), where the longer the period since migration leads to the higher likelihood of developing depressive symptoms (44). This could also be attributed to the “assimilation process”, where migrants converse themselves towards a health condition worse than that of the host population. However, Urqia et al (2012) reminded that the concept of “exhausted migrant effect” has limited generalizability and should be more carefully conceptualized as outcome-specific and contingent upon immigrants' ethnicity.

Higher education background also served as a significant determinant for lesser odds of depressive symptoms. Consistent with previous study, Brandt and Hagge (2020) unfolded that that higher education status enhances the probability to acquire social support amongst migrants in Germany (45). This finding aligns with Kim et al (2022) which underpinned that acculturative stress and depressive symptoms were significantly related to poor social support (46). Furthermore, Lee revealed that cognitive ability, cultivated through one's educational journey, emerged as the most crucial pathway elucidating the underlying mechanism between education level and depression (47). Together, these findings suggested the multifaceted relationship between social support and cognitive ability acquired through education,

highlighting the important role of education in equipping individuals with necessary support and skill that contribute to overall mental well-being.

Another striking finding is the association between alcohol consumption and depressive symptoms. Cobb et al (2020) explained that depressive symptoms usually led to alcohol use severity amongst Hispanic immigrants in the US (48). Chavan et al (2022) concluded that that prevalence of mental health issues and substance abuse (including alcohol) in migrant population was significantly higher than the general population (49). These findings elucidated that alcohol consumption is a phenomenon observed not only in migrants but also in the host population. Current evidence suggested that individuals diagnosed with alcohol dependence were about four-fold more likely to have major depression. Several potential developmental pathways have been proposed to reason the high rate of co-occurring of alcohol dependence depressive disorders. Some studies indicated that depressive disorders typically lead to early onset of alcohol dependence, while some suggest the opposite (50, 51). Thus, the relationship between alcohol use and depressive symptoms remains complex and is likely to be bidirectional.

All aforementioned points have certain policy implications. The protection against depression among migrants should consider addressing not only depressive symptoms themselves but also other interrelated factors. Though certain factors may be challenging to modify, such as educational background or length of stay in the country, some factors could be addressed. Measures to expedite public insurance issuance process should be promoted. This can be exercised alongside the acceleration of the work permit registration and NV processes. Policies on educational opportunity should also be expanded to buffer the whole migrant communities against future risks of depressive symptoms. Alcohol control policies as well as measures to minimize alcohol consumption should be adopted, not only for migrants but also for general population. Moreover, healthcare providers should take into account the history of alcohol consumption as a potential risk for depressive symptoms amongst migrant patients. Ultimately, the implementation of these measures will contribute to a massive improvement in healthcare provision for the entire health service system.

One of the key strengths of this study is the use of both qualitative and quantitative methods to mutually complement each other. Besides, the enrollment of a large number of participants in the survey is considered another strength in the methodological point of view; enhancing the study's robustness. Nevertheless, certain limitations still remain. First, the nature of cross-sectional study means limited causal inference. Second, the involvement of only four provinces (despite keeping geographical diversity) inevitably limited generalizability power as migrant populations have vast diversity in terms of ethnicity, culture, belief and lifestyle. Third, considering that migrants, particularly undocumented ones, pose a challenge to reach, and even more so when targeting those with depressive symptoms. As a result, there is a possibility that our estimate of depressive symptoms could possibly be underestimated. Though assistance was sought from civic groups to facilitate access to migrant communities, reaching out to this population group still remains inherently challenging. Fourth, some parts of the questionnaire contained subjective questions that could result in information bias. Sensitive questions (such as the possession of public insurance and history of alcohol use) were likely to be underestimated. Lastly, the questionnaire

used to assess depressive symptoms heavily depends on participants' ability to accurately interpret the questions and self-report their symptoms. Hence, the interpretation of the findings should not be made in the same manner as clinical diagnosis. In addition, this study did not delve into the issue of access to care for those with depressive symptoms. Therefore, further studies that aim to extend beyond self-report depressive symptoms to clinically diagnosed depression as well as the linkage with access to health service provision are recommended. Besides, continuous monitoring on depressive symptoms in the form of time series or longitudinal data are likely to have huge academic value. Additional studies that include other types of migrants with wider geographical coverage are advised. The aspects of mental health concerned should expand beyond depressive symptoms, but also encompass other key mental diseases, such as psychiatric disorders and substance abuse.

Conclusion

This study found that the prevalence of depressive symptoms among migrants in four provinces of Thailand was around 11.8%. Significant factors associated with increased odds of depressive symptoms included the absence of public health insurance, illiterate or completing up to primary education (compared to high school education), being unemployed and alcohol consumption. Measures to address potential risks of depressive symptoms should be implemented alongside the healthcare support on mental well-being. Further studies that reach out to wider range of migrants are worth exploring. Additional research that delves into other forms of mental illnesses (apart from depressive symptoms) is recommended.

Abbreviations

AOR	Adjusted odds ratios
CI	Confidence interval
CLM	Cambodia, Laos PDR, and Myanmar
COR	Crude odd ratios
HICS	Health Insurance Card Scheme
IHRP	Institute for the Development of Human Research Protections
MMD	Major Depressive Disorder
MOPH	Ministry of Public Health
NGOs	Non-governmental organizations
NV	Nationality verification
Q1	First quartile
Q3	Third quartile
URAS	Urban refugees and asylum seekers
WHA	World Health Assembly
YLDs	Years lived with disability

Declarations

Ethics approval: The study was part of the project titled “Feasibility of adding mental health benefits package in the public health insurance for migrants and stateless people in Thailand” which received ethical approval from the “Institute for the Development of Human Research Protections” (IHRP No. 110-2565). Informed consent was obtained from all participants, for those uncomfortable with written consent or being illiterate participants, verbal consent was obtained instead. In addition, for those who were illiterate or those who did not understand Thai, the field translators would explain details of the project before the participation and also reassured the participants to feel free to withdraw from the study at any time given non-comfortability. The informed consent for illiterate participants was obtained using fingerprinting. Noted that we did not include minor participants in our study and we also stored the data on our office computer. The computer was password protected.

Consent for publication: Not applicable

Availability of data and materials: The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

Funding: This study was part of the project titled “Feasibility of adding mental health benefits package in the public health insurance for migrants and stateless people in Thailand” by the International Health Policy Program, funded by Health Systems Research Institute (Grant No. HSRI 66-002), Thailand.

Authors' contributions: Conceptualisation, NS, KR, RA, and RS; Data collection, NP, SU, WK, and RS; Formal analysis, NS, KR, and RS; Methodology, NS, KR, NP, SU, and RS; Supervision RS; Writing—original draft, NS, KR, JN, NP, SW, and RS; writing—review and editing, NS, KR, RA, JN and RS. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: We extend our gratitude to all participants who contributed valuable information during the interviews for this study, as well as to the local NGOs across the four provinces for their collaboration and support.

References

1. World mental health report. Transforming mental health for all. Geneva: World Health Organization; 2022.
2. Mental health atlas 2017. Report No.: CC BY-NC-SA 3.0 IGO. Geneva: World Health Organization; 2018.
3. Mann JJ. A current perspective of suicide and attempted suicide. *Ann Intern Med.* 2002;136(4):302–11.
4. Coryell W, Young EA. Clinical predictors of suicide in primary major depressive disorder. *J Clin Psychiatry.* 2005;66(4):412–7.
5. Ponsoni A, Branco LD, Cotrena C, Shansis FM, Grassi-Oliveira R, Fonseca RP. Self-reported inhibition predicts history of suicide attempts in bipolar disorder and major depression. *Compr Psychiatry.* 2018;82:89–94.
6. Chesney E, Goodwin GM, Fazel S. Risks of all-cause and suicide mortality in mental disorders: a meta-review. *World Psychiatry.* 2014;13(2):153–60.
7. APA. Depression Assessment Instruments. Depression Guideline [Internet]. 2019 December 4, 2023. Available from: <https://www.apa.org/depression-guideline/assessment/>.
8. Amone-P'Olak K, Kakinda AI, Kibedi H, Omech B. Barriers to treatment and care for depression among the youth in Uganda: The role of mental health literacy. *Front Public Health.* 2023;11:1054918.
9. Colligan EM, Cross-Barnet C, Lloyd JT, McNeely J. Barriers and facilitators to depression screening in older adults: a qualitative study. *Aging Ment Health.* 2020;24(2):341–8.
10. Espinoza-Kulick MAV, Cerdeña JP. We Need Health for All: Mental Health and Barriers to Care among Latinxs in California and Connecticut. *Int J Environ Res Public Health.* 2022;19(19).
11. Oyarte M, Cabieses B, Rada I, Blukacz A, Espinoza M, Mezones-Holguin E. Unequal Access and Use of Health Care Services among Settled Immigrants, Recent Immigrants, and Locals: A Comparative Analysis of a Nationally Representative Survey in Chile. *Int J Environ Res Public Health.* 2022;20(1).

12. Blukacz A, Cabieses B, Markkula N. Inequities in mental health and mental healthcare between international immigrants and locals in Chile: a narrative review. *Int J Equity Health*. 2020;19(1):197.
13. Parenteau AM, Boyer CJ, Campos LJ, Carranza AF, Deer LK, Hartman DT, et al. A review of mental health disparities during COVID-19: Evidence, mechanisms, and policy recommendations for promoting societal resilience. *Dev Psychopathol*. 2023;35(4):1821–42.
14. Mcauliffe M, Triandafyllidou A, editors. *World Migration Report 2022*. Geneva: International Organization for Migration (IOM); 2021.
15. Adebayo B, Nichols P, Albrecht MA, Brijnath B, Heslop K. Investigating the Impacts of Acculturation Stress on Migrant Care Workers in Australian Residential Aged Care Facilities. *J Transcult Nurs*. 2021;32(4):389–98.
16. Cho YJ, Jang Y, Ko JE, Lee SH, Moon SK, Acculturation. Acculturative Stress, and Depressive Symptoms in International Migrants: A Study with Vietnamese Women in South Korea. *J Immigr Minor Health*. 2018;20(5):1103–8.
17. Kim Y, Lee H, Lee M. Social Support for Acculturative Stress, Job Stress, and Perceived Discrimination Among Migrant Workers Moderates COVID-19 Pandemic Depression. *Int J Public Health*. 2022;67.
18. Close C, Kouvonen A, Bosqui T, Patel K, O'Reilly D, Donnelly M. The mental health and wellbeing of first generation migrants: a systematic-narrative review of reviews. *Global Health*. 2016;12(1):47.
19. Steel Z, Silove D, Phan T, Bauman A. Long-term effect of psychological trauma on the mental health of Vietnamese refugees resettled in Australia: a population-based study. *Lancet*. 2002;360(9339):1056–62.
20. Tinghög P, Malm A, Arwidson C, Sigvardsdotter E, Lundin A, Saboonchi F. Prevalence of mental ill health, traumas and postmigration stress among refugees from Syria resettled in Sweden after 2011: a population-based survey. *BMJ Open*. 2017;7(12):e018899.
21. Foreign workers administration office. *Statistics on the number of foreign nationals permitted to work remaining in the kingdom*. Bangkok. 2023.
22. Chantavanich S, Jitpong W. Precarity and social protection of migrant fishers in Thailand: Case studies of death and disappearance at sea. *Mar Policy*. 2023;155:105743.
23. Kunpeuk W, Teekasap P, Kosiyaporn H, Julchoo S, Phaiyarom M, Sinam P et al. Understanding the Problem of Access to Public Health Insurance Schemes among Cross-Border Migrants in Thailand through Systems Thinking. *Int J Environ Res Public Health*. 2020;17(14).
24. Khai TS, Asaduzzaman M. 'I Doubt Myself and Am Losing Everything I Have since COVID Came'-A Case Study of Mental Health and Coping Strategies among Undocumented Myanmar Migrant Workers in Thailand. *Int J Environ Res Public Health*. 2022;19(22).
25. Kosiyaporn H, Julchoo S, Phaiyarom M, Sinam P, Kunpeuk W, Pudpong N, et al. Strengthening the migrant-friendliness of Thai health services through interpretation and cultural mediation: a system analysis. *Glob Health Res Policy*. 2020;5(1):53.

26. Department of Mental Health. Screening assessment manual for people with suicidal behavior problems. <https://mhso.dmh.go.th/fileupload/202301161330193317.pdf>. Accessed 3 December 2023.
27. Changmai SQ. Data Analysis. *Christ Univ J*. 2012;18(1).
28. Kesornsri S, Sitthimongkol Y, Punpuing S, Vongsirimas N, Hegadoren KM. Mental Health and Related Factors among Migrants from Myanmar in Thailand. *J Popul Social Stud [JPSS]*. 2019;27(2):124–38.
29. Chomchoei C, Apidechkul T, Keawdoungek V, Wongfu C, Khunthason S, Kullawong N, et al. Prevalence of and factors associated with depression among hill tribe individuals aged 30 years and over in Thailand. *Heliyon*. 2020;6(6):e04273.
30. Department of Mental Health. Depression: Emotional disorders that can be cured. 2019. <https://dmh.go.th/news-dmh/view.asp?id=29902>. Accessed 4 December 2023.
31. Pariwatcharakul P, Ratta-Apha W, Sumalrot T, Wankaew J, Sitdhiraksa N. Depression, quality of life and coping style among Thai doctors before their first year of residency training. *Postgrad Med J*. 2020;96(1136):321–4.
32. Thongtang O, Sukhatunga K, Ngamthipwatthana T, Chulakadabba S, Vuthiganond S, Pooviboonsuk P, et al. Prevalence and incidence of depression in the Thai elderly. *J Med Assoc Thai*. 2002;85(5):540–4.
33. Pudpong N, Kosiyaporn H, Phaiyarom M, Kunpeuk W, Sinam P, Julchoo S et al. Situation of Self-Reported Anxiety and Depression among Urban Refugees and Asylum Seekers in Thailand, 2019. *Int J Environ Res Public Health*. 2021;18(14).
34. Health of migrants [press release]. Eighth plenary meeting, May 24, 2008.
35. United Nations. Global Compact for Safe, Orderly and Regular Migration (GCM). OHCHR and migration 2023. <https://www.ohchr.org/en/migration/global-compact-safe-orderly-and-regular-migration-gcm>. Accessed 4 December 2023.
36. Jun H, Mattke S, Chen A, Aguila E. The value of Medicare coverage on depressive symptoms among older immigrants. *Gerontologist*. 2023.
37. Pudpong N, Durier N, Julchoo S, Sainam P, Kuttiparambil B, Suphanchaimat R. Assessment of a Voluntary Non-Profit Health Insurance Scheme for Migrants along the Thai–Myanmar Border: A Case Study of the Migrant Fund in Thailand. *Int J Environ Res Public Health*. 2019;16(14):2581.
38. Yellow Horse AJ, Vargas ED, Legal, Status. Worries About Deportation, and Depression Among Asian Immigrants. *J Immigr Minor Health*. 2022;24(4):827–33.
39. Koseoglu Ornek O, Waibel J, Wullinger P, Weinmann T. Precarious employment and migrant workers' mental health: a systematic review of quantitative and qualitative studies. *Scand J Work Environ Health*. 2022;48(5):327–50.
40. Chantavanich S, Laodumrongchai S, Stringer C. Under the shadow: Forced labour among sea fishers in Thailand. *Mar Policy*. 2016;68:1–7.

41. Vandergeest P, Marschke M. Beyond slavery scandals: Explaining working conditions among fish workers in Taiwan and Thailand. *Mar Policy*. 2021;132:104685.
42. Urquia ML, O'Campo PJ, Heaman MI. Revisiting the immigrant paradox in reproductive health: the roles of duration of residence and ethnicity. *Soc Sci Med*. 2012;74(10):1610–21.
43. Sesti F, Minardi V, Baglio G, Bell R, Goldblatt P, Marceca M, et al. Social determinants of mental health in Italy: the role of education in the comparison of migrant and Italian residents. *Int J Equity Health*. 2022;21(1):116.
44. Sesti F, Minardi V, Baglio G, Bell R, Goldblatt P, Marceca M, et al. Social determinants of mental health in Italy: the role of education in the comparison of migrant and Italian residents. *Int J Equity Health*. 2022;21(1):116.
45. Brandt J, Hagge KS. Education and social support: do migrants benefit as much as natives? *Comp Migration Stud*. 2020;8(1):41.
46. Kim Y, Lee H, Lee M. Social Support for Acculturative Stress, Job Stress, and Perceived Discrimination Among Migrant Workers Moderates COVID-19 Pandemic Depression. *Int J Public Health*. 2022;67:1604643.
47. Lee J. Pathways from Education to Depression. *J Cross-Cult Gerontol*. 2011;26(2):121–35.
48. Cobb CL, Schwartz SJ, Salas-Wright CP, Pinedo M, Martinez P, Meca A, et al. Alcohol use severity, depressive symptoms, and optimism among Hispanics: Examining the immigrant paradox in a serial mediation model. *J Clin Psychol*. 2020;76(12):2329–44.
49. Chavan BS, Sidana A, Arun P, Rohilla R, Singh GP, Solanki RK, et al. Psychiatric morbidity and substance use in migrant workers: A population based study. *Int J Soc Psychiatry*. 2022;68(1):210–5.
50. Fergusson DM, Boden JM, Horwood LJ. Tests of causal links between alcohol abuse or dependence and major depression. *Arch Gen Psychiatry*. 2009;66(3):260–6.
51. Pedrelli P, Shapero B, Archibald A, Dale C. Alcohol use and depression during adolescence and young adulthood: a summary and interpretation of mixed findings. *Curr Addict Rep*. 2016;3(1):91–7.

Figures

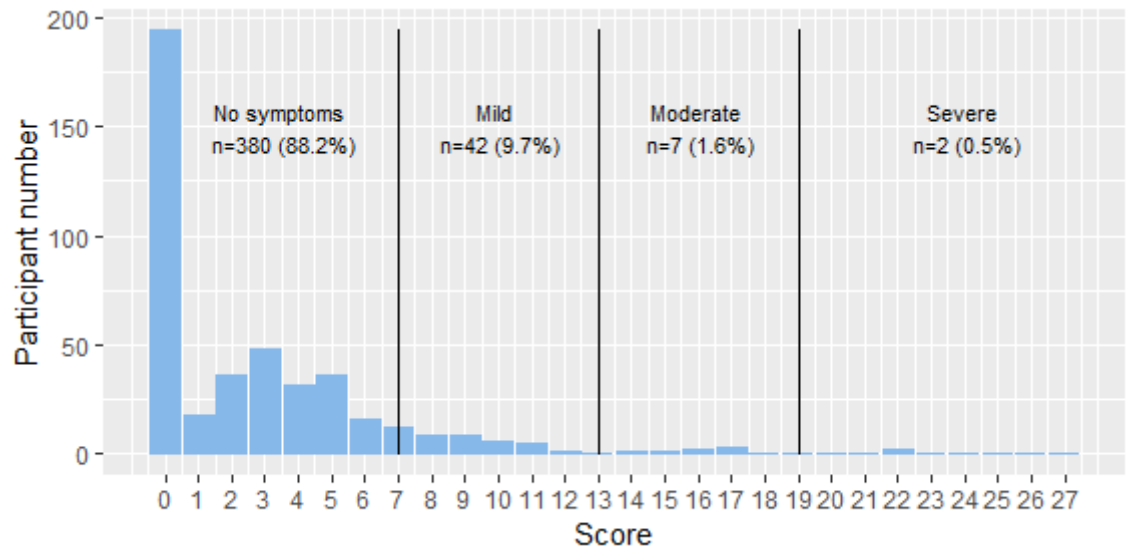


Figure 1

Distribution of depressive symptoms among the survey participants