Alcohol Use and Environmental Factors: A Cross-Sectional Study Exploring Health Risks and Social Implications Among Migrant Workers

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Article

Alcohol Use and Environmental Factors: A Cross-Sectional Study Exploring Health Risks and Social Implications Among Migrant Workers

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Abstract

Background: Alcohol use poses significant health and social risks among migrant workers, yet limited research explores how various factors interact to shape its impact. **Methods:** This cross-sectional study surveyed 610 Myanmar migrant workers in Thailand (Sep 2023–Mar 2024) using multi-stage random sampling. Paper-based questionnaires assessed alcohol-related outcomes, and generalized linear mixed models identified associated factors. **Results:** Among the participants, 38.20% reported a moderate level of impact from alcohol consumption (95% CI: 34.41–42.12), while 0.82% reported a high level of impact (95% CI: 0.34–1.95). Alcohol addiction significantly increased the likelihood of adverse health, family, and social outcomes (adjusted odds ratio [95% confidence interval]: 1.70 [1.61–1.79]). Rural workers were disproportionately affected compared to urban workers (6.52 [4.35–9.77]). The risk was also heightened by housing problems (5.00 [2.70–9.24]). Other significant covariates included poor sleep quality (2.09 [1.51–2.90]), moderate/poor health (2.11 [2.02–2.22]), longer work hours (2.39 [1.02–5.60]), daily work schedules (2.39 [1.64-3.49]), and strained co-worker relationships (1.89 [1.88–1.90]). **Conclusions:** Alcohol-related harms among migrant workers are shaped by environmental and occupational stressors. Primary care and community health systems should integrate screening, targeted health promotion, and culturally appropriate support services to reduce harm and promote well-being.

Keywords: working conditions; alcohol drinking; risk; Myanmar; migrant

1. Introduction

Alcohol consumption is a major global health concern, contributing to over 200 health conditions, including chronic diseases, mental health disorders, and infectious diseases [1–3]. It also disrupts families through violence, economic instability, and developmental harm to children [2,3]. At the population level, alcohol use results in injuries, road accidents, reduced workplace productivity, and unemployment, posing a critical public health challenge worldwide [2,4].

Migrant workers are particularly vulnerable to alcohol-related harms, with consumption patterns varying by region and culture. Globally, 89.2% of international workers consume alcohol, and 5.8% engage in heavy drinking [5]. In the United States, nearly half of Latino farmworkers report heavy episodic drinking. In Southeast Asia, Myanmar migrant workers in Thailand show concerning alcohol

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consumption patterns, with 12.3% of males classified as hazardous drinkers, 19% reporting heavy episodic drinking, and 40.8% current alcohol use [6,7].

Thailand, the primary destination for Myanmar migrant workers, reports the highest alcohol consumption in the WHO South-East Asia Region. The economic burden of alcohol in Thailand is estimated at 4.53 billion USD annually, representing 1.02% of the country's Gross Domestic Product. Of this, 119.73 million USD, (2.7%) is attributed to healthcare costs [8,9]. Among Myanmar migrant workers, harmful drinking patterns exceed those found in both their home country and the Thai population [6].

Migrant workers contribute significantly to Thailand's economy, particularly in low-wage sectors such as construction and agriculture. However, occupational stressors, low income, unstable employment, and social challenges drive increased alcohol use as a coping mechanism [10,11]. These patterns underline the urgent need to investigate determinants, health risks, and social consequences of alcohol use in this population.

Extensive research highlights the critical role of intermediary determinants—such as alcohol consumption, physical environment, and social relationships—alongside structural factors like gender, income, education, and occupation in shaping health outcomes. These interconnected determinants are especially relevant among vulnerable groups such as migrant workers.

Alcohol consumption among migrant workers is strongly linked to mental health problems, including depression and anxiety, often exacerbated by stressors such as
language barriers, unstable employment, and family separation [12]. Moreover, alcohol use disorders elevate the risk of adverse health outcomes, including premature mortality [13]. Physical environmental factors such as housing instability and alcohol outlet density, particularly in rural areas, are associated with increased alcohol-related harms [14]. Poor living conditions and unsafe environments also indirectly contribute to psychological distress, including dissatisfaction and depression [15,16]. Social relationships play a significant role in drinking behavior. Peer bonding and participation in social activities may pressure non-drinkers to conform, while regular drinkers often perceive group drinking as casual social interaction [17]. Lower socioeconomic status, characterized by unemployment, low income, and limited education, consistently correlates with higher rates of harmful alcohol use and alcohol use disorders among migrant populations [18,19].

Myanmar migrant workers face unique challenges impacting their health, family life, and social well-being [6,10,11]. The Social Determinants of Health (SDH) framework offers a valuable lens to understand how structural determinants (such as socioeconomic and environmental factors) and intermediary determinants (including material conditions, psychosocial factors, and health behaviors) contribute to health inequities in this group [20]. Studies applying the SDH framework in similar settings, like Nepal, have demonstrated how socioeconomic status, gender, and industry affect alcohol-related harms [21].

Previous research on alcohol consumption among migrant workers often focuses on isolated factors such as socio-demographic and economic variables. There is limited
exploration of how demographic, socioeconomic, labor, health, and environmental factors interact to influence alcohol-related health, family, and social outcomes [10,11,22]. This study aims to fill this gap by determining the prevalence of alcohol-related impacts and examining the relationships between alcohol use, environmental factors, and their broader effects among Myanmar migrant workers in Thailand. The findings will inform public health strategies and policies to mitigate alcohol-related harm in this vulnerable population.

2. Materials and Methods

2.1. Research Design, Sampling and Participants

This study adopted a cross-sectional approach. The target population of the current study was Myanmar migrant workers in Thailand. Inclusion criteria were: (i) being a
Myanmar national, (ii) being 18 years of age or older, (iii) having been employed in southern Thailand for

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at least three months, (iv) being able to communicate verbally with researchers, and (v) willing to participate in the study. Those with serious illnesses were excluded from the study. The sample size was determined using Hsieh's formula for multivariable logistic regression with a binary outcome, informed by prior research study [23,24], resulting in 610 participants. Participants were selected through multistage random sampling.

2.2. Research Instrument and Validity

A questionnaire was developed based on the Social Determinants of Health (SDH) framework and prior literature [11,20,25,26]. Alcohol use was measured using the 10-item Alcohol Use Disorders Identification Test (AUDIT) [26], rated on a 5-point Likert scale (0 = never to 4 = four or more times weekly). Total scores (0–40) were categorized as low-risk (0–7), risky (8–15), hazardous (16–19), and dependent (≥20) .

Environmental (22 items) and relationship factors (4 items) included housing (e.g., overcrowding, sanitation) and workplace conditions (e.g., noise, safety). These were assessed using 5-point Likert scales ranging from 1 (none) to 5 (high), with total scores categorized as indicating minor, moderate, or significant/challenging issue levels [27].. Interpersonal relationships were evaluated using four single items measuring perceived connection with neighbors, co-workers, family members, and employers. Response options included poor, neutral, and good.

Additional components covered labor characteristics (8 items), health behavior and status (8 items), and demographic/socioeconomic data (8 items). Alcohol-related impacts on health, family, and social life were measured using 25 items on a 3-point scale (1 = never or rarely, 2 = occasionally, 3 = frequently). Total scores were categorized into low, moderate, or high impact [27].

Content validity was confirmed by five experts, with an Item–Objective Congruence Index (IOC) ranging from 0.80 to 1.00 [28]. The AUDIT tool demonstrated high sensitivity (0.95) and specificity (0.80) [26]. Cronbach's alpha values indicated acceptable to high internal consistency: 0.74 (housing), 0.85 (work environment), and 0.78 (alcohol-related effects).

2.3. Data Collection Procedures

Data were collected from Myanmar migrant workers in southern Thailand (Songkhla and Surat Thani) between September 2023 and March 2024. Following approval from Provincial Public Health Offices, three bilingual interpreters (Burmese–Thai) conducted structured, paper-based interviews at participants' residences to ensure contextual relevance. Questionnaires were provided in Thai and Burmese. The translation process included Thai-to-English by bilingual professionals, English-to-Burmese by a Myanmar public health worker, and back-translation to Thai for validation.

2.4. Statistical Analysis

Descriptive statistics showed a complete dataset with no missing data for the 610 participants. Simple logistic regression was used for bivariate analysis to assess the
association between independent variables and the impact of alcohol consumption, categorized as low vs. moderate/high. Variables of interest—including alcohol use, environmental factors, and other covariates with p-values < 0.25—were included in multivariable analysis using a Generalized Linear Mixed Model (GLMM), accounting for provinces as random effects to identify factors linked to alcohol consumption [29]. Multicollinearity was assessed with a variance inflation factor (VIF) threshold of <10. Model fitting employed backward elimination, with statistical significance set at $p < 0.05$. An adjusted odds ratio (Adj. OR) of 1 indicated no association, >1 indicated a risk factor, and <1 indicated a protective effect [29].

3. Results

Table 1 summarizes the characteristics of the study participants (n=610). Most participants (73.93%) were male, with a mean age of 34.80 years. A majority were married (57.87%), 30.66% had

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completed lower secondary education, and 38.52% were employed in the fishing industry. Although the median monthly personal income was 10,000 baht—twice the median personal expenses of 5,000 baht—75.74% of participants reported having no savings. Most participants (60.66%) resided in Surat Thani Province. Additionally, 90.33% were legally employed, and 86.39% had health insurance. The majority (76.39%) worked eight hours or less per day, and 83.11% worked six days or fewer per week.

Table 1. Characteristics of the study participants (n = 610).

Demographic and socioeconomic characteristics	Number	Percentage
Gender		
Female	159	26.07
Male	451	73.93
Age (years)		
≤ 19	18	2.95
20–29	187	30.66
30–39	239	39.18
40–59	147	24.10
≥ 60	19	3.11
Mean (Standard deviation)	34.80 (10.61)	
Median (Min–Max)	33 (18–73)	
Marital status		
Single	208	34.10
Married (with a marriage certificate)	217	35.57
Married (without a marriage certificate)	136	22.30
Divorced/widowed/separated	49	8.03
Highest education level		
No formal education	33	5.41
Primary school	180	29.51
Lower secondary school	187	30.66
High school or equivalence	153	25.08
Diploma or equivalence	44	7.21
Bachelor's degree or higher	13	2.13
Main occupational group		
Fishing sector	235	38.52
Service industry sector	153	25.08
Agriculture and animal feeding sector	114	18.69
Construction sectors	43	7.05
Household	39	6.40
Manufacturing industry sector	7	1.15
Others	19	3.11
Average monthly income (baht/month)		
None	15	2.46
< 7,500	37	6.07
7,500–9,999	224	36.72
10,000–12,499	227	37.21
≥ 12,500	107	17.54
Mean (Standard deviation)	10,195.41 (3,169.76)	
Median (Min–Max)	10,000 (0–21,000)	
Average monthly expenditure (baht/month)		
None	15	2.46
< 2,500	35	5.74
2,500–4,999	110	18.03
5,000–7,499	355	58.19
≥ 7,500	95	15.67
Mean (Standard deviation)	5,457.37 (2,099.68)	
Median (Min–Max)	5,000 (0–12,000)	
Financial status		
Not enough and debt	94	15.41
Not enough and not debt	143	23.44

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Demographic and socioeconomic characteristics	Number	Percentage
Enough but not saving	225	36.89
Enough and saving	148	24.26
Live in province		
Songkhla	240	39.34
Surat Thani	370	60.66
Worked in Thailand (years)		
< 2	100	16.39
2–5	234	38.36
6–10	161	26.40
> 10	115	18.85
Mean (Standard deviation)	6.71 (6.30)	
Median (Min–Max)	5 (0.08–36)	
Status of migrant		
Illegal	59	9.67
Legal	551	90.33
Health insurance		
No	83	13.61
Yes	527	86.39
Working hours per day (hours)		
No job	14	2.30
≤ 8	466	76.39
> 8	130	21.31
Mean (Standard deviation)	8.18 (1.64)	
Median (Min–Max)	8 (0–15)	
Working days per week (days)		
No job	14	2.30
≤ 6	507	83.11
Everyday	89	14.59
Mean (Standard deviation)	5.88 (1.10)	
Median (Min–Max)	6 (0–7)	
Worked part-time		
Never	417	68.36
Yes	193	31.64
Annual health checkup during work		
Never	161	26.39
Yes	449	73.61

Table 2 shows the health behaviors, physical health, and health information of the study participants, and Table 3 summarizes their reported environmental and interpersonal interrelationship factors. About a third of the participants (33.28%) were current tobacco users, 42.46% did not have sleeping problems, 61.64% were physically fit, and 16.23% had chronic diseases. Approximately two-thirds of the participants (62.30%) received health-related information and 71.48% received support in the form of media or materials related to health in the Myanmar language. Most participants (89.84%) reported experiencing minor environmental issues, 50.49% had moderate relationships with their neighbors, 47.05% recorded moderate relationships with their workmates, 56.89% had good relationships with their family members, and 49.02% declared good relationships with their employers.

Table 2. Number and percentage of health behavior, physical health, and health information (n=610).

Health behavior, physical health, and health information	Number	Percentage
Meals per day in past month		
< 3	131	21.48
3	450	73.77
> 3	29	4.75
Exercise in past month		
No	227	37.21

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Yes	383	62.79
Problems with not sleeping well		
No	259	42.46
Yes	351	57.54
Tobacco used		
Non-smoker	390	63.93
Former smoker	17	2.79
Smoker	203	33.28
Physical health		
Not strong	5	0.82
Moderate	229	37.54
Strong	376	61.64
Chronic illness		
No	511	83.77
Yes	99	16.23
Received health-related information		
No	230	37.70
Yes	380	62.30
Received health information materials in Myanmar language		
No	174	28.52
Yes	436	71.48

Table 3. Numbers and percentages classified by environment and relationship factors (n=610).

Environment and relationship factors	Number	Percentage
Type of community		
Myanmar workers community	323	52.95
Urban community	148	24.26
Rural community	100	16.39
Semi-urban, semi-rural community	37	6.07
Others	2	0.33
Type of residence		
Worker camp	447	73.28
Shared rental house	88	14.43
Detached rental house	66	10.82
Apartment	5	0.82
Others	4	0.66
Live with		
Family	397	65.08
Friend	168	27.54
Alone	43	7.05
Others	2	0.33
Environmental problems in housing		
Low	548	89.84
Moderate	57	9.34
High	5	0.82
Nature of workplace		
Outdoor	213	34.91
Both outdoor and indoor	187	30.66
Indoor	182	29.84
Others	28	4.59
Environmental problems in workplace		
Low	560	91.80
Moderate	50	8.20
High	0	0
Perceived relationship with neighbors		
Poor	49	8.03
Moderate	308	50.49

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Environment and relationship factors	Number	Percentage
Good	253	41.48
Perceived relationship with workmates		
Poor	48	7.87
Moderate	287	47.05
Good	275	45.08
Perceived relationship with family		
Poor	44	7.21
Moderate	219	35.90
Good	347	56.89
Perceived relationship with employer		
Poor	52	8.52
Moderate	259	42.46
Good	299	49.02

Figures 1 and 2 show that 14.43% (95%CI: 11.85-17.45) of participants were addicted to alcohol, with 61.00% (95%CI: 57.04-64.78), 38.20% (95%CI: 34.41-42.12), and 0.80% (95%CI: 0.34-1.95) experiencing low, moderate, and high impacts, respectively.

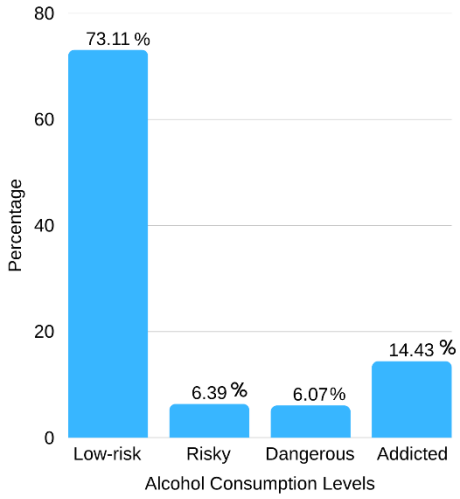

Figure 1. Alcohol consumption levels among migrant workers (n=610).

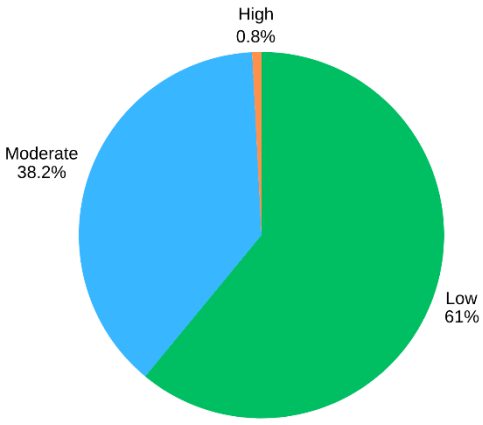

Figure 2. Impact levels from alcohol consumption (n=610).

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Regression analysis (Table 4) indicates that alcohol addiction increased the likelihood of experiencing health, family, and social problems by 1.70 times compared to low-risk drinkers. Risky drinkers had a 1.65 times higher likelihood of such issues. Rural residents were 6.52 times more likely to be affected by alcohol than urban dwellers, and Myanmar migrant workers had a 1.31 times higher probability of being impacted. Those with moderate/high housing issues were five times more likely to be affected by alcohol. Workers exceeding eight hours' work a day and those working daily were both 2.39 times more likely to face alcohol-related problems. Sleep disturbances increased the likelihood by 2.09 times, while individuals with poor/moderate health had a 2.11 times higher risk. Poor relationships with co-workers raised the likelihood by 1.89 times.

Table 4. Association between alcohol consumption, environment, and outcome variables (n=610).

Factors	Number	% Moderate-high impact	Crude OR	Adj. OR	95% CI	p value
Level of alcohol consumption and environmental factors						
Level of alcohol consumption						0.020
Low-risk drinker	446	34.30	1	1	1	
Risky–dangerous drinker	76	38.16	1.18	1.65	1.08–2.52	
Addicted to drinking	88	63.64	3.35	1.70	1.61–1.79	
Type of community						< 0.001
Urban community	148	11.49	1	1	1	
Myanmar workers community	323	40.25	5.19	1.31	1.20–1.42	
Rural community or other	139	65.47	14.60	6.52	4.35–9.77	
Environmental problems in housing						< 0.001
Low	548	34.49	1	1	1	
Moderate/high	62	79.03	7.15	5.00	2.70–9.24	
Other covariates						
Period of work (hours per day)						0.044
≤ 8	480	30.83	1	1	1	
> 8	130	69.23	5.04	2.39	1.02–5.60	
Amount of time to work (day/week)						<0.001
≤ 6	521	33.01	1	1	1	
Everyday	89	74.16	5.82	2.39	1.64–3.49	
Problems with not sleeping well						<0.001
No	259	25.10	1	1	1	
Yes	351	49.29	2.90	2.09	1.51–2.90	
Physical health						<0.001
Strong	376	25.80	1	1	1	
Not strong/moderate	234	60.26	4.36	2.11	2.02–2.22	
Relationships with co-workers						<0.001
Good	275	30.91	1	1	1	
Moderate/poor	335	45.67	1.87	1.89	1.88–1.90	

Crude OR = Crude Odds ratio; Adj. OR = Adjusted odds ratio; 95% CI = 95% Confidence interval.

4. Discussion

This study provides one of the most comprehensive analyses to date on the multifaceted impacts of alcohol consumption among Myanmar migrant workers, highlighting the novel and underexplored influence of addicted to drinking, housing conditions and community context on health and social outcomes. The findings contribute new insights into how personal, occupational, and environmental factors interact to shape alcohol-related harms in this vulnerable population and offer evidence-based directions for targeted public health interventions. Multiple contributing factors—such as alcohol dependence, inadequate living conditions, excessive workload, physical ailments, sleep problems, and poor interpersonal relationships at work—were likely associated with these adverse outcomes.

Alcohol consumption among Myanmar migrant workers resulted in moderate to high health and social impacts, reported by 39.02% of participants. This supports previous studies showing that

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migrant workers often face negative outcomes from drinking [30]. Mental health issues such as depression, anxiety, and substance dependence are common among alcohol users and are often neglected due to limited healthcare access and stigma. Alcohol misuse also undermines economic stability by reducing productivity, increasing job loss risk, and lowering remittances to families [31]. Additionally, it raises the risk of workplace accidents, further compounding health and financial vulnerabilities [30].

A key contribution of this study is the identification of community characteristics—particularly rural settings—as the most significant determinant of alcohol-related impacts. Myanmar migrant workers residing in rural areas were more affected by alcohol than those in urban or semi-urban locations. Evidence suggests that rural residents tend to drink more, increasing their risk of liver disease, mental health problems, and injuries, while limited access to healthcare makes treatment more difficult [32,33]. Family separation and financial stress caused by migration also contribute to higher alcohol consumption as a coping mechanism [31,34]. Moreover, cultural norms further normalize drinking, exacerbating its harmful effects [32].

The residential environment emerged as the second most influential factor in shaping alcohol-related health and social outcomes. Workers with poor or moderate home environments faced significantly higher risks than those in more stable conditions. Dissatisfaction with housing and overcrowding have both been linked to higher levels of alcohol use among migrant populations [11,35]. Substandard housing—characterized by limited space, noise, and poor environmental quality—reduces individuals' sense of control and contributes to chronic stress. These conditions are closely associated with depression, anxiety, and the use of alcohol as a maladaptive coping strategy [36–38]. **Furthermore, workplace stressors interacting with social vulnerabilities (e.g., poor housing) predict problem drinking; household stressors compound work-related stress, escalating alcohol-related risks** [39,40]...

This study also found that alcohol addiction raised the likelihood of experiencing alcohol-related consequences by 1.70 times compared to low-risk drinkers. These behaviors were strongly associated with adverse health conditions, impaired family relationships, and negative social consequences. This aligns with previous findings from Myanmar and Nepal, where heavy drinking has been linked to violent incidents and domestic abuse, especially among women whose spouses consume alcohol regularly [6,41]. Furthermore, high-risk drinkers had 22 times more work absences than low-risk drinkers [42].

Interpersonal dynamics in the workplace also played a key role. Poor or moderate relationships with co-workers increased vulnerability to alcohol-related harm. Prior research shows that negative workplace relationships can lead to elevated stress, low job satisfaction, and poor organizational commitment [43,44], which may drive alcohol use as a coping mechanism. Furthermore, individuals with limited workplace support may struggle to address alcohol-related challenges effectively [45].

Interestingly, structural labor conditions such as employment status, legal documentation, and health insurance coverage did not significantly correlate with alcohol-related outcomes. These factors may shape overall health contexts but do not directly prevent alcohol-related harm, which is more strongly influenced by individual behaviors and social conditions. However, the nature of work—specifically long working hours and lack of rest days—was strongly associated with negative effects. Those working more than eight hours daily or with no regular rest were more likely to experience alcohol-related problems, mirroring findings from studies in South Korea and Norway [25,46].

While access to health information did not show a significant relationship with alcohol-related outcomes, previous studies have indicated that migrant workers often consume alcohol primarily for social interaction rather than as a means to cope with stress or enhance positive emotions [10]. This socially motivated drinking behavior appears largely unaffected by health information access.

However, individual health behaviors and physical health status emerged as key predictors. Participants with sleep problems were more likely to be affected by alcohol, which is consistent with studies indicating a strong link between heavy drinking and sleep disturbances, especially among men [47,48]. Furthermore, individuals with poor or moderate physical health were more vulnerable to

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alcohol-related harm, particularly when preexisting conditions such as hypertension, dyslipidemia, or liver abnormalities were present [49,50]. The interplay between alcohol use and physical illness can be particularly detrimental for individuals with coexisting mental health conditions, further exacerbating their health burden [49]. Compounding lifestyle factors—such as smoking, lack of exercise, and poor diet—contribute to this dynamic [7]. Similarly, in the present study, one-third of workers had physical health problems, had not exercised in the past month, used tobacco, and experienced inadequate sleep. These converging risks intensify the health impacts of alcohol and highlight the importance of holistic health promotion strategies.

These findings strongly align with the framework of the Social Determinants of Health (SDH), which emphasizes that health outcomes are not solely the result of individual behaviors but are shaped by the broader social, economic, and environmental conditions in which people live and work. In this study, determinants such as housing quality, rural community context, workplace dynamics, access to social support, and working hours significantly influenced the health and social consequences of alcohol use. The disproportionate burden of alcohol-related harm among Myanmar migrant workers underscores the importance of addressing upstream structural conditions—such as inadequate housing, social isolation, and employment conditions—rather than focusing only on individual-level interventions. Integrating SDH-informed strategies in public health policies and interventions could enhance their effectiveness and sustainability in reducing alcohol-related harm in vulnerable migrant populations.

This study offers crucial insights for improving migrant workers' health. Longitudinal research is needed to explore causal links between workplace stressors, housing, and alcohol use. Practical interventions—such as peer support groups, improved housing, and trained workplace health volunteers—can mitigate alcohol-related harm. Policy efforts should prioritize safe, hygienic housing and work-life balance. Education should address alcohol's health and social impacts while promoting coping strategies and employer-led support.

Key strengths include its focus on an underrepresented population and use of culturally sensitive data collection, enhancing trust and data accuracy. However, findings may not generalize across all migrant groups, and the cross-sectional design limits causal interpretation.

5. Conclusions

This study highlights the significant impact of alcohol consumption on the health, social, and occupational well-being of Myanmar migrant workers in Thailand. Approximately two-fifths of the migrant workers experienced moderate to high levels of impact from alcohol consumption. These impact levels were significantly associated with alcohol addiction, rural residency, and inadequate housing conditions. Additional contributing factors included long working hours, frequent workdays, poor physical health, sleep disturbances, and strained relationships with co-workers. These findings underscore the need for integrated public health interventions that address both alcohol use and its underlying environmental and occupational determinants. Improving living and working conditions, alongside culturally tailored health promotion, is essential to reducing alcohol-related harm in this vulnerable population.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Research Ethics Committee of Rajabhat University (SRU-EC2023/119, 11 September 2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original contributions presented in this study are included within the article, and raw data supporting the findings of this study will be made available by the corresponding authors upon reasonable request. Further inquiries may be directed to the corresponding authors.

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Abbreviations

Crude OR	Crude Odds ratio
Adj. OR	Adjusted odds ratio
95% CI	95% Confidence interval
AUDIT	Alcohol Use Disorder Identification Test
GLMM	Generalized Linear Mixed Model

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