Understanding Accessibility to Medical and Healthcare Services for Informal Workers in Bangkok During the COVID-19 Outbreak

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Abstract

The study aims to (i) investigate the knowledge and understanding of Coronavirus disease (COVID-19), (ii) examine the ability of self-protection against the pandemic, and (iii) study the practices of seeking medical and healthcare services during the outbreak, focusing on informal labors from five selected districts within Bangkok, Thailand. The 360 participants of this study were queried using expert-validated questionnaires to collect data according to the study framework. One-Way ANOVA was employed for testing hypotheses. The samples with different personal factors had no statistically significant difference in the knowledge and understanding of the COVID-19 pandemic. In contrast, the workers with different academic levels showed a statistically significant difference in the extent of knowledge and understanding on self-protection against COVID-19 outbreak. The workers with different academic levels and occupations were significantly different in the extent of knowledge and understanding on rights to Universal Coverage Scheme. The recommendations were developed in various forms: actionable policy, for example, providing access to information on universal healthcare and ensuring social protection and health security; practical recommendations, such as enhancing information on self-protection against COVID-19 and providing primary healthcare services; and academic suggestions to future research.

Keywords

Coronavirus Disease 2019; informal workers; right to health

Introduction

An outbreak of the novel coronavirus (2019-nCoV), officially named Coronavirus disease (COVID-19), was first identified in Wuhan, China, in late 2019 and has rapidly spread to nearly all countries around the globe (World Health Organization, 2021). The severity of the pandemic, including infection rates, deaths, and virus mutations, steadily increases and significantly impacts all dimensions of the global community. The proliferation of the COVID-19 pandemic reflects the international community's confrontation with emerging infectious diseases in the economic, social, and cultural contexts with rapid and complex changes (Soonthornchawat & Chanthong, 2020).

According to the various studies on the impact of COVID-19, the pandemic is seriously affecting the physical and mental health of workers in Asian countries with both present health issues and once infected with COVID-19. Chew et al. (2020) presented that the pandemic caused post-traumatic stress disorder (PTSD) among Vietnamese workers, including a lower prevalence of depression and anxiety among these same workers in Singapore. Dang et al. (2020) confirmed that the COVID-19 pandemic reduced the quantity and quality of workers, in addition to the stigmatization of those in the workplaces and society who were infected with COVID-19.

In Thailand, this pandemic revealed social vulnerabilities, especially inequality in access to the healthcare system, the basic welfare for which all Thai citizens are eligible. The present study is particularly concerned about informal laborers, who are more vulnerable than fixed salary workers in other sectors, and their access to information concerning self-protection against COVID-19 under economic pressures from the government policy to prevent the spread of the virus. Sociodemographic characteristics of informal workers, namely education level, lower wages, health problems, healthcare behaviors, and accessibility to healthcare services, show that informal laborers are reported to face difficulties related to healthcare (National Statistical Office, 2019). This group is estimated to be at even higher risks for the person-to-person transmission of COVID-19. Informal laborers are among those easily susceptible to the infection. At the same time, they have higher chances to transmit the virus since informal workers often operate their businesses in an open environment and since their working conditions require meeting many people.

The present study primarily examines people at risk for COVID-19 infection, focusing on informal laborers in the self-employed group (e.g., taxi drivers and street vendors) who have lower incomes and work closely with Chinese tourists in Bangkok's high-risk areas. These areas have the highest number of arrivals of Chinese tourists during the outbreak. The domains of the study include 1) the workers' access to healthcare services, 2) their knowledge of the coronavirus pandemic, and 3) their ability of self-protection against the infection and practices to access medical and healthcare services.

The results can shed light on discrepancies, inequality, and challenges in delivering equitable medical and healthcare services and social welfare provisions. This understanding should lead to timelier and more appropriate guidelines to prevent at-risk people from infection or transmission of the disease or provide them with certain assistance. This perception should also be expected to unveil critical information for decision-making about health and social welfare

policies to prevent communicable diseases from spreading and decrease inequality in the healthcare system.

Objectives of the Study

The objectives of this study were to investigate the extent of knowledge and understanding of the COVID-19 pandemic among informal workers in Bangkok, especially self-employed persons; to examine the ability of self-protection against the COVID-19 pandemic among informal workers in Bangkok, especially self-employed persons; and to analyze the practices of seeking medical and healthcare services during the COVID-19 outbreak among informal workers in Bangkok, especially self-employed persons.

Scope of the Study

Data were collected explicitly in Bangkok due to its high volume of arrivals of Chinese tourists during the COVID-19 outbreak and being among the most at-risk cities from the global spread of the virus (Lai et al., 2020). Five of the 50 districts within Bangkok were selected based on their popularity as sightseeing and shopping destinations with Chinese tourists: Bang Kho Laem, Chatuchak, Pathum Wan, Phra Nakhon, and Samphanthawong Districts (Ministry of Tourism & Sports, 2019).

The focus of this study was informal laborers, especially self-employed persons, i.e., public transportation occupational drivers (taxi and motorcycle taxi drivers) and mobile and stationary street vendors, working in the explored locations during the COVID-19 outbreak (December 2019 - February 2020).

The present study covers issues that shape the conceptual framework for the research objectives, such as human rights in public health, quality of life and wellbeing, and welfare provision to empower informal workers. The literature review reflected on current situations of the target population's accessibility to healthcare services, especially during the COVID-19 pandemic, including receiving accurate knowledge about the virus, practices in seeking healthcare services, and self-protection against virus infection.

Expected benefits and application

The key findings of this study could facilitate evidence-informed policymaking to assist informal workers in effectively accessing healthcare services during- and post-COVID-19 situations. The results from informal workers in Bangkok affected by the COVID-19 pandemic could be extended to cover similar target groups in other locations. The results obtained from informal workers in Bangkok affected by the COVID-19 outbreak could be further developed into studies on other similar dimensions, such as impacts from environmental changes affecting informal workers' health and livelihood.

Literature review

The review of related literature intriguingly revealed that there are a large number of informal workers working in different regions throughout Thailand. Although the number of informal laborers in the agricultural sector is the highest compared with those in other sectors, it is found that, in Bangkok alone, the sector of informal laborers share nearly the same ratio as other workers (Ministry of Labor, 2017; National Statistical Office, 2016). The majority of informal workers in Bangkok labor as occupational drivers, such as motorcycle taxis, car or taxi drivers, and merchants, including mobile and stationary street vendors. Economically speaking, these workers majorly generate large cash flows and expenditures circulating daily in the grassroots economy. However, this population is more likely to experience occupational hazards than other workers, whereas their access to state welfare systems, particularly healthcare services, is more limited. The National Statistical Office (2016) estimated that over 50% of the Thai economy labor force comprises informal workers who are not entitled to legal protection and social security, especially health welfare and health insurance. Insufficient knowledge and understanding on how to exercise their rights and access to treatment in healthcare facilities prevent these workers from thoroughly enjoying the medical and public health benefits for which all citizens shall be eligible. Therefore, it can be assumed that these workers are vulnerable laborers susceptible to political policies, marketing, and employers (Nirathron, 2014; Reed, 2017).

Moreover, additional information was obtained regarding the prevalence and proliferation of the Coronavirus disease 2019 and its impact on informal workers, especially self-employed persons, the present study's target group, including occupational drivers (taxi and motorcycle taxi drivers), and mobile and stationary street vendors. It is found that studies and statistics on Thailand from both the public sector and non-governmental organizations reflect daunting facts that the COVID-19 pandemic directly impacts informal workers, such as the inability to work usually due to the government regulations on COVID-19 pandemic prevention in public areas. The Declaration of an Emergency Situation in all areas of the Kingdom of Thailand (Council of Ministers, 2020) ordered specific prohibitions and restrictions: closure of department stores and services, except for those related to consumer goods; strict screening for all foreign arrivals and departures; notices on caution and surveillance to detect infected patients; establishment of emergency operation centers; issuance of a list of countries and territories at risk of infection; and, encouraging public cooperation in preventing the spread of the infectious disease.

The Emergency Decree caused a temporary halt of many small businesses and, in turn, forced informal workers working in such premises to become unemployed instantly (Foundation for Labor and Employment Promotion, 2021; International Labour Organization, 2020; Thai Civil Rights and Investigative Journalism, 2020). There is also an increased expense due to the purchase of higher-than-usual-priced personal protective equipment during the first outbreak, caused by the said workers' inaccessibility to the state health service system. Pokaianan (2020) stated that although informal workers can receive healthcare services by exercising their entitled rights (such as the Universal Coverage Scheme (UCS), also known as the gold card or 30-baht scheme), a significant impact on them still contains expenses arisen from self-protection against the pandemic, including masks, alcohol gel and detergents, along with fixed expenses such as housing, food for household members, and other consumption costs under the COVID-19 crisis.

Human rights are the rights of each person as a human being, such as the right to live as a person. The right to coexistence in society is a fundamental right that enables human beings to live—being protected and being met with the basic needs of life. Human rights arise from the view that all life is of equal value. As found in the National Human Rights Commission Act, B.E. 2542 (1999), whether they are ordinary people or special people with disabilities, or the elderly, all have the right to be treated equally, able to live and develop themselves according to the correct approach without contravening the Constitution or the good morals of the society (National Human Rights Commission of Thailand, 1999).

The right to health is a product of social mechanisms that enable human beings to live equally with all human rights. The Universal Declaration of Human Rights (UDHR) declared in 1948 that health litigation arising in many areas and situations worldwide, and the fundamental concepts that create the right to health, have produced two broad guidelines to classify health rights (United Nations, 2020). First, the UDHR restricts the role of medical partitioners concerning human abuse, such as abuse in medical trials or the use of vulnerable groups as subjects who are less likely to refuse abuse. Second, efforts to promote the right to health equally exist for all people and in all relevant forms. As the World Health Organization states, the consideration of human health must include spiritual, physical, and social dimensions (Krisnachuta et al., 2007).

The concept of human rights in public health concerns hardship mitigation and wellbeing enhancement or relieving human suffering by rights to which everyone is entitled, in order to protect human dignity, to contribute to equal, accurate, and proper provision of healthcare to all people in all dimensions, and to comply with public health standards. The concept of quality of life and wellbeing combines definitions of quality of life and health (Krisnachuta et al., 2007; Thapanadul, 2017). The World Health Organization defines health as not simply an absence of diseases but a state of complete physical, mental and social wellbeing. This is consistent with the definition of quality of life: perception of individual satisfaction and status of living in a society that associates with one's own goals and expectations within a cultural context, value, social norm, and the like (World Health Organization, 2012). Based on the merged concepts above, the conceptual framework of the present study shows that informal workers in Thailand do cover not only the target groups and samples of this study but also involve some other dimensions. These additional features include disparities with accessibility to human and civil rights for appropriate medical and healthcare assistance, lack of knowledge, awareness and priority of promoting health protection, and vulnerable quality of life that needs to be developed, empowered, and improved to be more suitable for informal workers. All those concepts are developed to the study's variables to test the research hypotheses and answer the research objectives.

Ethical consideration

As the present study investigates information and opinions of the target population, to protect the participants' rights and to comply with Thammasat University Procedure of Ethical Research Involving Human Subjects, the researchers duly sought and received approval (Number 024/2563) from the Human Research Ethics Committee of Thammasat University, No. 2 (Social Sciences).

Methods

The present study is a quantitative research using a survey method.

Population and sample

Three population groups include personal public transportation occupational drivers (taxi and motorcycle taxi drivers), stationary vendors, and mobile street vendors, working in the studied locations during the COVID-19 outbreak (December 2019 - February 2020). Considering only the target group that meets the study criteria, it is estimated that the population comprises 151,503 workers, consisting of 62,222 taxi drivers and 81,781 motorcycle taxi drivers (Department of Land Transport, 2020), and 7,500 stationary and mobile street vendors (National News Bureau of Thailand, 2018). Yamane's calculation formula (Yamane, 1967) with a 0.95 confidence level was used for sample selection with 400 as the calculated number of samples. Still, as a sampling frame for the informal labor target group is not available, probability sampling was applied instead. However, to ensure that the data obtained could meet research objectives and reflect spatial diversity, multistage sampling was employed:

Step 1: Samples in five high-risk districts within Bangkok were identified as the location for data collection.

Step 2: Quota sampling was conducted by evenly setting the number of samples, 80 participants, for each district from Step 1.

Step 3: Accidental sampling was performed by collecting data from the defined samples, namely stationary street vendors, mobile street vendors, taxi drivers, and motorcycle taxi drivers, within communities, markets, motorcycle taxi stations, and taxi stands, given that these locales are where many individuals gather to operate their businesses.

Tools

A structured questionnaire was used as a data collecting tool, with questions developed based on the research objectives and conceptual framework. The questionnaire structure was divided into two main parts. Part 1, the Close-Ended Questionnaire, consisted of multiple-choice questions and rating scale items that required respondents to choose an answer that most reflects their opinion (Tirakanant, 2007, p. 23). The quality of the tool used in this study was verified by using the Index of Item-Objective Congruence (IOC) method. The questionnaire items showed the IOC value of 0.7-0.8. Cronbach's Alpha Coefficient analysis was used to confirm the overall validity of the questionnaire. It was found that the reliability level of the questionnaire was at 0.82. In addition, the reliability of the items in the knowledge and understanding section was also measured by using Kuder-Richardson (KR20) calculation formula, where the reliability value was set at 0.7. The values of each subsection were acceptable according to the requirements of the study: knowledge and understanding on COVID-19 pandemic items scored KR20 of 0.78, knowledge and understanding on self-protection against COVID-19 pandemic items scored KR20

of 0.75, and knowledge on how to receive the UCS benefits items scored KR20 of 0.71. Part 2, the Open-Ended Question, provided the opportunities for samples to give more information about the effects of the pandemic on their rights of health and needs.

Hypotheses

The three hypotheses of the present study are as follows:

(1) Different personal factors and current rights and access to healthcare services of informal workers contribute to different means of extent of knowledge and understanding of COVID-19 pandemic.

(2) Different personal factors and current rights and access to healthcare services of informal workers contribute to different means of extent of knowledge and understanding of self-protection against COVID-19 pandemic.

(3) Different personal factors and current rights and access to healthcare services of informal workers contribute to different means of extent of knowledge of health practices during illnesses and accessibility to medical and healthcare services (comparing only knowledge on how to receive the Universal Coverage Scheme [UCS] benefits).

Data analysis

Data analysis in the present study consists of descriptive and inferential data analysis. Descriptive statistics were used in analyzing basic statistics such as total number, maximum value, minimum value, variance, and mean. They reflect some basic information obtained from the samples but do not lead to population outcomes. Data analysis with inferential statistics using one-way analysis of variance (ANOVA) and T-test was conducted to compare mean values of independent and dependent variables to verify a significant difference between the two variables. The Statistical Package for the Social Sciences (SPSS version 26) software package (IBM Corp, 2019) was used in this analysis.

Results

Basic information

Preliminary survey results showed that data could be collected in the five chosen districts within Bangkok, namely Bang Kho Laem, Pathum Wan, Samphanthawong, Chatuchak, and Phra Nakhon. The total number of samples was 360 (90% of the target sample group), with more males than females. The missing data is caused by incomplete questionnaires that cannot be analyzed. In addition, there were no participants who, after answering the questions, did not wish to participate until the end of the study. The youngest age of the respondents was 20, while the

oldest was 67, and the mean age was around 50. The highest academic level of the majority of the sample population was at a high vocational certificate level, followed by nearly the same number at primary education grade 6 and vocational certificate levels. More than half of the respondents reported being married, followed by single and divorced, respectively.

About half of the respondents worked as occupational drivers, with 120 taxi drivers and 78 motorcycle taxi drivers, while the other half worked as mobile and stationary street vendors. The average daily income of these self-employed persons was 723.61 Thai Baht (~US$ 22), with the lowest daily income was no income at all, and the highest income was 3,500 Thai Baht (~US$ 105). Some samples reported having additional income from other remunerations, such as tips, with an average of approximately 68 Baht (~US$ 2) per day, with the lowest additional payment was 20 Thai Baht (~US$ .60), and the highest was 200 Thai Baht (~US$ 6). All samples had an average working time of 10.15 hours per day, with the shortest daily working time was 6 hours and the longest was 15 hours. An average rest break of about 55 minutes per day with the shortest daily rest break was 10 minutes while the longest was 90 minutes.

Hypothesis testing

Hypothesis 1: Different personal factors (e.g., gender, academic level, occupation, and the informal workers' current rights and access to healthcare services) of the informal workers showed different relationships with the levels of knowledge and understanding of the COVID-19 pandemic. The analysis of the differences between the four independent variables and the dependent variable, namely the average level of knowledge and understanding of the COVID-19 pandemic, showed no statistically significant difference. Therefore, it can be concluded that the results rejected this hypothesis.

Hypothesis 2: Different personal factors and current rights and access to healthcare services of the informal workers had different relationships with their extents of knowledge and understanding of self-protection against the COVID-19 pandemic. The analysis of the differences between the four independent variables and the dependent variable, which was the average extent of knowledge and understanding on self-protection against COVID-19 pandemic, demonstrated that there was a statistically significant difference at 0.05 between the different academic level variables of the samples and their extents of knowledge and understanding on self-protection against COVID-19 pandemic.

As illustrated in Table 1 below, the variance was 3.26 (F = 3.26), while the significance value was below .05 (Sig = .041). The mean levels of knowledge and understanding on self-protection against the COVID-19 pandemic by the participants' educational levels were as follows: below primary education Grade 6 ($\bar{x}$ = 2.31), primary education Grade 6 ($\bar{x}$ = 1.48), lower secondary education ($\bar{x}$ = 1.46), upper secondary education ($\bar{x}$ = 1.42), vocational certificate ($\bar{x}$ = 1.48), high vocational certificate ($\bar{x}$ = 1.47), undergraduate diploma ($\bar{x}$ = 1.45), and bachelor's degree ($\bar{x}$ = 1.42). With these results, a pairwise comparison of the means was then performed using the least significant difference (LSD) method to compare differences between two averages (Table 2). Therefore, it can be concluded that the results accepted Hypothesis 2.

Table 1: Average Extent of Knowledge and Understanding of Self-Protection Against COVID-19 Pandemic Classified by Academic Levels

Academic Levels	$\bar{x}$	S.D.	F	Sig.
Below primary education Grade 6	2.31	.76		
Primary education Grade 6	1.47	.59		
Lower secondary education	1.46	.73		
Upper secondary education	1.42	.35		
Vocational certificate	1.48	.58	3.26	.041*
High vocational certificate	1.44	.69		
Undergraduate diploma	1.45	.72		
Bachelor's degree	1.48	.74		
Total	1.57	.75		

*Note: *p <.05*

It can be seen in Table 2, which shows the pairwise comparison of the means by LSD method, that the samples with an academic level of lower than primary education Grade 6 had a lower mean of the extent of knowledge and understanding on self-protection against COVID-19 pandemic than the samples with higher education at all levels and the difference was statistically significant. On the other hand, other academic levels did not appear to have a statistically significant difference in the mean extent of knowledge and understanding on self-protection against the COVID-19 pandemic.

Table 2: Pairwise Comparison of the Mean Extent of Knowledge and Understanding of Self-Protection Against COVID-19 Pandemic Classified by Academic Levels

Academic Levels	$\bar{x}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		2.31	1.47	1.46	1.42	1.48	1.44	1.45	1.48
Below primary education Grade 6	2.31	-	-	-	-	-	-	-	-
Primary education Grade 6	1.47	.44*	-	-	-	-	-	-	-
Lower secondary education	1.46	.30*	.03	-	-	-	-	-	-
Upper secondary education	1.42	.49*	.43	.54	-	-	-	-	-
Vocational certificate	1.48	.67*	-.63	-.56	-.55	-	-	-	-
High vocational certificate	1.44	.42*	.56	.08	-.87	.59	-	-	-
Undergraduate diploma	1.45	.57*	.39	.29	-.42	.64	-.24	-	-
Bachelor's degree	1.48	.39*	-.05	-.37	-.38	.03	-.54	-.67	-

*Note: *p-value <.05*

Hypothesis 3: Different personal factors and current rights and access to healthcare services of the informal workers showed different relationships with the extent of knowledge of health practices during illness and access to medical and healthcare services (UCS benefits only). The analysis of the differences between the four independent variables and the dependent variable, which was the average extent of knowledge on health practices during illness and access to medical and healthcare services (under UCS), revealed that there was a statistically significant difference at 0.05 between different academic level and occupation variables of the samples and their extents of knowledge on health practices during illness and access to medical and healthcare services (enjoying UCS benefits). Details are elaborated as follows.

The samples with different academic levels had different knowledge on health practices during illness and access to medical and healthcare services (under UCS). The difference was statistically significant at 0.05. As shown in Table 3, the variance was 4.04 (F = 4.04) while the significance value was below .05 (Sig = .033). The means of knowledge extent were as follows: below primary education Grade 6 ($\bar{x}$ = 2.09), primary education Grade 6 ($\bar{x}$ = 2.11), lower secondary education ($\bar{x}$ = 2.05), upper secondary education ($\bar{x}$ = 1.22), vocational certificate ($\bar{x}$ = 1.24), high vocational certificate ($\bar{x}$ = 1.26), undergraduate diploma ($\bar{x}$ = 1.23), and bachelor's degree ($\bar{x}$ = 1.20). With these results, a pairwise comparison of the means was then performed using the LSD method to compare differences between two means (Table 4).

Table 3: Means of the Extent of Knowledge of Health Practices During Illness and Access to Medical and Healthcare Services (Under UCS) Classified by Academic Levels

Academic Levels	$\bar{x}$	S.D.	F	Sig.
Below primary education Grade 6	2.09	.69		
Primary education Grade 6	2.11	.33		
Lower secondary education	2.05	.62		
Upper secondary education	1.22	.59		
Vocational certificate	1.24	.27	4.04	.033*
High vocational certificate	1.26	.64		
Undergraduate diploma	1.23	.54		
Bachelor's degree	1.20	.87		
Total	1.55	.65		

*Note: *p <.05*

It can also be seen from Table 4, which shows the pairwise comparison of the means using the LSD method that the samples with an academic level of lower than primary education Grade 6, primary education Grade 6, and lower secondary education had lower means of extent of knowledge of health practices during illness and access to medical and healthcare services (under UCS) than those with higher education at all levels and the difference was statistically significant. However, there was no statistically significant difference in the knowledge extent among the samples with the academic level of lower than primary education Grade 6, primary education Grade 6, lower secondary education, and no statistically significant difference among those with academic levels of upper secondary education and above.

Table 4: Pairwise Comparison of Means of Extent of Knowledge of Health Practices During Illness and Access to Medical and Healthcare Services (Under UCS) Classified by Academic Levels

Academic Levels	$\bar{x}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		2.09	2.11	2.05	1.22	1.24	1.26	1.23	1.20
Below primary education Grade 6	2.09	-	-	-	-	-	-	-	-
Primary education Grade 6	2.11	-.56	-	-	-	-	-	-	-
Lower secondary education	2.05	.78	.45	-	-	-	-	-	-
Upper secondary education	1.22	.09*	.59*	.54*	-	-	-	-	-
Vocational certificate	1.24	.67*	.63*	.56*	-.59	-	-	-	-
High vocational certificate	1.26	.77*	.61*	.38*	-.61	-.38	-	-	-
Undergraduate diploma	1.23	.98*	.84*	.16*	-.12	.67	.21	-	-
Bachelor's degree	1.20	.48*	.35*	.32*	.48	.06	.24	.85	-

*Note: *p-value <.05*

The samples with different occupations had different knowledge of health practices during illness and access to medical and healthcare services (under UCS). The difference was statistically significant at 0.05. As shown in Table 5, the variance was 3.82 (F = 3.82) while the significance value was below .05 (Sig = .049). The means of knowledge extent were as follows: occupational drivers ($\bar{x}$ = 2.65), stationary street vendors ($\bar{x}$ = 1.89), and mobile street vendors ($\bar{x}$ = 1.82). With these results, a pairwise comparison of the means was then performed using the LSD method to compare differences between two means (Table 6).

Table 5: Means of the Extent of Knowledge of Health Practices During Illness and Access to Medical and Healthcare Services (Under UCS) Classified by Occupations

Occupations	$\bar{x}$	S.D.	F	Sig.
Occupational driver	2.65	.76	3.82	.049*
Stationary street vendor	1.89	.53		
Mobile street vendor	1.82	.38		
Total	2.12	.57		

*Note: *p <.05*

It can be seen from Table 6, which shows the pairwise comparison of the means using the LSD method that the samples working as occupational drivers (taxi and motorcycle taxi drivers) had a lower mean of the extent of knowledge of health practices during illness and access to medical and healthcare services (under UCS) than those working as a stationary and mobile street vendor and the difference was statistically significant. On the other hand, there was no significant difference in the knowledge level among the fixed and mobile street vendors. Therefore, it can be concluded that the results accepted Hypothesis 3.

Table 6: Pairwise Comparison of Means of Extent of Knowledge of Health Practices During Illness and Access to Medical and Healthcare Services (Under UCS) Classified by Occupations

Occupations	$\bar{x}$	(1)	(2)	(3)
		2.65	1.89	1.82
Occupational driver	2.65	-	-	-
Stationary street vendor	1.89	.61*	-	-
Mobile street vendor	1.82	.58*	.07	-

*Note: *p-value <.05*

Discussion

Based on the statistical analysis, it can be related to the information dissemination found in the survey. Information provision conducted by agencies from various sectors was adequate, enabling the public, especially informal workers, to access information and recognize the nature of the pandemic proliferation. This is consistent with the results of the first part of the present study, which found that informal workers could answer most of the questions correctly, especially primary symptoms and transmission of infectious respiratory diseases (e.g., influenza). It can be considered as a constant source of health information from the country's public health

agencies at various levels. Exceptionally, Thailand's Centre for COVID-19 Situation Administration (CCSA) has unceasingly provided such information via all channels since the earliest outbreak of this pandemic at the end of 2019 (Glomjai et al., 2020; Sommang, 2014).

However, the findings showed that different academic levels of informal workers were a significant factor contributing to the differences in their knowledge and understanding of self-protection against the spread of such virus and the awareness of their health rights. This is consistent with the study conducted by Glomjai et al. (2020). They found that many medical and public health studies demonstrated that different ages and academic levels were likely to show significant differences in knowledge and understanding of disease prevention and control and were likely to predict individual behaviors in health practices for self-protection against infection.

Considering other countries in ASEAN, such as Vietnam, the knowledge of COVID-19 is shared with the people through mass media and peer-educators, especially the knowledge of the outbreak and the hygiene practices to protect the COVID-19 infection (Tran et al., 2020). Research also suggested that the effective way to provide health education through the grassroots level of society is through accessible channels, such as online media, newspapers, and television (Nguyen et al., 2021). Lieutenant General (Ret) Terawan Agus Putranto, Former Minister of Health, Indonesia and Chair of the ASEAN Health Ministers Meeting, as well supported community and primary healthcare as the effective systems to provide health education about COVID-19 to national according to the ASEAN context (Putranto, 2020).

Similarly, the occupation variable also showed that different occupations of the informal workers associated with different average extents of knowledge and understanding of Universal Coverage Scheme benefits. It was found that occupational drivers (taxi and motorcycle taxi drivers) had a lower degree of knowledge of UCS benefits than other occupation groups. This is consistent with a case study conducted by Chansukree et al. (2017) on those eligible for the universal health coverage scheme and the inequality in healthcare service accessibility in Thailand. They found that different occupations contributed to different perceptions and access to the universal health coverage scheme where small-scale traders or freelancers and labor sector workers or self-employed persons had lower access to healthcare services than other occupations. Therefore, it can be assumed that the social characteristic factor of the population, particularly educational and occupational restrictions, was significant in recognizing and understanding rights to public health to which all persons shall be equally entitled.

The findings analyzed above correlated with the principles of human rights and rights to health that share the same ultimate goal: hardship mitigation and wellbeing enhancement, relieving human suffering by rights to which everyone is entitled, to protect human dignity, to contribute to equal, accurate, and proper provision of healthcare to all persons in all dimensions, and to comply with public health standards. It was found that Thailand has made great efforts in enhancing all Thais to enjoy and access rights to health, a fundamental right according to the principle of human rights, at several levels, both policy and operational levels (Wattanapa, 2015). The country has also strived to establish health networks and push forward community-based health system mechanisms through community and volunteer networks to access their right to health (Phoolcharoen, 2001).

However, specific gaps still existed to hinder access to such rights, especially those working in the informal sector. Those working in the informal sector had various complication factors and are different from those working in the formal sector. Such extraneous factors included lack of education, failure to have a welfare system at work, inaccessibility to health information, and uncertain income restrictions. These are all key factors unconducive to informal workers' accessibility to their rights or decision-making to seek medical or healthcare services for which they are eligible. The COVID-19 pandemic situation indicated the informal workers' restrictions on equally receiving healthcare services. This included inaccessibility or difficult accessibility to medical equipment and supplies used for self-protection against infection, including accurate information and understanding of disease proliferation and health practices to reduce such infection risks (Chanduoywit & Chonpitakwong, 2020).

Although the present study did not aim to investigate the issues of quality of life and well-being of informal workers directly, its findings and previous studies related to informal workers' well-being revealed a reasonable amount of information that points to the same direction (Department of Industrial Promotion, 2006; Nirathron, 2005, 2014). Comparing the World Health Organization's five domains of quality-of-life indicators (physical health, psychological health, level of independence, social relationships, and environment) with Thailand's five dimensions of wellbeing (physical, mental, spiritual, social, and intellectual wellbeing), it was found that indicators related to the physical and environmental health of informal workers revealed some information that, in most cases, their physical health did not comply with the specified indicators.

There were reported work-related illnesses, such as the improper lifting of heavy objects, prolonged static postures, and unhealthy food consumption. Although symptoms did not reach a level that impedes livelihood nor working, they incurred expenses for repeatedly treating and relieving such pains. These ailments were often associated with informal workers' exposure to unhealthy work environments, such as air and noise pollution and various hazardous chemicals. Additionally, during the COVID-19 pandemic, informal workers have been at higher risk for infection than employers in the formal economy because they tend to have higher vulnerability in quality of life than their counterparts.

Recommendations

Based on the present study's findings in comparison with the theoretical framework analysis, actionable policy, practical recommendations, and academic suggestions are developed as a proposed course of action to assist, support, and further improve the provision of health welfare for informal workers in various forms. Details are as follows.

Practical recommendations

Promotional health communication should be enhanced to disseminate information on self-protection against COVID-19 proliferation through various media used in public relations easily accessible to informal workers with a high-frequency access rate. It is not necessary to use expensive communication tools or modern technology to access them. Such information can be communicated via radio, television, print media, including outdoor advertising of various types

and sizes. At the same time, health communication can also employ modern information technology systems such as social media apps (e.g., Facebook, Line, Twitter, Instagram, TikTok). It is also essential to publicize information through these platforms since some informal workers have a fair understanding of how to use and often access those apps. However, these platforms may not be prioritized as the primary communication channel.

Healthcare services for COVID-19 testing and vaccination should be provided to informal workers in the areas. Their nature of work and risk of infection contribute to their high risk of accidental transmission of disease and being an asymptomatic carrier quickly spreading the infection further. Their working conditions require continual meetings with various people, no matter whether they have ever been to the high-risk areas or not. Informal workers all had economic restrictions for access to healthcare services in public or private healthcare facilities for infection testing as the examination cost was relatively high. Suppose they do not have a history of traveling to high-risk locations or close contact with people at higher risk. In that case, informal workers are almost without the opportunity to take an infection test. Therefore, relevant agencies should consider proactive action to establish local healthcare service units or mobile healthcare services for infection screening and testing specifically for self-employed persons. In addition, informal workers should be supported to have free access to healthcare services and prevent income loss as they do not have to waste their working hours traveling. This could also help create mechanisms for surveillance of infection among these informal workers and detect asymptomatic carriers of the coronavirus disease among them.

Policy recommendations

Accessibility to information on universal health coverage schemes should be increased. Increased dissemination of information on universal coverage benefits should be implemented to make them thoroughly known and realized among all informal workers. In particular, the right to medical care services and exercise them in different cases are the issues most informal workers lack accurate knowledge and understanding. Using a variety of media for public relations, such as direct communication through frontline health workers or related persons, together with traditional communication channels, such as radio, television, print media (e.g., brochures, posters, newspapers), plus modern communication channels using social media via various platforms, increases the opportunity and frequency of reaching the target audience at all levels in the present day (Puksawadde & Sastraruji, 2013).

The government should consider increasing the dissemination of information on health promotion and self-protection against illnesses to informal workers, particularly healthcare practices and occupational health and safety. Educating informal workers following the Public Information and Education guidelines is critical to be restructured from treatment-oriented information into health promotion to prevent new cases. This will bring about effective and sustainable solutions to informal workers' health problems and the public health system in general.

The government should set policies or regulations to increase health service units to cover all subdistricts or community levels. Venues to exercise rights to healthcare services should also be expanded to include private healthcare facilities and pharmacies. This is because the universal

health coverage scheme is mainly applicable to public healthcare facilities that are insufficient to accommodate informal workers' needs nor support their practices in seeking healthcare services. There should be a policy to ensure social protection and health security for informal workers because many do not have a wide variety of options to access medical and healthcare services. With income restrictions, these extra expenses and margins are the costs that often impact the basic cost-of-living expenses of informal workers. Therefore, the government must play a role in considering the provision of comprehensive and inclusive healthcare welfare. In addition to the welfare mentioned earlier, another priority is developing policy and operational guidelines of the public health system and related agencies to provide informal workers with access to universal health coverage rights as quickly and inclusively as possible. This will create sustainable health security for these workers.

Academic suggestions for future research

The findings of studies on both during- and post-COVID-19 impacts on informal workers demonstrate that informal workers are vulnerable laborers due to: (i) low and unstable incomes; (ii) no welfare coverage for many cases which those in the social security system and government employees have; and (iii) low savings with debts problems (Kapilakanchana & Nonthitipong, 2021; Nirathron, 2014). It can be assumed that informal workers are affected by the coronavirus proliferation in all dimensions, especially health, economic and social dimensions. Therefore, future studies should conduct a more in-depth investigation of potential impacts and challenges that may arise during and after the post-COVID-19 pandemic, encompassing all dimensions. This will eventually lead to an informed, practical guideline and welfare policy for informal workers.

For informal workers, studies on public health welfare systems should be conducted using various methodologies to obtain more diverse and in-depth information. Future studies should be developed into mixed-methods research using quantitative and qualitative research. Their scopes should also be expanded to cover a broader population, sample sizes, and health system factors, namely a multilevel perspective including institutional, organizational, and operational levels. This is to ensure that the findings could reflect the situation and other factors of the informal workers regarding the health system and occupational health welfare of the informal workers (Levesque et al., 2013).

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