COVID-19 information exposure, preventive health behavior, and perceived effect

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ABSTRACT

The coronavirus disease (COVID-19) outbreak has spread across the world. While there is no vaccine available, preventive health behavior is preferable. This study empirically investigated the COVID-19 information exposure, preventive health behavior, and perceived effects of the pandemic COVID-19 on Thai people based on age (generation), income, occupation, and residence area and relationship among them. Analyses of online survey data (n = 3,664) collected during the 2020 COVID-19 outbreak in Thailand showed that baby boomer and Gen X respondents equally had the same level of COVID-19 information exposure which was higher than those of Gen Z and Gen Y.Of all preventive health behavior, wearing a mask in public had the highest mean. Respondents who performed COVID-19 preventive health behavior at the highest level in each demographic category were Gen X, government officers and business owners, had incomes less than 15,000 baht and between 35000-44999 baht, and resided in the Central region. Respondents who had the highest level of perception of the effects on anxiety in different groups were Gen Z and retirees, received incomes less than 15,000 baht and resided in the Northern region. Respondents of different generations, occupations, incomes, and areas of residence had significant differences in perceived effects of the one-month lockdown extension on work. The level of information exposure for COVID-19 information was positively related to preventive health behavior. The level of media exposure for COVID-19 information was negatively related to perceived effects of one-month lockdown extension on stress/anxiety and on livelihood. Implications, contributions, and limitations were discussed

Keywords

COVID-19 information exposure; COVID-19 perceived effects; COVID-19 preventive health behavior

Introduction

News about the virus in China caught the attention of the global community in late January 2020 when the disease, later named COVID-19, was detected. Thailand was the first country that reported the first COVID-19 infection outside China (Sookaromdee & Wiwanitkit, 2020). Two cases that tested positive for SARS-CoV-2 at Bangkok International Airport on the 8th and 13th of January, 2020 were the first confirmed exported cases from China, suggesting early interational spread (Okada et al., 2020). Upon realizing the detrimental effects of the virus, China enforced on 23rd January 2020 a travel restriction in Hubei (Crossley, 2020). Massive optimum lockdown nationwide followed. On March 11, 2020 the World Health Organization declared the coronavirus outbreak a pandemic (WHO 2020) after Italy struggled to fight the disease.

COVID-19 has led to human suffering worldwide in terms of health and the economy. To slow down the infection, work and school closures, travel bans, and quarantines were mandated. All these methods were used in the early 20th century. Nothing is known about the disease; there is no vaccine or treatment and there is nothing in the 21st century tools to fight COVID-19. Those in use tend to be very economically disruptive (Baldwin & di Mauro, 2020).

As the COVID-19 situation escalated, governments worldwide imposed travel restrictions, mandatory quarantine procedures, and curfews and lockdowns in an attempt to slow the transmission of the virus. Thailand, like other countries in the world, implemented state of emergency measures such as temporary closure of schools and businesses and a curfew (Bangprapa, 2020a). The COVID-19 strategies of the World Health Organization were also taken into consideration. The lockdown policy remained despite the badly hit economy. Prime Minister Prayuth Chan-o-Cha vowed a "public health-led economy" (Banprapa, 2020b). The guidelines to help ease the difficulties of employee and employer during the business shutdown were initiated but seemed confusing and inadequate (Chunhakasikarn, 2020). Three important orders were ordered to manage the pandemic, among them was the Order of the Prime Minister No. 6/2563 on March 26, 2020, to establish the Centre for COVID-19 Situation Administration (CCSA) to oversee all national measures. One important responsibility of the Center was to give an official update on COVID-19 from all government concerned units.

Since the outbreak, studies about COVID-19 were conducted in the Thai context (Lekfuangfu, Piyapromdee, Porapakkarm, & Wasi, 2020; Okada et al., 2020; Sookaromdee & Wiwanitkit, 2020). Srichan et al. (2020) conducted a study to assess the level of knowledge, attitudes, and preparedness to respond to COVID-19 among people in poor economic conditions and with low education levels living near the border of China in northern Thailand. They found that 73.4% had poor knowledge of disease prevention and control, 28.5% had poor attitudes toward disease prevention and control, and only 13.6% had strong preparedness skills to prevent and control the disease. Factors associated with poor knowledge, poor attitudes, and poor preparedness skills in response to the epidemic are

education, occupation, income, and channel of receiving public health information.

While Thailand's statistics seemed minimal compared to other countries in the region and worldwide, the impacts are interconnected. Individual behavior depends upon beliefs, and these are subject to the usual cognitive biases. Data on information behavior, preventive health behavior, perceived impact of lockdown policy and projection of the pandemic control situation of the people nationwide support national policy management and public health implementation to appropriately respond to the outbreak in a timely and sustained manner.

During the outbreak, Thai people relied mainly on information, either from official sources and online communities, while waiting for vaccine, prevention measures such as social distancing and wearing mask were implemented. This study, therefore, aims 1) to compare the COVID-19 information exposure, preventive health behavior, and perceived effects of the pandemic COVID-19 of the Thai people in different ages (generations, education, occupations, and residential areas and 2) to determine the relationship between the COVID-19 information exposure, preventive health behavior, and perceived effects of the pandemic COVID-19 of the Thai people.

Theoretical Concepts and Framework

In a time of pandemic crisis, communication is one factor successful pandemic control and management. Lin, Savoia, Agboola, and Viswanath (2014) conducted a systematic review of 118 empirical studies that examined issues related to communication to the public during the H1N1 pandemic in 2009. They found that trust in public officials and source of information, worry and levels of knowledge about the disease, and routine media exposure, as well as information-seeking behavior, were related to a greater likelihood of adoption of recommended infection prevention practices. Lin, Jung, McCloud, and Viswanath (2014) indicated that differences among individuals and social groups in accessing and using the information on health and specific threats have an impact on knowledge and behavior of the people and these communication inequalities may hamper the strength of a society's response to a public health emergency. Several communicative theory such as media effects, uses and gratifications, political communication, and reinforcing spriral model are related to individual differences and social-context variables (Valkenburg, Peter & Walther, 2016).

During an outbreak, people are exposed to information of public health threats for self-protection and survival through daily routine or from the surrounding such as information about the government's social distancing. They also learn about recommendations from routine television watching, browsing websites and/or calling doctors to obtain information about vaccines against the disease. Preventive behavior of individuals from the information obtained to prevent a disease or limit contagion to other people is one important factor in preparedness outcomes resulting in compliance with the hygienic or immunization practices.

Preventive health behavior is "any activity undertaken by a person who believes himself to be healthy for preventing disease or detecting in an asymptomatic stage" (Kasl & Cobb, 1966). The Epidemiologic Triad Model is useful to identify three areas of potential intervention to reduce disease prevalence, whether infectious or non-infectious (Epidemiologic Triad, https://online.stat.psu.edu/stat507/node/25/; Leavell & Clark, 1965) which include: 1) host factors include age, sex, healthy behavior, and self-observation; 2) agent factors include disease prevention, practicing measures against risks leading to disease; and 3) environmental factors include keeping away from high-risk areas or participating in collective activities, controlling appropriate measures in accommodation, and strictly following epidemiology rules during the outbreak.

Besides its impact on public health, physically or mentally, this COVID-19 outbreak has significant negative economic consequences by forcing factories to shut down and disrupting global supply chains (OECD, 2020), inducing a fall in the efficient level of employment and working life in many ways, the negative consequences of which may be distributed unevenly (Lekfuangfu et al., 2020). The factors relating to the dynamics of the pandemic, such as infections, deaths, and recoveries, are monitored before formulating effective measures of diffusion mitigation to minimize the impact of the virus on public health including social distancing and lockdown policy (Alvarez, Argente, & Lippi, 2020). These policies, whether it be a partial or optimal lockdown, depend on the fraction of infected and susceptible in the population, fatalities of a pandemic, and the output costs of the lockdown. On a macro scale, this policy entails high costs for the national economy and supply chains and low sustainability in the long run, whereas on a micro-scale, they lead to various responses of individuals, from panic and fear to misinterpretation and disobedience. Badly informed people tend to panic or have highs tress levels, causing anxiety or aggression; not fully informed people seek further information on the Internet, which is full of diverse content, sometimes not easy to find and comprehend (Karnnowski, Wójta-Kempa, Płatek, & Czopek, 2020). The intensity of these impacts especially on economic growth (Guerrieri, Lorenzoni & Straub, 2020; Wyplosz, 2020) varies depending on the different characteristics of people such as gender (Wenham, Smith, & Morgan, 2020), duration of the pandemic, time of early intervention, etc. These literatures lead to the assumption that COVID-19 information exposure, preventive health behavior and perceived effects of the COVID-19 and perceived effect of the one-month lockdown on stress/anxiety and works. This study also investigates the relatiobship among these variables which are summarized in Figure 1
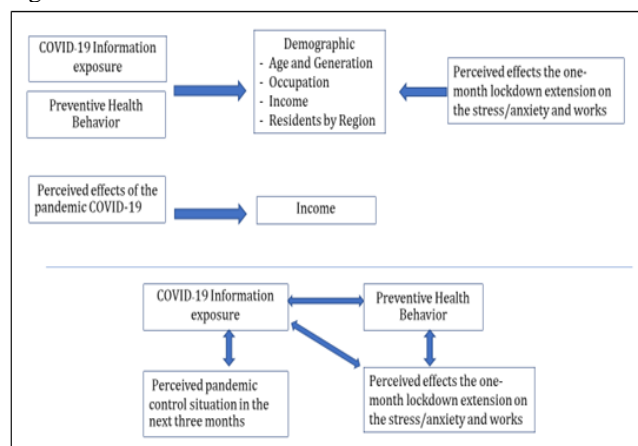
Figure 1 The theoretical framework of the COVID-19 information exposure, preventive health behavior, and perceived effects of the pandemic COVID-19 of the respondents.

Research Methodology

This study employed a quantitative method, survey research, detailed as follows:

Population and Sample. Population in this study refers to Thai people residing in Thailand during the coronavirus disease (COVID-19) pandemic. According to the Department of Provincial Administration, in 2019, the number of Thai people were 66,558,935 (stat.dopa.go.th, 2020). Sample sizes were determined by using Cochran's formula (1977). The estimated sample calculation yielded a 2,401 sample and 30% of unexpected loss applied to this minimum required

sample, therefore, a minimum of 3,121respondents were required; however, the 3,664 samples drawn from a multistage sampling technique was used in this study.

Instrument and variables. An online questionnaire was used to collect data from the respondents. In this study, questions included:

1) Demographical data (age, education, income, and province of residence during the time of the survey).

2) COVID-19 information exposure. Two questions were asked concerning the media channels used to locate COVID-19 information and the time spent to keep updated on the pandemic situation. These questions were calculated to determine the level of exposure to COVID-19 information. The test of the discrimination score of the variable was S.D. = 0.95.

3) COVID-19 preventive health behavior. The respondents were asked to rate the statements concerning their practices regarding the health beliefs model using 5 Likert scales. Ten statements were included (4 of the host factor, 4 of the agent factor, and 2 of the environment factor). Cronbach's alpha calculation was 0.856.

4) Effect of COVID-19 to respondents included the immediate effect, next one, and three months effect. The respondents were asked to determine the immediate effect of the pandemic to their income ranging from 100%, 75%, 50%, 25% decreased, and no effect. The perceived effects in the future were determined in two-time frames. On a one-month condition, if the lockdown policy was extended, what would be the effect on the respondents in terms of stress/anxiety (6 options available) and work (7options available). For the three-month condition, the respondents were asked to evaluate the pandemic control situation (5 options available) in the next three months. Test of discrimination scores of the variables were S.D. = 1.494 for stress/anxiety; SD = 1.729 for work, and S.D. 0.932 for pandemic control situation, respectively.

Data Collection. Questionnaires were distributed through various online channels from the17[th] to 27th April 2020. The data collection mode was the only available option due to the nationwide lockdown policy. Respondents have been informed of purpose, instructions, data collection methods, and research benefits before administering questionnaires. There was no physical or psychological harm inflicted on the subjects. The participants consented to all the procedures of the research, and they were free to withdraw any time if they wanted to so. This research was approved by the Ethics

Committee of Boromarajonani College of Nursing, Saraburi (EC1-001/2563). Personal data were kept strictly confidential.

Data Analysis. Data analysis employed both descriptive and inferential statistics. Frequencies, percentages, means and standard deviations were used to describe the data. One-way ANOVA and post hoc test were used to compare the information exposure, preventive health behavior, and the perceived effects of the pandemic among respondents with different ages (generations), education, occupations, and residences (by regions). Correlation analysis was performed to determine the correlation of the level of information exposure, level of preventive health behavior, and the perceived effect of COVID-19 in the next one month and the next three months.

Findings

1. Respondents' Profile

The majority of the 3,664 samples in this study was comprised of the Gen Y, aged between 21-37 years (43.5%) followed by Gen X, aged between 38-53 years (25.08%); university students (32.88%) followed by employees/staff of the private sector (23.28%); had a monthly income of <15,000 baht (76.91%); residing in the Southern region (21.10%,) and followed by the Northeastern region (17.94%), respectively. Regarding the information exposure, data revealed that majority of the respondents received COVID-19 information every 2-3 hours in a day (27.3%) and every 4-5 hours a day (27.3%) and there was a group of 12.5% who turned on the notification in their smartphones to get a real-time update. As for the information channels used, it was found that the respondents used various media channels across the board, mass media, social media as well as personal channel as follows; Facebook (79.26%), television (71.86%), line (57.51%), family and friends (41.89%), and government websites (39.47%), respectively. Details are shown in Table 1.

Table 1
Information access and comparison of COVID-19 information exposure of the respondents by demographic characteristics distribution(n=3,664)

Behaviors	n	%	Demographic characteristics	Level of COVID-19 information exposure						
				n	X̄	SD	Level	df	F	Sig.
How often do you receive information about coronavirus disease (COVID-19) from media?			**Age and Generation**					3	13.342	0.000**
24-7 by setting notification on the mobile app. so, no news missing.	458	12.5	≤ 20 (Gen. Z)	698	2.72	1.433	M			
			21-37 (Gen Y)	1,596	2.85	1.347	M			
			38-53 (Gen X)	919	3.08	1.271	M			
			≥ 54 (Baby Boomer)	451	3.08	1.183	M			
Every 2-3 hours of a day)	1,001	27.3	**Occupation**					8	15.555	0.000**
Every 4-5 hours of a day)	634	27.3	Primary or Secondary School Student	137	2.82	1.490	M			
Twice a day	805	22.0	University Student	1205	2.60	1.400	M			
Once a day	574	15.7	Government Officers/ Staff	717	2.93	1.311	M			
Once for 2-3 days	140	3.8	Employer or Staff of Private Sector	853	3.20	1.196	M			
Not interested/not sure	12	0.3	Own Business/Trader	353	3.12	1.257	M			
Receiving of COVID-19 information from media/channel			Freelancer	197	3.03	1.267	M			
			Unemployed/Retired	180	3.01	1.244	M			
Government Websites	1,446	39.5	Farmer	7	2.86	1.345	M			
			Others	15	3.47	1.356	M			
Facebook	2,904	79.3	**Income**					4	1.736	0.151
Line	2,107	57.5	< 15,000	2,818	2.89	1.341	M			
Instagram	688	18.8	15,000-24,999	319	3.08	1.312	M			
Twitter	687	18.8	25,000-34,999	151	2.89	1.334	M			
YouTube	979	26.7	35,000-44,999	113	2.82	1.338	M			
Radio	516	14.1	≥ 45,000	263	2.97	1.267	M			
Television	2,633	71.9	**Residents by Region**					5	20.147	0.00*
Newspaper	455	12.4	Bangkok and Vicinity	618	2.69	1.284	M			
Family Friends	1,535	41.9	Northern	494	2.84	1.360	M			
Healthcare Officer (doctor, nurse, village health volunteer, etc.)	1,322	36.1	Central	510	3.21	1.218	M			
			Northeastern	657	2.69	1.368	M			
			Eastern	575	3.24	1.345	M			
			Southern	810	2.86	1.308	M			

2. Comparison of the COVID-19 information exposure, preventive health behavior, and perceived effects of the pandemic COVID-19 of the Thai people with different ages (generations), education, occupations, and residences by area.

2.1 The COVID -19 information exposure

Table 1 shows that, generally, Thai people had a moderate level of COVID-19 information exposure across all demographic characteristics. Baby boomer and Gen X respondents equally had the same level of COVID-19 information exposure ($\bar{x}$ = 3.08), which was higher than those of Gen Z ($\bar{x}$ = 2.72) and Gen Y ($\bar{x}$ = 2.85). Considering each demographic characteristic, respondents having the highest level of COVID-19 information exposure were staff from the private sector ($\bar{x}$ = 3.20), with incomes between 15,000-24,999 baht ($\bar{x}$ = 3.08) and resided in the Eastern region ($\bar{x}$ = 3.24).

Respondents of different ages (generation), occupations, and areas of residence had a significantly different level of COVID-19 information exposure ($p < 0.05$). Income, however, was not a factor significantly affecting the level of COVID-19 information exposure. Baby boomers and Gen X respondents had a significantly higher level of information exposure ($p < 0.05$). Government and private officers, business owners, and freelancers also had a significantly higher level of information exposure than students ($p < 0.05$). Respondents from Bangkok were, however, exposed to COVID-19 information less than respondents from Southern and Eastern regions ($p < 0.05$).

2.2 The COVID-19 preventive health behavior

Table 2
COVID-19 preventive health behavior of respondents (n=3,664)

Preventive Health Behavior	X̄	SD	Level
Host	**4.23**	**0.586**	**H**
1. You try to drink a lot of water and have enough rest for healthiness and preventing COVID-19 infection.	4.44	0.664	H
2. You keep an eye on yourself by following the disease prevention measures of the government, reporting your health situation through the government system. If any of your family members have fever, tiredness, he or she must see the doctor.	4.66	0.562	VH
3. You write down a daily activity timeline of traveling, working, and places where you have been in detail for preventing everyone from risky people.	3.42	1.302	M
4. You always communicate with family members and people surrounding you for bringing awareness about the danger of COVID-19, and for understanding how to strictly behave and practice for good hygiene.	4.39	0.741	H
Agent	**4.57**	**0.468**	**VH**
5. You wear a mask for nose and mouth whenever you leave home and go to the crowded, or when you are in public transportations.	4.89	0.402	H
6. You change a mask for nose and mouth every day and throw it away in the bin which is closed properly and completely for preventing infection.	4.56	0.706	VH
7. You always use water, soap, or alcohol gel to wash hands long lashing at least 20 seconds.	4.53	0.670	VH
8. You provide cleansing objects for preventing the spread of diseases such as alcohols liquid soap or cleansing gel in front of the home for washing before entering the home.	4.30	0.909	H
Environment	**4.58**	**0.502**	**VH**
9. You try to avoid any places which are risky to infection or avoid any activities with which many people involved, such as markets, department stores, servicing places, fitness centers.	4.68	0.570	VH
10. You always try to keep every stage of hygiene in your home, make ventilation at home, clean your home, clean shared and private devices and equipment by using the cleanser.	4.48	0.664	H
Total	**4.43**	**0.448**	**H**

The findings in Table 2 reveal that respondents were concerned about environmental factors the most ($\bar{x}$ =4.58), followed by agent factor ($\bar{x}$ =4.57), and host factor ($\bar{x}$ =4.23). Of all preventive health behavior, wearing a mask when going outside in public areas had the highest mean ($\bar{x}$ =4.89), while writing down the traveling timeline was at the other end ($\bar{x}$ =3.42).

Note: Level (1.00-1.49 = Very low-VL; 1.50-2.49= Low-L; 2.50-3.49= Moderate-M; 3.50-4.49= High-H; 4.50-5.00= Very high -VH) * Significant at the .05 level ** Significant at the .01 level

Note:(1.00-1.49 = Very low-VL; 1.50-2.49= Low-L; 2.50-3.49= Moderate-M; 3.50-4.49= High-H; 4.50-5.00= Very high -VH)

Table 3
Comparison of COVID-19 preventive health behavior of the respondents by demographic characteristics of respondents (n=3,664)

Demographic characteristics	COVID-19 preventive health behavior (n=3,664)						
	n	X̄	SD	Level	df	F	Sig.
Age and Generation							
≤ 20 (Gen. Z)	698	4.42	0.476	H	3	1.908	0.126
21-37 (Gen Y)	1,596	4.43	0.464	H			
38-53 (Gen X)	919	4.46	0.419	H			
≥ 54 (Baby Boomer)	451	4.42	0.404	H			
Occupation							
Primary or Secondary School Student	137	4.36	0.582	H	8	2.728	0.005*
University Student	1,205	4.42	0.458	H			
Government Officers/ Staff	717	4.47	0.455	H			
Employer or Staff of Private Sector	853	4.44	0.418	H			
Own Business/Trader	353	4.47	0.417	H			
Freelancer	197	4.36	0.461	H			
Unemployed/Retired	180	4.43	0.419	H			
Farmer	7	4.33	0.519	H			
Others	15	4.69	0.314	VH			
Income							
< 15,000	2,818	4.45	0.439	H	4	2.967	0.018
15,000-24,999	319	4.37	0.503	H			
25,000-34,999	151	4.43	0.489	H			
35,000-44,999	113	4.45	0.443	H			
≥ 45,000	263	4.39	0.451	H			
Residents by Region							
Bangkok and Vicinity	618	4.32	.515	H	5	14.127	0.000**
Northern	494	4.46	.431	H			
Central	510	4.53	.352	H			
Northeastern	657	4.45	.440	H			
Eastern	575	4.41	.472	H			
Southern	810	4.46	.431	H			

* Significant at the .05 level

Table 3 shows that Thai people, across all demographic characteristics, practiced preventive health behavior at a high level. Respondents who performed COVID-19 preventive health behavior at the highest level in each demographic category were those who were Gen X ($\bar{x}$ = 4.46), government officers and business owners ($\bar{x}$ = 4.47), had incomes less than 15,000 baht and between 35,000-44,999 baht ($\bar{x}$ = 4.45), and resided in the Central region ($\bar{x}$ = 4.53). Occupation, income, and area of residence were demographic factors that differentiate respondents' COVID-19 preventive health behavior (p = 0.05). Age, however, was not contributor to a different level of information exposure. Government and private sector officers and business owners significantly performed more preventive behavior than students. Respondents who earned less than 15,000 baht practiced more preventive health behavior than those who earned 15,000-24,999 baht. Respondents residing in Northern, Southern, Central, Eastern, and Northeastern regions reportedly followed preventive health behavior more than those from Bangkok and vicinity (p = 0.05).

2.3 The perceived effects of the pandemic COVID-19

2.3.1 Effect of COVID-19 on income at the beginning of the lockdown

Immediately after the epidemic of COVID-19 went beyond control, the nationwide lockdown policy was enforced; most of Thai people were not affected financially. Business owners received incomes less than 33.7 percent, while 71.4 percent of farmers received incomes 25 percent lower than before the pandemic. Twenty-five percent of residents from the Central region lost their job, while nearly 50 percent of residents in the Northeastern region were not affected.

Table 4 shows that most of the respondents across all demographic characteristics perceived that the effects of the one-month lockdown extension on work were moderate. Respondents who had the highest level of perception in different groups were baby boomers ($\bar{x}$ = 3.53), retirees ($\bar{x}$ = 3.66), with incomes more than 35,000 baht ($\bar{x}$ = 3.43) and resided in the Northeastern region ($\bar{x}$ = 3.50)

2.3.2 Perceived effects of the one-month lockdown extension on work

Table 4
Effect of COVID-19 to income at present and comparison of the perceived effects the one-month lockdown extension on the works livelihood of the respondents by demographic distribution (n-3,644)

Demographic Characteristics	Effect to income (%)					Perceived effects the one-month lockdown extension on the works livelihood (n=3,664)						
	Job lost/ Unemployed	Lower by 25%	Lower by 50%	Lower by 75%	No effect/ impact	n	$\bar{x}$	SD	Level	df	F	Sig.
Age and T												
≤ 20 (Gen. Z)	17.9	10.6	15.2	14.0	42.3	698	3.47	0.74	M	3	44.247	0.000**
21-37 (Gen Y)	19.4	15.4	14.5	9.7	41.0	1596	3.00	0.92	M			
38-53 (Gen X)	15.1	16.3	15.3	10.2	43.0	919	3.14	0.95	M			
≥ 54 (Baby Boomer)	10.6	9.5	11.8	11.1	57.0	451	3.53	0.81	H			
Occupation												
Student in Primary or Secondary School	42.3	10.2	5.8	5.1	36.5	137	2.85	0.88	M	8	37.612	0.000**
University Student	13.6	10.0	16.2	14.9	45.2	1205	3.56	0.63	H			
Government Officers/ Staff	0.7	14.9	5.6	4.2	74.6	717	3.67	0.63	H			
Employer or Staff of Private Sector	28.5	21.5	12.3	3.6	34.1	853	2.61	0.90	M			
Own Business/Trader	11.6	13.3	33.7	27.8	13.6	353	2.64	0.95	M			
Freelancer	32.5	12.2	24.4	21.3	9.6	197	2.68	0.93	M			
Unemployed/Retired	23.9	5.0	6.1	4.4	60.6	180	3.66	0.72	H			
Farmer	0.0	71.4	28.6	0.0	0.0	7	3.00	1.00	M			
Others	26.7	20.0	20.0	6.7	26.7	15	2.79	0.97	M			
Income												
< 15,000	18.8	13.2	16.4	11.5	40.1	2818	3.21	0.89	M	4	18.924	0.000**
15,000-24,999	18.5	16.6	9.4	6.9	48.6	319	2.75	0.92	M			
25,000-34,999	6.6	21.9	6.6	15.2	49.7	151	3.17	0.95	M			
35,000-44,999	4.4	14.2	9.7	3.5	68.1	113	3.43	0.81	M			
≥ 45,000	6.8	14.4	7.2	9.1	62.4	263	3.43	0.88	M			
Residents by Region												
Bangkok and Vicinity	12.9	17.2	12.8	10.5	46.6	618	3.17	.095	M	5	18.022	0.000**
Northern	15.6	10.1	13.4	12.8	48.2	494	3.32	0.84	M			
Central	25.3	13.5	14.9	10.0	36.3	510	2.96	0.95	M			
Northeastern	9.3	13.5	16.1	11.9	49.2	657	3.50	0.74	H			
Eastern	25.0	16.7	13.7	8.7	35.8	575	2.77	0.93	M			
Southern	16.2	12.7	15.4	11.1	44.6	810	3.32	0.85	M			

** Significant at the .01 level

Data in Table 4 revealed that respondents who belong to different ages (generations), occupations, incomes, and areas of residences had significant differences in perceived effects of the one-month lockdown extension on work (p =0.05). Respondents higher than 54 years old significantly perceived that one-month lockdown extension affected their work more than those less than 20 years old (Gen. Z), between 21-37 years (Gen Y) and 38-53 years (Gen X) (p = 0.05). University students felt that the lockdown extension had less impact on work, compared to government officers, and the unemployed or retirees (p = 0.05). Employers or staff of the private sector's perception of the impact of lockdown extension was significantly different from the perception of students in school, university students, government officers, business owners, and the unemployed or retirees (p = 0.05). Respondents who earned less than

15,000 baht per month significantly perceived a stronger effect of lockdown extension than those who earned higher (15,000-34,999 baht) (p = 0.05). Geographically, respondents from Bangkok and vicinity reportedly had a perception of the effect of the lockdown extension less than those from the Northern, Southern, Central, and Northeastern regions (p = 0.05).

2.3.3 Perceived effects of the one-month lockdown extension on stress/anxiety

Table 5

Comparison of the perceived effects the one-month lockdown extension on the stress/anxiety and the perceived pandemic controlsituation in the next three months of the respondents by demographic distribution (n=3,644)

Demographic characteristics	n	Perceived effects of the one-month lockdown extension on the stress/anxiety						Perceived pandemic control situation in the next three months					
		$\bar{x}$	SD	Level	df	F	Sig.	$\bar{x}$	SD	Level	df	F	Sig.
Age and Generation													
≤ 20 (Gen. Z)	698	2.91	1.56	M	3	21.389	0.000**	3.39	0.88	M	3	7.580	0.000**
21-37 (Gen Y)	1,596	2.44	1.43	L				3.40	0.88	M			
38-53 (Gen X)	919	2.57	1.48	M				3.48	0.78	M			
≥ 54 (Baby Boomer)	451	2.88	1.50	M				3.58	0.75	H			
Occupation													
Primary / Secondary School Students	137	2.90	1.84	M	8	11.150	0.000**	3.53	1.00	H	8	3.116	0.002
University Student	1,205	2.73	1.42	M				3.35	0.82	M			
Government Officers/ Staff	717	2.71	1.37	M				3.47	0.81	M			
Employer or Staff of Private Sector	853	2.29	1.45	L				3.47	0.83	M			
Own Business/Trader	353	2.50	1.57	M				3.54	0.89	H			
Freelancer	197	2.56	1.58	M				3.43	0.86	M			
Unemployed/Retired	180	3.19	1.66	M				3.55	0.82	H			
Farmer	7	2.71	1.97	M				3.00	0.58	M			
Others	15	2.07	1.53	L				3.27	0.80	M			
Income													
< 15,000	2,818	2.65	1.53	M	4	3.477	0.008*	3.46	0.84	M	4	0.945	0.437
15,000-24,999	319	2.36	1.39	L				3.37	0.87	M			
25,000-34,999	151	2.44	1.22	L				3.39	0.74	M			
35,000-44,999	113	2.61	1.28	M				3.40	0.75	M			
≥ 45,000	263	2.71	1.29	M				3.49	0.84	M			
Residents by Region													
Bangkok and Vicinity	618	2.53	1.37	M	5	7.844	0.000**	3.46	0.91	M	5	1.381	0.228
Northern	494	2.71	1.51	M				3.49	0.78	M			
Central	510	2.37	1.43	L				3.46	0.74	M			
Northeastern	657	2.84	1.42	M				3.48	0.81	M			
Eastern	575	2.49	1.59	L				3.42	0.93	M			
Southern	810	2.68	1.54	M				3.39	0.81	M			

** Significant at the .01 leve

Data in Table 5 show that most of the respondents across all demographic characteristics perceived that the effects of a one-month lockdown extension on stress/anxiety were moderate. Respondents who had the highest level of perception of the effects in different groups were Gen Z ($\bar{x}$ = 2.91), retirees ($\bar{x}$ = 3.19), with incomes less than 15,000 baht ($\bar{x}$ = 2.65) and resided in the Northern region ($\bar{x}$ = 2.71).

The F-test result shows that different demographic factors contributed to differences level in perceived stress/anxiety from the lockdown. Gen Z seemed to be more stressful with the one-month lockdown, compared to Gen X and Gen Y (p = 0.05).

Employers or staff of the private sector significantly had a lower level of perceived effects of lockdown extension on stress/anxiety compared to students in school, university students, and government officers. Respondents who had incomes in a lower tier, less than 15,000 baht per month, were significantly affected more by stress/anxiety when the lockdown was extended, compared to respondents in a higher tier, 15,000-24,999 baht per month (p = 0.05). Geographically, respondents from the Northern region reportedly perceived more stress/anxiety as an effect of the lockdown extension than those from the Southern region (p = 0.05).

2.3.4 Projection of the pandemic control situation in the next three months

Table 5 shows that most of the respondents across all demographic characteristics perceived that the pandemic control situation in the next three months was moderate. Respondents who had the highest level of positive projection in different groups were baby boomer ($\bar{x}$ = 3.58), retirees ($\bar{x}$ = 3.55), wit incomes more than 45,000 baht ($\bar{x}$ = 3.49) and resided in the Northern region ($\bar{x}$ = 3.49). The F-test result shows that differences in income and area of residence did not constitute a different projection of the pandemic control situation in the next three months (p = 0.05). Baby boomer respondents significantly exhibited a more positive projection of the pandemic situation, compared to Gen Z and Gen Y respondents (p = 0.05). Business owners foresaw a better situation in the next three months compared to university students (p = 0.05).

3. Relationship between the COVID-19 information exposure, preventive health behavior, and perceived effects of the pandemic COVID-19 of the respondents.

Information exposure and preventive health behavior. It was found that the level of information exposure for COVID-19 information (A2) is positively related to COVID-19 preventive health behavior (r. = 0.238, p= 0.000**)

Information exposure and perceived effect of COVID19. It was found that the level of media exposure for COVID-19

information is negatively related to perceived effects of one-month lockdown extension on stress/anxiety (r = -0.063, p = 0.010) and on work (r = -0.380, p = 0.05), respectively. It should be noted that there was no statistical relationship between the level of information exposure and perceived pandemic control situation in the next three months at a significant level of 0.05.

Preventive health behavior and perceived effects of COVID-19.
It was found that there were no statistical differences between the level of preventive health behavior and the perceived effects of the one-month extension of lockdown policy on stress/anxiety and work; and the perceived effect of the pandemic control situation in the next three months at the significant level of 0.05.

The level of media exposure for COVID-19 information was positively related to COVID-19 preventive health behavior (r = 0.238, p < 0.050), However, it was negatively related to perceived effects of a one-month lockdown extension on stress (r = -0.063, p < 0.05)) and perceived effects of a one-month lockdown extension on work (r = -0.380, p < 0.05) There is no relationship between the level of media exposure for COVID-19 information and the perceived pandemic control situation in the next three months.

Discussion and Suggestions

The findings suggested that respondents from different occupations had a significantly different level of COVID-19 preventive health behavior when the most obvious behaviors were following government guidelines and reporting health situation to the government system. These findings can be explained according to the health belief model (Becker & Maiman, 1975: 12) which proposed that people behave differently depending on factors such as occupation and social status, the so-called 'modifying factors' that help prevent and cure disease. This is why respondents of different occupations have different preventive behaviors.

When findings suggested that the level of COVID-19 preventive health behavior of all respondents in all items was high, this could be because of the effective communication plan from the Center for COVID-19 Situation Administration (CCSA) and strong policy of the Thai government. A 14-day State Quarantine measure was implemented by the government for travelers entering Thailand from abroad. On 12 May 2020, no additional cases were reported (Ministry of Public Health, 2020). CCSA, health organizations and many online platforms provided daily information to the Thai public which resulted in the decline of infected cases consistent with Jang, Park, and Jang's (2018) findings; 'the repetitive information communication through multiple channels was positively associated with MERS-prevention behavior in South Korea'. Ludolph, Schulz, and Chen (2018) also found that higher mass media exposure is associated with a stronger perception of concern about MERS-CoV in respondents' social environment, resulting in more protective actions. As CCSA appointed a doctor as a spokesperson, the Thai people tended to trust and follow what were recommended. This, therefore, led to a higher preventive behavior and is consistent with Oh et.al (2012) who proposed that the most trusted source of health information among respondents was

a doctor or other health care professional. Lin, Jung, McCloud, and Viswanath (2014) stated that people with higher SES, higher news exposure, and higher levels of knowledge, as well as those who actively seek information, are less likely than their counterparts to adopt incorrectly prevention behavior than people with low education, low income, and poor status who are more likely to receive inequality in communication due to lack of access to accurate information including being a victim of false information or fake news. Therefore, it is necessary to establish and maintain cooperation between public health agencies and media agencies in emergencies for timely and accurate information dissemination.

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