Social Responsibility Behaviors among Universities Students in the 3 Southern Border Provinces of Thailand in the Period of Corona Virus 2019 (COVID-19) Pandemic

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Abstract

The objectives of this cross-sectional research were to study university students' knowledge on COVID-19 transmission, their attitude toward the measures of COVID-19 prevention and control, social responsibility behaviors, and factors association with participants' social responsibility behaviors. The population from 3 universities were 17,765 students, the sample size was at least 376 participants according to Krejcie and Morgan's formula. Purposive sampling was employed to select the target participants. Then, each student shared the questionnaire link with their friends. The self-administered questionnaires were distributed by using *Google Forms*. The content validity was evaluated by 3 experts; the Index of Item-Objective Congruence (IOC) of each item of all part was 1 and the coefficient of reliability knowledge and attitude were more than 0.70. The links of each Google Form was sent through Facebook and Line contact friends and asked them for distribution to others. The were 416 students who completed the questionnaires. Descriptive statistics were used to analyze the data, while for the association study, Chi-square and Binary logistic regression were used. The results disclosed that the university students had the knowledge of Covid-19 transmission at Moderate level (50.72 %), and had the attitude of the state measures for Covid-19 prevention and control in High level (81.01 %). Additionally, their social responsibility behaviors for COVID-19 prevention and control were in High level (57.21 %). The knowledge on Covid-19 transmission was significantly associated with social responsibility behaviors among university students (*p*-value < 0.05) as well as their attitude on the state measures for Covid-19 prevention and control that was significantly associated with university students' social responsibility behaviors (*p*-value < 0.01).

Keywords: Social responsibility, COVID-19, Transmission, Knowledge, Attitude

Introduction

The Novel coronavirus-2019 (COVID-19) is highly contagious. It has spread extremely rapidly from a single city to the entire country within only a few days. In addition, it has achieved such far-reaching effects even in the face of extreme response measures including the complete shutdown and isolation of whole cities, prohibition of attendance at school and work, massive mobilization of people, and rapid construction of entire hospitals [1]. It can be difficult to tell the difference between a respiratory illness such as COVID-19 and a respiratory illness caused by other viruses based on symptoms alone. Suspected COVID-19 cases are referred to as a 'suspect case' until a causative pathogen is identified through diagnostic testing [2].

COVID-19 has been infecting people throughout the world. It is feasible that the disease will be transmitted to people who live in environments that are conducive to a disease epidemic [3]. COVID-19 is transmitted via droplets and fomites during close unprotected contact with an infected person. Airborne spread has not been reported for COVID-19. However, it may occur during certain aerosol-generating procedures once conducted in health care settings [2]. Close and unprotected exposure is required for transmission by direct contact or by contact with fomites in the immediate environment of those with infection. Continuing reports suggest the same means of transmission to close contacts and persons who attended the same social events or were in circumscribed areas [4].

Majority deaths have been more than 60 years of age and/or have had pre-existing, co-morbid conditions such as hypertension, cardiovascular disease, and diabetes. Moreover, the case fatality rate is unsurprisingly highest among critical cases about 50 %, and no deaths have occurred among those with mild or even severe symptoms [1].

The pandemic of COVID-19 has clearly entered a new stage with rapid spread around the world and all members of society must understand and practice measures for self-protection and for prevention of transmission of infection to others [4]. Social isolation and COVID-19 confirmation tests availability are mandatory for any country policy since they are the most reliable and convergent forms of obtaining best desirable solutions to reduce community virus transmission and flatten the curve goals [5]. The World Health Organization declared the novel coronavirus (COVID-19) outbreak a pandemic [6].

To respond to COVID-19, many countries are using a combination of containment and mitigation activities with the intention of delaying major surges of patients and levelling the demand for hospital beds, while protecting the most vulnerable from infection, including elderly people and those with comorbidities. Activities to accomplish these goals vary and are based on national risk assessments that many times include estimated numbers of patients requiring hospitalization and availability of hospital beds and ventilation support. Most national response strategies include varying levels of contact tracing and self-isolation or quarantine, promotion of public health measures [4,7], including handwashing, respiratory etiquette, and social distancing [4,7], preparation of health systems for a surge of severely ill patients who require isolation, oxygen, and mechanical ventilation, strengthening health facility infection prevention and control, and postponement or cancellation of large-scale public gatherings [4].

COVID-19 can be controlled by maintaining personal hygiene as well as avoiding travelling, avoiding any programs where people gather and by maintaining social distancing [8]. To reduce transmission of COVID-19, people in public should stay 2 m away from each other. This is considered a safe distance by public health authorities who promote further measures that include curfews and lockdowns to separate people [9]. Social distancing and social transmission isolation parameters are considered in the approach, as well as the virulence under atmospheric conditions, which requires empirical results to be further investigated [5]. These can able to break chain of spreading the disease [8].

Emphasizing the severity of COVID-19, along with using social responsibility and the needs of others to frame messages related to the importance of preventative behaviors during the pandemic, may improve people's compliance with health official and government recommendations. Emphasizing the severity of COVID-19 and the social implications of pandemic-related behaviors may also be important for all people, particularly for those who are not following recommended preventative health behaviors or who are engaging in hoarding [10].

Today, all sectors have to involve the consideration of responsibility and sustainability. Therefore, more social responsibility within our society has to be extensively established [11]. This may be especially important to explore university students, who are less likely to experience severe symptoms but contribute to the spread of the virus. However, university students were known as well graduated. They have had important roles in society aspects. This study was performed to study social responsibility behaviors among university students in the 3 Southern border provinces of Thailand in the period of Corona Virus 2019 (COVID-19) pandemic, in order to find out the association of factors with social responsibility behaviors of participants.

Materials and methods

Study design

This study used a cross-sectional research design. The study period was between January and April, 2020. Online data collection was made at the first 2 weeks in April, 2020.

Study procedure

The population of this study consisted of undergraduate students in the academic year of 2019-2020 from a university located in Yala, Pattani, and Narathiwat provinces. The total population from the 3 universities was 17,765 students [12-14]. The sample size was calculated by using the Krejcie and Morgan's formula [15];

$$n = \frac{\chi^2 N p (1-p)}{e^2 (N-1) + \chi^2 p (1-p)}$$

n = sample size
N = population size
e = acceptable sampling error
χ^2 = chi-square of degree of freedom 1 and confidence 95 % (= 3.841)
p = proportion of population (if unknown = 0.5)

$$= \frac{3.841 \times 17,765 \times 0.05 \times (1-0.5)}{((0.05)^2 \times (17,765-1)) + (3.841 \times 0.5 \times (1-0.5))}$$

$$= 375.99 \sim 376$$

The sample size was at least 376 university students. Purposive sampling was used to initiate the participants from a university of each province. Then, each participant passed the link of the questionnaires to their connection studying at the same university, via Facebook and Line application. Participants answered the questionnaires only once although they might receive the link more than once due to the link distribution. There were 183 students from Yala, 145 from Pattani, and 88 self-reports from Narathiwat province. So that, the sample size of this study was 416 students. The size from calculation was the least sample size. The total of the respondents was greater than the calculation size. Hence, this study included all the respondents.

Materials

Google forms of self-administered questionnaires were used for the data collection, in which the distribution might involve social media such as Facebook and Line application. The google form questionnaires consisted of 4 parts.

Part I: General information had 7 items.

Part II: Knowledge of COVID-19 transmission had 13 items. Participants answered yes, no, or not sure, they got 1 point for correct answer and 0 point for incorrect answer or not sure. Knowledge level was categorized into 3 levels (good, moderate, and poor level) [16].

Part III: Attitude toward the state measures for COVID-19 prevention and control had 9 items. They rated their attitude for strongly agree, agree, undecided, disagree, strongly disagree for each item. Interpretations of attitude was divided into 3 levels according in class interval: high, moderate, and low level.

Part IV: Social responsibility behaviors for COVID-19 prevention and control had 11 items. Participants reported their behaviors for every time, 4 out of 5 times, 2 - 3 out of 5 times, 1 out of 5 times, or never for first 6 items and the 7 - 11 question were report for every day, 5 - 6 days/week, 3 - 4

days/week, 1 - 2 days/week, or never. Social responsibility behaviors were divided into 3 levels according to class interval: high, moderate, and low behaviors of social responsibility.

Content validity was evaluated by 3 experts in health sciences. The ndex of Item-Objective Congruence (IOC) of each item of all part was 1.00.

The reliability of the questionnaire items was analyzed after the pilot with 30 subjects from a university in Songkhla province. The reliability of knowledge of COVID-19 transmission was analyzed by KR_{20}; the coefficient was 0.707. Attitude toward the state measures for COVID-19 prevention and control was 0.702 (Cronbach's alpha) .

Data collection

Data collection was done in the first 2 weeks of April, 2020. This study was advertised on Facebook and Line application platforms and students completed the survey themselves. This study involved no more than minimal risk. However, participant information sheet was provided at the 1st page of Google form questionnaires. The same set of questionnaires was placed in 3 different URL of Google forms. Each link of Google form was distributed to researchers' friends via Facebook and Line from each target university and they were asked to continue sending to their contact account in the same university both in the same and different faculty.

Data analysis

Descriptive statistic, including frequency, percentage, mean, standard deviation, maximum, and minimum, were used to analyze the data. Chi-square and Binary logistic regression were used to analyze the association between factors and participants' social responsibility behaviors.

Ethical consideration

Ethical research procedures was approved by the Ethic Committee for Human Research Subjects of Sirindhorn College of Public Health, Yala (Certificate Number 095 - 63)

Results and discussion

Most of the participants were female (74.28 %), aged between 20 - 24 years old (76.92 %), with 20.60 years on average. They majored in Health Sciences (35.58 %) with 1st year level (34.13 %); most of them were studying at a university in Yala province (43.99 %), lived in their own house (47.12 %), and received weekly allowance around 501 - 1,000 Baht (49.52 %), as seen in **Table 1**.

Table 1 General information (*n* = 416).

General information	Frequency	%
Sex		
Female	309	74.28
Male	107	25.72
Age (mean 20.60 years)		
20 - 24 years	320	76.92
Lower than 20 years	96	23.08
Faculty		
Health sciences	148	35.58
Humanities and social sciences	92	22.12
Education	81	19.47
Management sciences	40	9.62
Sciences	30	7.21
Islamic study	14	3.37
Engineering	11	2.64

General information	Frequency	%
Year level		
1st year	142	34.13
2nd year	118	28.37
3rd year	85	20.43
4th year	64	15.38
5th year	7	1.68
University		
A university in Yala province	183	43.99
A university in Pattani province	145	34.86
A university in Narathiwat province	88	21.15
Residence		
Own house	196	47.12
College dormitory	125	30.05
Private dormitory	95	22.84
Payment per week		
Not more than 500 Baht	136	32.69
501 - 1,000 Baht	206	49.52
1,001 - 1,500 Baht	42	10.10
More than 1,500 Baht	32	7.69

Table 2 showed the studnets' knowledge of COVID-19 transmission. The first 3 questions that they had correct response were "COVID-19 can be more overspread in crowded people" (98.08 %), "Wearing face mask can reduce the risk of COVID-19 infection" (96.87 %), and "COVID-19 is found in droplet of cough or sneeze" (96.15 %). Their incorrect and not sure for the answers were "Recommending of hand washing because COVID-19 can enter to the body through palm skin into the body" (62.98 %), "20 - 40 years old people have risk of COVID-19 infection equal to 75 years old one" (61.06 %), and "COVID-19 infected patients could be recovered after 14 days of quarantine" (42.31 %), respectively. Half of them had the knowledge level of COVID-19 transmission (50.72 %) and (7.69 %) was in poor level, as displayed in **Table 3**.

Table 2 Knowledge of COVID-19 transmission (*n* = 416).

Statement	Correct		Incorrect	
	Frequency	(%)	Frequency	(%)
1. *COVID-19 cannot be destroyed by cleansing soap	253	(60.82)	163	(39.18)
2. COVID-19 is found in droplet of cough or sneeze	400	(96.15)	16	(3.85)
3. Wearing face mask can reduce the risk of COVID-19 infection	403	(96.87)	13	(3.13)
4. Out of patient's body, COVID-19 has alive on surface of equipment and objects	391	(93.99)	25	(6.01)
5. People may have COVID-19 infection although they wear face mask	324	(77.88)	92	(22.12)
6. Personal distancing could reduce a chance of COVID-19 infection	398	(95.67)	18	(4.33)
7. *Wearing face mask or clothes covering when patient cough or sneeze cannot lower COVID-19 disease	256	(61.54)	160	(38.46)

Statement	Correct		Incorrect	
	Frequency	**(%)**	**Frequency**	**(%)**
8. COVID-19 could be entering our body through conjunctiva	360	(86.54)	56	(13.46)
9. Contacting to patients' equipment or thing indirect of COVID-19 infection	379	(91.11)	37	(8.89)
10. COVID-19 can be more overspread in crowded people	408	(98.08)	8	(1.92)
11. * COVID-19 infected patients could be recovered after 14 days of quarantine	240	(57.69)	176	(42.31)
12. *20 - 40 years old people have risk of COVID-19 infection equal to 75 years old and one	162	(38.94)	254	(61.06)
13. *Recommending of hand washing because COVID-19 can enter to the body through palm skin into the body	154	(37.02)	262	(62.98)

*Negative statements

Table 3 Knowledge level of COVID-19 transmission ($n = 416$).

Knowledge level	Frequency	%
Good (10.40 - 13.00 points)	173	41.59
Moderate (7.80 - 10.39 points)	211	50.72
Poor (lower than 7.80 points)	32	7.69

max. 13, min. 1, mean 9.92, *SD*. 1.84

Participants' attitude toward the state measures for COVID-19 prevention and control were shown in **Table 4** that they had strongly agreed for "It is a responsibility for all people for COVID-19 prevention and control" (87.26 %), "Protecting oneself from COVID-19 infection is one of social responsibility behaviors" (82.45 %), and "Temporarily closed of entertainment place or crowded area may reduce new cases of COVID-19 infection" (75.96 %). Participants strongly disagreed on "Quarantine for people with risk of COVID-19 infection is stigmatization" (60.10 %), "If you feel stress from COVID-19 pandemic, you should have party with your friends" (59.38 %), and "If you clean your hands by cleansing soap after touch hand, body, or other people's equipment, it means you abominate them" (57.21 %), respectively. Their attitude level of the state measures for COVID-19 prevention and control was in high level (81.01 %), as shown in **Table 5**.

Table 4 Attitude toward the state measures for COVID-19 prevention and control (*n* = 416).

Statement	Attitude *n* (%)				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. *Quarantine for people with risk of COVID-19 infection is stigmatization	46 (11.06)	45 (10.82)	44 (10.58)	31 (7.45)	250 (60.10)
2. Protecting oneself from COVID-19 infection is one of social responsibility behaviors	343 (82.45)	60 (14.42)	9 (2.16)	1 (0.24)	3 (0.72)
3. It is a responsibility for all people for COVID-19 prevention and control	363 (87.26)	40 (9.62)	11 (2.64)	1 (0.24)	1 (0.24)
4. *Religion activities or traditional culture should not be suspended even though for COVID-19 prevention and control	72 (17.31)	38 (9.13)	75 (18.03)	61 (14.66)	170 (40.87)
5. Social distancing or personal distancing is one measures of COVID-19 prevention and control	294 (70.67)	94 (22.60)	21 (5.05)	3 (0.72)	4 (0.96)
6. *If you feel stress from COVID-19 pandemic, you should have party with your friends	31 (7.45)	26 (6.25)	56 (13.46)	56 (13.46)	247 (59.38)
7. *If you clean your hands by cleansing soap after touch hand, body, or other people's equipment, it means you abominate them	27 (6.49)	35 (8.41)	58 (13.94)	59 (13.94)	238 (57.21)
8. Prohibiting of mass movement from one place to another area may enhance of COVID-19 prevention and control	220 (52.88)	115 (27.64)	57 (13.70)	10 (2.40)	14 (3.37)
9. Temporarily closed of entertainment place or crowded area may reduce new cases of COVID-19 infection	316 (75.96)	67 (16.11)	30 (7.21)	1 (0.24)	2 (0.48)

*Negative statements

Table 5 Attitude level of the state measures for COVID-19 prevention and control (*n* = 416).

Attitude level	Frequency	%
High (33.02 - 45.00 points)	337	81.01
Moderate (21.01 - 33.01 points)	79	18.99

max. 45, min. 26, mean 38.79, *SD*. 5.33

Table 6 showed social responsibility behaviors among university students between COVID-19 pandemic (February and March, 2020) that they did every time or everyday were "You wear face mask when you closed contact to others" (73.56 %), "If you come back from other area, you will quarantine yourself" (71.39 %), and "You keep distance at least 1 m when you have to closed contact with others" (54.33 %). They reported that they had never done for "You join in crowded activities or have party with many friends" (58.17 %), "You go to the crowded area or entertainment place" (41.35 %), and "You cannot avoid to stay in crowded place with other people" (37.26 %), respectively. Their social responsibility behaviors level for COVID-19 prevention and control was in high level (57.21). (**Table 7**).

Table 6 Social responsibility behaviors for last 2 months (Between February and March, 2020) (*n* = 416).

Statement	Frequency of behavior *n* (%)				
	Every time or Everyday	Always	Often	Sometimes	Have never done
1. You wear face mask when you closed contact to others	306 (73.56)	73 (17.55)	29 (6.97)	5 (1.20)	3 (0.72)
2. After finished using public equipment or thing, you cleaned it by disinfectants or alcohol spray	143 (34.38)	75 (18.03)	126 (30.29)	44 (10.58)	28 (6.73)
3. If you come back from other area, you will quarantine yourself	297 (71.39)	39 (9.38)	33 (7.93)	22 (5.29)	25 (6.01)
4. You keep distance at least 1 m when you have to closed contact with others	226 (54.33)	96 (23.08)	70 (16.83)	18 (4.33)	6 (1.44)
5. You can keep distance at least 1 m with your close friends, or family member	122 (29.33)	75 (18.03)	107 (25.72)	47 (11.30)	65 (15.63)
6. When you know any news or channel, you donate money/things or support any help for COVID-19 prevention and control	132 (31.73)	73 (17.55)	128 (30.77)	46 (11.06)	37 (8.89)
7. *You join in crowded activities or have party with many friends	48 (11.54)	16 (3.85)	58 (13.94)	52 (12.50)	242 (58.17)
8. *You go to the crowded area or entertainment place	47 (11.30)	16 (3.85)	83 (19.95)	98 (23.56)	172 (41.35)
9. *You check hand, touch others' body or things	49 (11.78)	15 (3.61)	115 (27.64)	101 (24.28)	136 (32.69)
10. *You cannot avoid to stay in crowded place with other people	44 (10.58)	27 (6.49)	116 (27.88)	74 (17.79)	155 (37.26)
11. You give some recommendation to others for COVID-19 prevention and control	149 (35.82)	81 (19.47)	165 (39.66)	14 (3.37)	7 (1.68)

*Negative statements

Table 7 Social responsibility behaviors level for COVID-19 prevention and control (*n* = 416).

Behavior level	Frequency	%
High (40.34 - 55.00 points)	238	57.21
Moderate (25.67 - 40.33 points)	178	42.79

max. 55, min. 29, mean 42.64, *SD*. 5.81

Table 8 showed the factors association with social responsibility behaviors that knowledge on COVID-19 transmission, and attitude toward the state measures for COVID-19 prevention and control were significantly association with social responsibility behaviors among university students ($p < 0.05$). Participants who had knowledge of COVID-19 transmission in good level had more social responsibility than lower level of knowledge on COVID-19 transmission about 1.5 times. For those who had attitude toward the state measures for COVID-19 prevention and control in high level had more likely social responsibility than lower level of attitude about 4 times.

Table 8 Association between factors and social responsibility behaviors level ($n = 416$).

Variable	Social responsibility behaviors level n (%)				OR	95 % CI	
	High		Moderate			Lower	Upper
Sex					1.445	0.829	2.133
Male	54	(50.47)	53	(49.53)			
Female	184	(59.55)	125	(40.45)			
Age					0.899	0.584	1.567
Lower than 20 years	53	(55.21)	43	(44.79)			
20 - 24 years	185	(57.81)	135	(42.19)			
Faculty					0.961	0.637	1.530
Humanities and social sciences	56	(60.87)	36	(39.13)			
Education	47	(58.02)	34	(41.98)			
Sciences	16	(53.33)	14	(46.67)			
Management sciences	18	(45.00)	22	(55.00)			
Health sciences	93	(62.84)	55	(37.16)			
Islamic study	5	(35.71)	9	(64.29)			
Engineering	3	(27.27)	8	(72.73)			
Year level					1.579	0.744	2.390
1st year	79	(55.63)	63	(44.37)			
2nd year	62	(52.54)	56	(47.46)			
3rd year	50	(58.82)	35	(41.18)			
4th year	44	(68.75)	20	(31.25)			
5th year	3	(42.86)	4	(57.14)			
University					1.306	0.458	1.267
A University in Yala province	98	(53.55)	85	(46.45)			
A University in Pattani province	91	(62.76)	54	(37.24)			
A University in Narathiwat province	49	(55.68)	39	(44.32)			
Residence					0.919	0.704	1.638
Own house	110	(56.12)	86	(43.88)			
College dormitory	72	(57.60)	53	(42.40)			
Private dormitory	56	(58.95)	39	(41.05)			
Payment per week					0.808	0.603	1.522
Not more than 500 Baht	73	(53.68)	63	(46.32)			
501 - 1,000 Baht	114	(55.34)	92	(44.66)			
1,001 - 1,500 Baht	27	(64.29)	15	(35.71)			
More than 1,500 Baht	24	(75.00)	8	(25.00)			
Knowledge level*					1.505	0.677	1.662
Good	109	(63.01)	64	(36.99)			
Moderate	117	(55.45)	94	(44.55)			
Poor	12	(37.50)	20	(62.50)			
Attitude level**					3.987	2.080	6.720
High	214	(63.50)	123	(36.50)			
Moderate	24	(30.38)	55	(69.62)			

* *p*-value < 0.05
** *p*-value < 0.01

University students had knowledge on COVID-19 transmission in moderate level (50.72 %) and good level (41.59). The result found that knowledge on COVID-19 transmission had significantly associated with social responsibility behaviors (p-value < 0.05). Similar to a study indicate that adolescents' knowledge on the severity of the virus, the extent to which they value social responsibility, their social trust, and their prioritization of their own self-interest over others are independently associated with their news monitoring, social distancing, disinfecting, and hoarding behavior in the days following the US declaring COVID-19 a national emergency [10].

Most participants had attitude toward the state measures for COVID-19 prevention and control in high level (81.01 %). This study found that attitude on the state measures for COVID-19 prevention and control had significantly association with social responsibility behaviors among university students (p-value < 0.01). When people have positive attitude on any situation, they more likely to act for cooperation. That greater attitudes about the severity of COVID-19 were associated with more social distancing, disinfecting, and news monitoring, but also more hoarding. Greater social responsibility was associated with more disinfecting and news monitoring, and less hoarding. Participants who reported valuing their own self-interest over others reported less social distancing and more hoarding. Greater social trust was associated with less hoarding [10].

Social responsibility behaviors were divided into 3 levels. However, the result showed that no participant was in low level. Their social responsibility behaviors for COVID-19 prevention and control were in high level (57.21 %) and moderate level (42.79 %). Protecting oneself from COVID-19 infection and preventing its transmission are one of social responsibility behaviors. Spatial distancing should be the term used when distance between individuals or objects addressed. Grounded in biological and epidemiological data, spatial distance means physical extent. Shared responsibilities inhering in people's social and cultural contexts afford social closeness. Public health should approach the threat of COVID-19 by promoting spatial distance together with social closeness [9]. While the value of social responsibility may demonstrate considerable stability and may be slow to change, targeting these psychological beliefs directly may be an effective medium to promote positive health behaviors [10].

Conclusions

Half of the university students in this study had the knowledge on COVID-19 transmission at Moderate level (50.72 %). Most of the participants had the attitude toward the state measures for COVID-19 prevention and control at High level (81.01 %). Their social responsibility behaviors for COVID-19 prevention and control were at High level (57.21 %) and Moderate level (42.79 %). Knowledge on COVID-19 transmission had significantly associated with social responsibility behaviors (p-value < 0.05) and for attitude on the state measures for COVID-19 prevention and control had significantly association with social responsibility behaviors among university students (p-value < 0.01).

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