PREPAREDNESS, RESPONSE, AND PREVENTIVE BEHAVIORS FOR A PANDEMIC DISASTER CAUSED BY COVID-19 AMONG PRIMARY SCHOOL STUDENTS IN KRABI PROVINCE, THAILAND

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ABSTRACT

Background. The global impact of the Coronavirus Disease 2019 (COVID-19) pandemic has been enormous. The primary school's role and responsibilities include providing students with education and training, cooperating and supporting educational management, and monitoring, following up, and evaluating the school's operations.

Objective. The goals of this study were to evaluate the conditions of preparation for the COVID-19 epidemic's prevention and response, as well as to investigate the relationship between predisposing, enabling, and reinforcing factors in preventing the spread of COVID-19 among primary school students in the educational area.

Material and Methods. A cross-sectional analytical study was used as the research design. The informants are kids in grades 4-6 at Anuban Krabi School in Krabi province. Data is gathered in a computational quantitative manner. Purposive sampling was used to choose the informants. The researchers employed a questionnaire with a content validity index (CVI) of 0.89 and a reliability coefficient (Cronbach's Alpha Coefficient) of 0.89. For quantitative data analysis, the Pearson Correlation Coefficient was used.

Results. In preparation for the COVID-19 outbreak, there is a high degree of knowledge, behaviors, and self-conduct ($\bar{x}$=2.78, 2.55, 2.66, and 2.78). The perception and awareness of the COVID-19 epidemic were statistically significant at $P < 0.01$ in terms of the relationship between perception, awareness, behavior, and self-conducting in stopping the spread of COVID-19. Conclusion: At $P < 0.01$, regarding the relationship between COVID-19 epidemic perceptions, behaviors, and self-conducting. The correlation between awareness, behaviors, and self-conducting in relation to the COVID-19 outbreak was statistically significant at $P<0.01$.

Conclusions. To prepare and response for COVID-19 enhance and concern perceived policy and COVID-19 information, participation with stakeholders or communities emphasize COVID-19 prevention and all of organization and family.

Key words: *preparedness, response, preventive behaviors, disaster, COVID-19, Thailand*

INTRODUCTION

COVID-19 is an emerging disease that began to spread worldwide in December 2019. The World Health Organization (WHO) officially announced the disease on February 11, 2020 as Coronavirus Disease 2019 [12]. WHO declared COVID-19 an epidemic on March 11, 2020 with 731,453 cases and 34,660 deaths globally [13]. The outbreak was first reported from Wuhan, Hubei Province, China [10, 11]. The disease is primarily transmitted by inhalation of droplet transmission from a patient who coughs, sneezes or exhales and is invisible to the eyes about one to two meters distance is the distance that can be infected when approaching the patient [17]. WHO is issuing the COVID-19 Strategic Preparedness and Response Plan (SPRP) for 2021, aimed at guiding the coordinated action to overcome the ongoing challenges in the response to COVID-19, address inequities, and plot a course out of the pandemic [14]. The incubation period for the disease is mostly about 4.5 to 5.8 days (average 5.2 days) and the basic reproductive number R(0) was 2.2 at the onset of the outbreak [9]. Coronavirus infection (COVID-19) can be asymptomatic or cause mild to severe clinical illness [8]. As of June 29th, 2021, the current situation of the COVID-19 epidemic has been reported worldwide with 182,277,428 confirmed cases, 3,947,643 deaths, Case Fatality Rate (CFR) was at 2.17% [15]. Globally, the mortality rate is estimated about 3.4% of reported COVID-19 cases have died,

possibly as high as 12 percent of patients that higher effected by underlying disease and older age [4, 11]. The outbreak effects with over 3.5 million recorded deaths from COVID-19, an estimated loss to the global economy of 22 trillion US dollars and new variants compounding explosive outbreaks [16]. The outbreak situation in Thailand as of June 29th, 2021, reported 254,515 confirmed cases, 1,970 deaths and Case Fatality Rate (CFR) was at 0.77% [4]. Particularly, in upper southern region consists of 7 provinces, which are Nakhon Si Thammarat, Surat Thani, Chumphon, Ranong, Krabi, Phang Nga, and Phuket, with 6,537 confirmed cases, 1,523 being hospitalized, and 38 deaths. According to Krabi Provincial Office report on June 29th, 2021, the situation of COVID-19 in Krabi province, there are 404 confirmed cases, Therefore all countries should increase their level of preparedness, alert and response to identify, manage and care for new cases of COVID-19 [18]. In the context of schools and learning situations, which address techniques that can assist reduce sickness exposure and lower the likelihood of transmission among students, instructors, and non-teaching staff. Schools and early care and education (ECE) programs, as well as social, physical, behavioral, and mental health services, are provided by schools are critical components of a community's infrastructure [4]. Educational institutions are therefore very important to promote health and prevent disease, or it can be compared to "school" as a "shelter" for students, which must be considered and given priority to such matters. Under the epidemic situation of coronavirus disease 2019 or COVID-19, which currently has no vaccine to prevent COVID-19 and there is no suitable medicine for children, it is imperative that educational institutions are prepared to deal with the epidemic situation that will greatly affect the teaching and learning system and the health of students and staff in schools. Henceforth, the most important thing is that administrators, teachers, students, parents and personnel of educational institutions must adapt to a new way of living, known as "New Normal", emphasizing practice under measures to prevent the spread of COVID-19 strictly to make educational institutions a safe place from COVID-19, enabling students to learn to their full potential and be safe from disease [7]. The preparation before reopening schools after closing is of great necessity according to rigorous evidence relevant to the COVID-19 emergency to formulate recommendations for policymakers on five critical dimensions of school reopening and recovery including: (1) Engaging communities in reopening plans, (2) Targeting resources to where they are most needed, (3) Getting children back to school, (4) Making school environments safe, and [5]. Recovering learning loss and building back better [1]. According

to Guidelines for educational institutions to prevent the spread of COVID-19, Thailand, Department of Health Ministry of Health at 20 May 2020, consists of 6 points: (1) screening must be screened for body temperature, (2) Wearing mask throughout their time at school, (3) Hand-washing with soap and water for at least 20 seconds or use an alcohol gel, (4) Maintaining social distance a distance of at least 1-2 meters between people, (5) Open doors and windows to allow ventilation if air conditioning is needed; set time limits for turning on and off air conditioners; open doors and windows for ventilation every 1 hour; and cleaning classrooms and surrounding areas and providing rubbish bins with lids and collecting garbage from the classroom for disposal every day, (6) Reduce congestion (reduce the time of work, reduce the duration of the activities as much as possible and avoid group activities [5]. The COVID-19 epidemic situation has a huge impact on all sectors. When the situation improves, the reopening of onsite schools after the closure is necessary to be prepared. Strict behavior among students and personnel in schools or educational institutions will reduce the chance of infection and prevent the spread of COVID-19 and ensure safety for everyone. Therefore, there should be an assessment of the preparedness and responded for the term to begin and establish a connection with the preventive measures of the Center for COVID-19 Epidemic Situation Management to prevent the spread of COVID-19. Krabi, in Southern Thailand, is a tourist city with people traveling in and has a large number of schools and students, which are directly affected by the COVID-19 epidemic, and there is no research work on the preparation of primary schools in the area. This study aimed to assess the following community factors for COVID-19 prevention using the PRECEDE model as a conceptual framework [6]. The PRECEDE model was applied for social and ecological assessment and is comprised of predisposing, enabling, and reinforcing factors related to behaviors in Predisposing factors such as perceived risk and the advantage of risk prevention, enabling factors such as: school sanitation, and reinforcing factors such as perceived policy and COVID-19 information, participation with stakeholders or communities emphasize COVID-19 prevention. The conceptual of the study showed as Figure 1.

MATERIALS AND METHOD

A cross-sectional analysis study to assess the situation Preparedness, Response and Preventive Behaviors for a Pandemic Disaster Caused by COVID-19 among Primary School Students in Krabi Province, Thailand. The study was approved by the Ethics Committee in Human Research Walailak
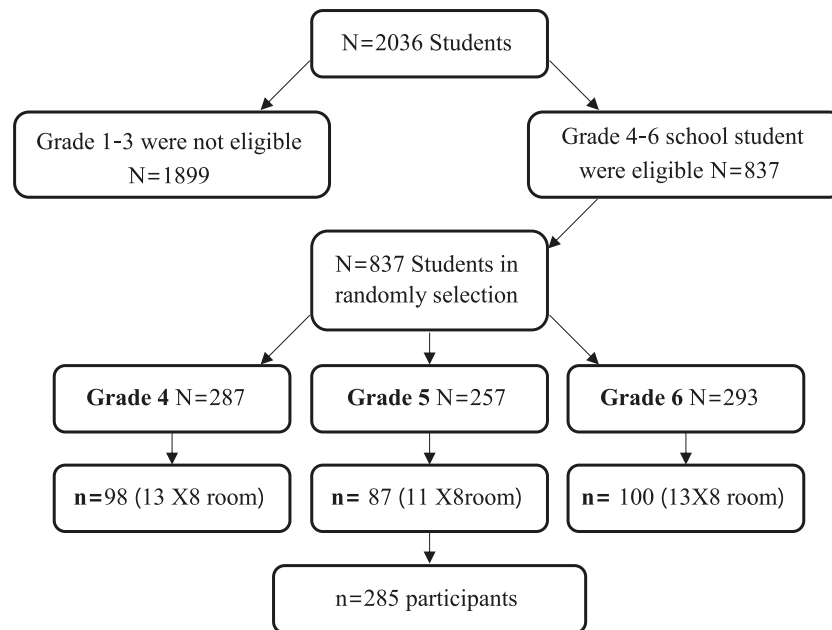
Figure 1. Flowchart for sample selection

University Project No. WUEC-21-244-01 on September 2rd, 2021.

Population and samples

There are 211 schools under the Krabi Primary Educational Service Area Office and 2 schools under the Special Education Bureau. Krabi province has 1 primary education area in Krabi province, covering the entire province of Krabi. From the target population of 837 people, 271 people were calculated using Krejcie and Morgan formula from the target population and added a 5% error in data collection to cover the grades 4-6, totaling 285 students in grades 4-6 were participated in this research as flowchart in Figure 1.

Methods

The research instrument was a questionnaire studied personal factors, predisposing factors (perceived of risk, perceived severity), enabling factors (well-being environment, access disease prevention equipment and activities to promote disease prevention), reinforcing factors (Policy and standard of prevention COVID spreading in primary school) and social support. Content validity and the reliability of the study instruments were checked by 3 experts (CVI = 0.89, Cronbach's Alpha Coefficient = 0.89). The questionnaire consisted of 5 parts, the first part consisted of 6 items of personal data, and the second part was 11 risk perception and benefit on COVID-19 prevention, the third part was a 21 questions of the enabling factors and social support, the forth part were 12 questions on preventive behavior in outbreak, and the fifth part about the student preparation of the COVID-19 epidemic, totaling 16 items, and the third part was a questionnaire on preparation pattern of students for COVID-19 prevention, 22 items.

Data collecting. Due to data collecting during COVID-19 situation, the researchers collected the data using questionnaire through the Google Forms.

Statistical analysis

The study was used a SPSS version 17.5 program and descriptive statistics were used to analyze personal data such as gender, age, religion, educational level of students parents' and occupation parent's income and analyzed the situation assessment and preparation pattern for preventing the spread of COVID-19 among schools in the Krabi educational area by frequency distribution, percentage, and analyzed the relationship of predisposing factors, enabling factors, and reinforcing factors in preventing the spread of COVID-19 among students in Krabi education area using Pearson's Correlation coefficient.

RESULTS

The results showed that 285 students participated in the research were mostly female (53.7%) because Anuban Krabi School had a total of 2,035 students, comprising 1,060 female students (52.1%) and 975 male students (47.9%) (Krabi Secondary Education Service Area, 2021). The research subjects were aged between 9-13 years old. Majority of participants were 11 years (38.2%) and were Buddhist (73.7%). Students' parents were merchant/personal business (47.8%) and their parents' income was 0 – 15,000 US a month (35.4%) (Table 1).

Table 1. Frequency distribution of students by sex, age, region, level of education, parents' occupations and parents' incomes (n = 285)

Variables	Group	Number	Percentage
Sex	Male	132	46.30
	Female	153	53.70
Age	9 years	47	16.50
	10 years	75	26.30
	11 years	109	38.20
	12 years	50	17.50
	13 years	4	1.40
Religion	Muslims	74	26.00
	Christians	1	0.40
	Buddhism	210	73.70
Grade of education	Grade 4	98	34.40
	Grade 5	87	30.50
	Grade 6	100	35.10
	Unemployed	15	5.30
	General contractor	20	7.00
	Government officer	106	37.20
	Merchant/Personal	136	47.80
	Agricultural	8	2.80
Incomes (US/month)	0 – 500	101	35.40
	501 – 1,000	94	33.00
	1,001 – 3,000	31	10.90
	> 3,000	59	20.70
Mean(SD) = 1,194.05 (1592.48)Min:Max = 1,000:15,000			

Level of student assessment and schools' self-assessment

In the assessment of students, the researcher studied all 5 factors as follows: Students' perception (SP) with 12 items, Students' Behaviors (SB) with 5 items, School Environment management (SE) with 10 items, Readiness (RE) with 12 items and Parents' Support (PS) with 11 items. For Schools' self-assessment 44 items. The cut-off point of all factors' level was considered using the Ministry of Education's preparatory criteria for school openings in Thailand; Low level (not allowed to open) = less than 50% of score, Moderate level (openable with conditions) = 51%-99% of score and High level (Fully on-site open) = 100% of score.

The results showed that most of Students' Perception (SP) was Moderate level (99.60%) and Low level (0.40%), the all average of SP was Moderate level with (mean, SD: 29.91, 2.38). The Students' Behaviors (SB) showed High level (21.10%) and Moderate level (78.90%), the average of SB was Moderate level with (mean, SD: 13.28, 1.44). School Environment (SE), showed High level (21.40%) and Moderate level (78.60%), the average of SE was Moderate level with (mean, SD: 28.15, 1.76). In terms of Readiness (RE), the result showed High level (26.70%), Moderate level (72.30%) and Low level (1.10%), the average of RE was Moderate level with (mean, SD: 33.03, 3.83). For the Parents' support (PS), the average majority were Moderate level (64.90%), High level (32.60%) and Low level (2.50%) with (mean, SD: 30.13, 3.97).

In the other hand, The Schools' self-assessment showed the high level (100%) in all aspects that was contrast from the Student Assessment Levels that was Moderate level (Table 2).

The analysis of variation in the scores from Grade 4 to Grade 6 students in the Students' perception (SP) was done by one-way ANOVA test, which shown significant increase with the increasing education level of study to Grade 6. However, Students' behaviors (SB), School Environment (SE), Readiness (RE) and Parents' support (PS) had no difference in each education level. (Table 3)

Predicting factors by multiple linear regression (Enter)

To explore the predictor variables of Readiness for preventing the spread of COVID-19 among students, the main independent variables such as Students' perception (SP), Students' behaviors (SB), School Environment (SE) and Parents' support (PS) model constructs entered the regression model analysis. The model accounted for 61% of the variance of Readiness. According to the results of Table 4, increasing the score of Students' perception (Beta 0.314, P<.001) and School Environment (Beta 0.587, P<.001) were positively with Readiness. The positive relationship

Table 2. Number, percentage, mean, standard deviation of variables in preventing the spread of COVID-19 among students and Schools' self-assessment (n = 285)

Variables	Student assessment levels					Schools' self-assessment
	Low n (%)	Moderate n (%)	High n (%)	Mean (SD)	Level	
Students' perception	1(0.40)	284 (99.60)	-	29.91 (2.38)	Moderate	High
Students' behaviors	-	225 (78.90)	60 (21.10)	13.28 (1.44)	Moderate	High
School environment	-	224 (78.60)	61 (21.40)	28.15 (1.76)	Moderate	High
Readiness	3 (1.10)	206 (72.30)	76 (26.70)	33.03 (3.83)	Moderate	High
Parents' support	7 (2.50)	185 (64.90)	93 (32.60)	30.13 (3.97)	Moderate	High

Table 3. One-way ANOVA test for the comparison of mean scores of predisposing factors, enabling factors, and reinforcing factors based on level of education (n = 285)

Variables	Mean±SD			F value	P value
	Grade 4	Grade 5	Grade 6		
Students' perception (SP)	29.67±2.37	29.58±2.83	30.45±1.84	3.920	.021*
Students' behaviors (SB)	13.23±1.41	13.10±1.55	13.48±1.36	1.662	.192
School Environment (SE)	28.20±1.55	27.85±2.07	28.38±1.64	2.164	.117
Readiness (RE)	33.14±3.55	32.45±4.68	33.44±3.22	1.579	.208
Parents' support (PS)	29.98±3.80	30.66±3.79	29.82±4.26	1.160	.315

* $P < 0.05$ is significant

Table 4. Predictors in Multiple Linear Regression (The beta Coefficients)

Variables	B	Std. Error	95%CI	Beta	t	p
(Constant)	-15.588	2.697	[-20.896, -10.280]		-5.781	0.000
SP	0.505	0.090	[0.328, .681]	0.314	5.625	<0.001*
SE	1.276	0.102	[1.075, 1.477]	0.587	12.482	<0.001*
SB	-0.132	0.139	[-0.405, .142]	-0.050	-0.948	0.344
PS	-0.022	0.036	[-0.093, .049]	-0.023	-0.605	0.546

Note. $R^2_{Adj} = 0.61$ (n=285, p=0.000), CI = Confident interval for B, * $P < 0.01$ is significant

indicated that student who had higher Students' perception (SP) and School Environment (SE) scored higher on Readiness for preventing the spread of COVID-19. (Table 4).

DISCUSSION

Closures of schools during coronavirus disease pandemic may not be well grounded for SARS-CoV-2 pandemic. Children are less affected by this virus and clinical attack rates in the 0–19 age group are low. Experts opine that school closures might have negative effects on scholastic abilities of children. Based on the results of the study of school preparation for preventing the spread of COVID-19 in all 5 aspects, the overall average preparation is at a high level, consistent with research on Readiness for School Opening in Outbreak of Coronavirus Disease 2019 For Wang Saphung Municipal School 1, Wang Saphung Municipality, Loei Province (Jaruwan Boonsorn, 2021). The research found that Wang Saphung Municipal School 1, Wang Saphung Municipality, Loei Province, is ready to open onsite classes in the situation of the 2019 coronavirus epidemic. Overall, it is at the highest level.

Perception and awareness about the spread of COVID-19 epidemic were statistically significant low positively correlated at p-value <0.01 (r =0.248, P Value 0.000). It has been shown that perception raises awareness and can be applied to prevent COVID-19. Therefore, perception is associated with awareness and has a protective effect against COVID-19, which is consistent with the research on Information Exposure

Behaviors and Awareness of Udon Thani Students During the COVID-19 Epidemic (Seksun Saiseesod, 2021). Regarding awareness of the COVID-19 epidemic, it was found that students had the highest level of awareness. Perception and behavior and self-conducting in the COVID-19 epidemic had a statistically significant moderate positive correlation at p–value <0.05 (r =0.455, P Value 0.000), showing that awareness can lead to behaviors that can prevent COVID-19. Consequently, perception is correlated with behavior and has a protective effect against COVID-19, consistent with research on Perceptions and Preventive Behaviors of the COVID-19 among High School Students in Bangkok, Thailand [19], which is found that the perception of Coronavirus disease 2019 was moderately positively correlated (r = 0.436) with Coronavirus 2019 prevention behaviors statistically significant at the .01 level. Awareness and behavior and self-conducting in the COVID-19 epidemic had a statistically significant moderate positive correlation at p<0.05 (r = 0.455, P Value 0.000) means awareness contributes to behaviors in the prevention of COVID-19. Consequently, awareness is correlated with behavior and affects the prevention of COVID-19, consistent with research Hand Hygiene, Mask Wearing Behaviors and Its Associated Factors during the COVID-19 Epidemic: A Cross-Sectional Study among Primary School Students in Wuhan, China [3]. It was found that primary school students in Wuhan, China, had good hand washing and masking behaviors.

CONCLUSIONS

To prepare and response for COVID-19 enhance and concern perceived policy and COVID-19 information, participation with stakeholders or communities emphasize COVID-19 prevention and all of organization and family.

Ethical consideration

This research was Compliance with Ethical Standards have been approved by an appropriate ethics committee, Research Institute Walailak University (Project No. WUEC-21-244-01 on September 2rd, 2021) and all participants were informed and consent given.

Conflict of interest

The Authors declare no conflict of interest.

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