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The Relationship Between COVID-19 Perceptions, COVID-19 Worries and Behavioural Changes Among the Students of Ammartpanichnukul School in Krabi, Thailand

Pongsakorn Limna [1] (Corresponding Author),
Supaprawat Siripipatthanakul, [2] Kanchanokchon Woodeson, [3] Siriluck Chuaykam, [4]
Sutithep Siripipattanakul, [5] Pichakoon Auttawechasakoon [6]

English Programme (EP), Ammartpanichnukul School, Krabi, Thailand [1, 4]
Native Speaker (NP) Programme, Ammartpanichnukul School, Krabi, Thailand [1, 3]
Manipal GlobalNxt University, Malaysia [2] Bangkok Thonburi University, Thailand [2]
Faculty of Education, Kasetsart University, Thailand [5] Thai Studies Programme, Faculty of Humanities and Social Science, Burapha University, Thailand [6]

palmlimna@gmail.com [1] drsupaprawat@gmail.com [2] vickysunthon@gmail.com [3]
siriluckcat@gmail.com [4] fedustt@ku.ac.th [5] pichchakun4997@gmail.com [6]

ABSTRACT

This study identifies the relationship between COVID-19 perceptions, COVID-19 worries and behavioural changes among the students of Ammartpanichnukul School in Krabi, Thailand. The online survey questionnaires of 392 secondary school students were employed for the quantitative study through stratified random sampling. The collected data were analysed using SPSS Version 27 and the PLS-SEM program. The results show that COVID-19 perceptions are related to COVID-19 worries and behavioural changes. Moreover, COVID-19 worries significantly mediate COVID-19 perceptions and behavioural changes among students. The school administrators and teachers should encourage students' perceptions of COVID-19 knowledge and preventive protocols to manage COVID-19 worries. Finally, students' behavioural changes will incur to prevent them far from the COVID-19 pandemic in the school. The recommendation is to expand more sampling in other schools because COVID-19 perceptions are related to COVID-19 worries and the outcome of students' behavioural changes.

Keywords: *COVID-19, perceptions, worries, behavioural changes, student*

1. INTRODUCTION

1.1. Background of the Research

Many countries continue to cope with a life-threatening viral pandemic caused by Coronavirus Disease 2019 (COVID-19), a rapidly spreading respiratory illness (Iqbal et al., 2020). COVID-19 is a new pandemic outbreak and is a highly contagious disease that has spread worldwide, posing a serious public health risk with far-reaching consequences. All aspects of public health, economics, social issues, travel, international trade, and education are directly and indirectly affected (Panya et al., 2022). Along with the COVID-19 pandemic, fear and worry spread and

grow as COVID-19 is human-to-human transmissible, associated with high morbidity, and potentially fatal, which may heighten the perception of personal danger. Besides, bringing the virus home to their families is one of the most serious concerns (Cori et al., 2020; Schoch-Spana et al., 2020; Urooj et al., 2020). People with more fear, worry, and anxiety about the COVID-19 have higher depression and generalised anxiety (Lee & Crunk, 2020). Furthermore, COVID-19 prevention protocols are essential to prevent the COVID-19 disease from spreading. Governments first encouraged people to change their hygiene and social behaviours (e.g., avoiding handshakes, washing hands more frequently, wearing a face mask, and avoiding social gatherings). They then imposed more stringent measures, such as school closures and stay-at-home orders. (Fetzer et al., 2020; Jandawapee et al. 2022). Adolescents with a greater sense of personal and social responsibility are more compliant with health protocols during the Covid-19 pandemic than adolescents with a low sense of personal and social responsibility (Ningsih et al., 2020). Additional research is crucial to guiding a safe onsite studying while ensuring vulnerable children's health and educational equity. The researchers must prioritise research to plan for safe and equitable school reopening and mobilise resources for capacity building to meet the ongoing need for universal remote public education and avoid widening disparities (Masonbrink & Hurley, 2020). Therefore, COVID-19 perceptions, COVID-19 worries, and behavioural changes are critical in studying the relationship phenomenon in schools.

1.2. Problem Statement

The ongoing COVID-19 pandemic is shaking not only public health governance but every governance around the world, including education (Cori et al., 2020; Ibrahim et al., 2020). An individual's behaviour has changed due to the COVID-19 pandemic (Zwanka & Buff, 2021). Some studies supported the influencing factors on behavioural changes, such as governments' guidelines on epidemic prevention (Ahmad et al., 2020), parental stress (Ren et al., 2020), and life satisfaction (Magson et al., 2021). Besides, some studies investigated the behavioural changes of passengers on sustainable air transport (Song & Choi, 2020), customers' panic buying behaviour (Omar et al., 2021) and customers' payment behaviour (Huterska et al., 2021). Many studies support the perceptions, attitudes and behavioural intention during the COVID-19 pandemic (Zhu & Deng, 2020; Guidry et al., 2021; Pan et al., 2021; Sánchez-Cañizares et al., 2021; Zhang et al., 2021; Quan et al., 2022). Still, few studies support the relationship of COVID-19 perceptions, COVID-19 worries and behavioural changes among students in a secondary school. This study investigates the relationship between COVID-19 perceptions, COVID-19 worries and behavioural changes among Ammartpanichnukul School's students in Krabi, Thailand. It could aid school administrators and teachers to enhance students' perceptions of COVID-19 knowledge and prevention strategies. As a result, students' behaviour will change to keep them safe from the COVID-19 pandemic at school.

1.3. Research Objective

This study identifies the relationship between COVID-19 perceptions, COVID-19 worries and behavioural changes among Ammartpanichnukul School's students in Krabi, Thailand.

1.4. Research Question

Is there any relationship between COVID-19 perceptions, COVID-19 worries and behavioural changes among Ammartpanichnukul School's students in Krabi, Thailand, and how?

2. LITERATURE REVIEW

2.1. COVID-19 Perceptions

Perception refers to the state of being or the process of becoming aware of something through the senses (Given, 2008). COVID-19 perceptions are used to assess the participants' perceptions of their response to COVID-19, such as overreaction responses (Barber & Kim, 2021). Several studies investigated people's perceptions of COVID-19, including perceived risk (Barber & Kim, 2021), perceived threat (Abumalloh et al., 2021), and perceived infectability (Yahaghi et al., 2022). Fear of disease was indeed based on perceived threats (i.e., susceptibility and severity). It was proven to be a key factor in COVID-19 action (Corrigan et al., 2014; Weston et al., 2020). The degree of perceived infectability can also be reflected in an individual's attitude. Perceived infectability also activated the individual's perceived behavioural control when assessing the disease's capability and resources (Alijanzadeh & Harati, 2021; Ullah et al., 2021). Furthermore, an increase in perceived infectability may amplify the effects of the subjective norm. For example, when people feel threatened (i.e., higher perceived infectability) and don't know what to do, they may follow the advice to avoid the community and prevent COVID-19 from spreading (Alijanzadeh & Harati, 2021). Therefore, COVID-19 perceptions among students are critical to consider.

2.2. COVID-19 Worries

COVID-19 worries reflect the extent to which participants were concerned about the impact of COVID-19 on the following: (1) personally contracting it, (2) dying as a result of it, (3) a family member contracting it, (4) disruptions to own lifestyle, (5) local hospitals becoming overwhelmed, (6) the economy entering a recession, (7) local stores running out of critical items (such as food or medicine), and (8) family income declining (Barber & Kim, 2021). However, increased anxiety was associated with a greater perceived likelihood of contracting COVID-19 (Wilson et al., 2021). The high worry levels are related to modestly accepted receiving a vaccine booster dose. Thus, public health officials should encourage scale up educational efforts to disseminate reliable information about the different variants and provide recommendations about receiving a vaccine booster (Alhasan et al., 2021). COVID-19 worries among students in this study are related to indicators such as students' worries to have COVID-19 when studying onsite and worry that their friends and teachers could be infected. Moreover, COVID-19 could disrupt their learning, decline their family's income, vaccination's side effects and be concerned about the safe food in school.

2.3. Behavioural Changes in School During the COVID-19 Pandemic

Theoretical models of behavioural change attempt to explain why and how individuals or groups change their behaviour. These theories are process-oriented and emphasise the importance of environmental context, sociological, cultural, and psychological characteristics in influencing the propensity to change behaviour (Oden et al., 2019). Millions of children may be harmed by the COVID-19 pandemic, and we anticipate that the most significant impact will be on the poorest socioeconomic groups, which are already vulnerable and disadvantaged. However, this global crisis may also bring about positive changes (Gupta & Jawanda, 2020). Adolescence is characterised by change. Nonetheless, in contrast to routine and predictable socio developmental change, the COVID-19 pandemic has wreaked havoc on the lives of adolescents across multiple domains. While adolescents are relatively safe from the health consequences of COVID-19, physical distancing protocols implemented to prevent disease spread pose numerous challenges to their academic and social functioning (Lessard & Puhl, 2021). Changes in educational systems have compelled schools to implement distance education or online learning, e-learning, correspondence education, external studies, flexible learning, and massive open online courses (MOOCs) (Aliyyah et al., 2020). COVID-19

behavioural changes in participants indicated whether they had engaged in specific behaviours or not. Several behavioural changes occurred: (1) increased frequency of handwashing, (2) increased concern for cleanliness, (3) wearing mask, (4) cessation of handshaking, (5) cessation of touching own face, (6) cessation of socialising with others, (7) cessation of public places (such as restaurants, public transportation, libraries, or stores), and (8) complete quarantine (Barber & Kim, 2021). Behavioural changes in this study refer to behavioural changes among the students regarding washing their hands and using sanitiser, cleanliness, wearing a mask, avoiding touching others, social distancing, avoiding going to a large group, always selecting the food carefully. Also, if something changes with the students, they will tell their teachers immediately.

2.4. Research Hypotheses Development

The evident result showed the importance of COVID-19 perceptions, COVID-19 worries and behavioural changes. (Barber & Kim, 2021). Public initial emotional concerns can be critical in improving public perceptions of pandemic risk and mobilising public support for preventive measures (Khosravi, 2020). Moreover, some studies support the relationship between perceptions, attitude, worries and intentional behaviour. It could apply to explain the link between COVID-19 perceptions, COVID-19 worries and intentional behaviours (Sobkow et al., 2020; Choi & Bum, 2020; Karlsson et al., 2021; Rokni, 2021; Barber & Kim, 2021). Therefore, there is an association between COVID-19 perceptions, COVID-19 worries and behavioural changes among school students.

H1: COVID-19 perceptions significantly impact COVID-19 worries.

H2: COVID-19 perceptions significantly impact behavioural changes.

H3: COVID-19 worries significantly impact behavioural changes.

H4: COVID-19 worries significantly mediate COVID-19 perceptions and behavioural changes.

2.5. Conceptual Framework

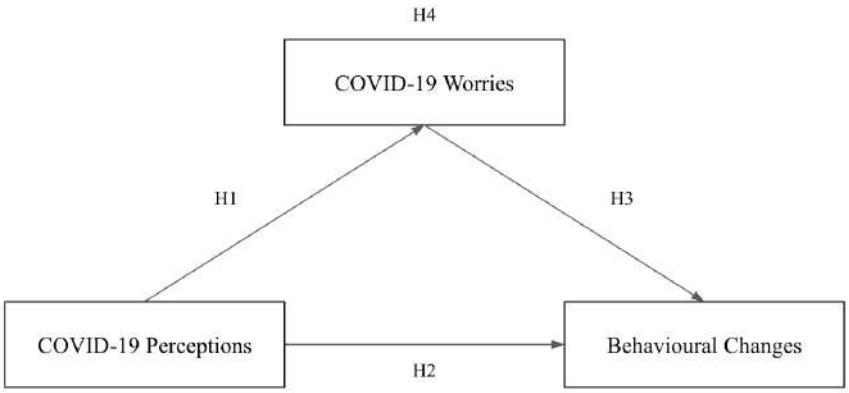

Figure 1. Conceptual Framework

3. RESEARCH METHODOLOGY

3.1. Research Method

This study adopted closed-end questionnaires (Likert's Rating Scale) in data collection. The questionnaire items were developed by the researchers based on previous research. In the reliability of the measurements, the alpha coefficients of Cronbach are needed to overcome all constructs 0.70 (Sitthipon et al., 2022). The main variables in this study were all measured using a five-point Likert Scale, with the following classifications: strongly agree with a value of 5, agree with a value of 4, neutral with a value of 3, disagree with a value of 2, and strongly disagree with a value of 1. The demographics of the respondents were derived from the study conducted by Jandawapee et al. (2022). The questionnaire items in the constructs of COVID-19 perceptions, COVID-19 worries, and behavioural changes were based on Barber & Kim (2021). The measurements were proved by three experts in English teaching for Thai students in Matthayom 4, 5 and 6. Thus, the questionnaire was valid (content and criterion validity).

3.2. Population and Sample

The population in this study was the secondary school students of Ammartpanichnukul School in Krabi, Thailand. The sample was the students studying in Matthayom 4, 5 and 6 (upper secondary school students) in native and English programmes. The definite population was 1,457 students (N=1,457 students). According to Krecie & Morgan (Chuan & Penyelidikan, 2006), sample size determination used the definite population. The sample size required in this study was 304.1698 (approximately 305). Therefore, the sample size was 392 respondents (n=392), over the minimum required of 305 participants. The sample's age was between 15-18 years old.

3.3. Data Collection

The researchers asked for permission from the school's director to conduct this research. The collaborating with two English teachers had done to data distribution and collection. Data was distributed via the self-administered online survey adopting English version questions. To collect data, the researchers employed stratified random sampling to distribute and collect data from students in Matthayom 4, 5 and 6 in Ammartpanichnukul School in Krabi, Thailand. Secondary data collection and literature review was between January 25th, 2022, and February 20th, 2022. Primary data collection was from 22nd to 26th February 2022.

3.4. Data Analysis

The collected data were analysed using SPSS Version 27 and the Partial Least Squares Structural Equation Model: PLS-SEM. Descriptive statistics were used to examine the demographic characteristics of the respondents (frequency and percentage). Each variable's results and questionnaire items were analysed using mean analysis and standard deviation. Cronbach's Alpha reliability coefficient was used to assess the consistency and reliability of the data and was set at 0.7. Factor loadings were calculated for testing the validity of the instrument and were set at 0.6. The AVE was set at 0.5. The hypotheses were tested using PLS-SEM, ADANCO 2.3 (inferential statistic).

4. RESULTS

Table 1. Demographic Characteristics of the Respondents (n=392).

Demographics		Frequency	Percentage
Gender	Female	211	53.8%
	Male	181	46.2%
Age	15 years old	16	4.1%
	16 years old	86	21.9%
	17 years old	250	63.8%
	18 years old	40	10.2%
Education Level	Matthayom 4	94	24.0%
	Matthayom 5	154	39.3%
	Matthayom 6	144	36.7%
Living Situation	With family	338	86.2%
	At dormitory	54	13.8%
Family Members	1 - 2 members	74	18.9%
	3 - 4 members	227	57.9%
	5 members or more	91	23.2%
Daily Expenses	Less than 100 baht	149	38.0%
	101 - 200 baht	157	40.1%
	201 - 300 baht	45	11.5%
	301 - 400 baht	19	4.8%
	More than 400 baht	22	5.6%
Total		392	100%

Three hundred and ninety-two (392) participants who were the upper secondary school students (Matthayom 4, 5 and 6) of Ammartpanichnukul School, Krabi, Thailand, completed online questionnaires. The findings revealed that most respondents were female (53.8%) had been studying in Matthayom 4 (24.0%), Matthayom 5 (39.3%) and Matthayom 6 (36.7%). Most students were 17 years old (63.8%), living with family (86.2%), 3 to 4 members (57.9%), and spent between 101 and 200 baht per day. The demographics represented the secondary school students.

4.1. PLS-SEM Results

Table 2. Factor Loadings, Cronbach's Alpha and Average Variance Extracted (n=392).

Items	Factor Loadings	Cronbach's Alpha	AVE
COVID-19 Perceptions (COP)		0.7912	0.6152
COP1: I follow the updated news about COVID-19 every day. (Mean=4.28, SD.=0.77)	0.7517		
COP2: COVID-19 protocols are necessary for school. (Mean=4.33, SD.=0.61)	0.7868		

COP3: COVID-19 is more dangerous than flu. (Mean=4.52, SD.=0.58)	0.8091		
COP4: Everyone needs the COVID-19 vaccination. (Mean=4.62, SD.=0.53)	0.7887		
COVID-19 Worries (COW)		0.8440	0.5661
COW1: I am afraid to have COVID-19 if I learn onsite in school. (Mean=4.31, SD.=0.82)	0.8189		
COW2: I worry that my friends and teachers could be infected with COVID-19 in schools. (Mean=4.40, SD.=0.71)	0.8562		
COW3: COVID-19 disrupts my learning in school. (Mean=4.46, SD.=0.65)	0.6745		
COW4: COVID-19 situation declines my family's income. (Mean=4.11, SD.=1.13)	0.6370		
COW5: I worry about food safety in the school. (Mean=4.35, SD.=0.81)	0.7921		
COW6: I worry about the COVID-19 vaccination's side effects. (Mean=3.98, SD.=1.21)	0.7102		
Behavioural Changes (BC)		0.9238	0.6219
BC1: I always wash my hands and use sanitiser more often in school during the pandemic. (Mean=4.57, SD.=0.50)	0.7976		
BC2: Cleanliness in school is necessary. (Mean=4.56, SD.=0.54)	0.7831		
BC3: I always wear a mask at school. (Mean=4.62, SD.=0.45)	0.8000		
BC4: I avoid touching others in the school. (Mean=4.35, SD.=0.66)	0.7679		
BC5: I am not touching my face often. (Mean=4.24, SD.=0.73)	0.7370		
BC6: Social distancing in school is essential. (Mean=4.48, SD.=0.1)	0.8207		
BC7: I avoid going to a large group in school. (Mean=4.41, SD.=0.71)	0.7995		
BC8: I always select the food carefully in school. (Mean=4.52, SD.=0.56)	0.8192		
BC9: I will tell my teachers if something is wrong with me. (Mean=4.55, SD.=0.51)	0.7684		

Table 3. The Goodness of Model Fit (n=392).

Goodness of Model Fit	Value
Saturated Model – SRMR	0.0671
Estimated Model – SRMR	0.0671

Table 4. R-Squared (n=392).

Construct	Coefficient of Determination (R^2)	Adjusted R^2
COVID-19 Worries	0.536	0.535
Behavioural Changes	0.688	0.686

Table 5. Effect Overview (n=392).

Effect	Beta	Indirect Effect	Total Effect	Cohen's f^2
COVID-19 Perceptions → COVID-19 Worries	0.7321		0.7321	1.1547
COVID-19 Perceptions → Behavioural Changes	0.5393	0.2552	0.7945	0.4321
COVID-19 Worries → Behavioural Changes	0.3486		0.3486	0.1805

Table 6. Total Effects Inference (n=392).

Effect	Original Coefficient	Standard Bootstrap Results					Percentile Bootstrap Quantiles		
		Mean Value	Standard Error	T-Value	P-Value (2-Sided)	P-Value (1-Sided)	0.5%	2.5%	97.5%
COP → COW	0.7321	0.7345	0.0271	27.0068	0.0000	0.0000	0.6579	0.6805	0.7850
COP → BC	0.5393	0.5421	0.0529	10.1965	0.0000	0.0000	0.4064	0.4423	0.6485
COW → BC	0.3486	0.3451	0.0566	6.1540	0.0000	0.0000	0.1876	0.2248	0.4523

COP = COVID-19 Perceptions, COW = COVID-19 Worries, BC = Behavioural Changes

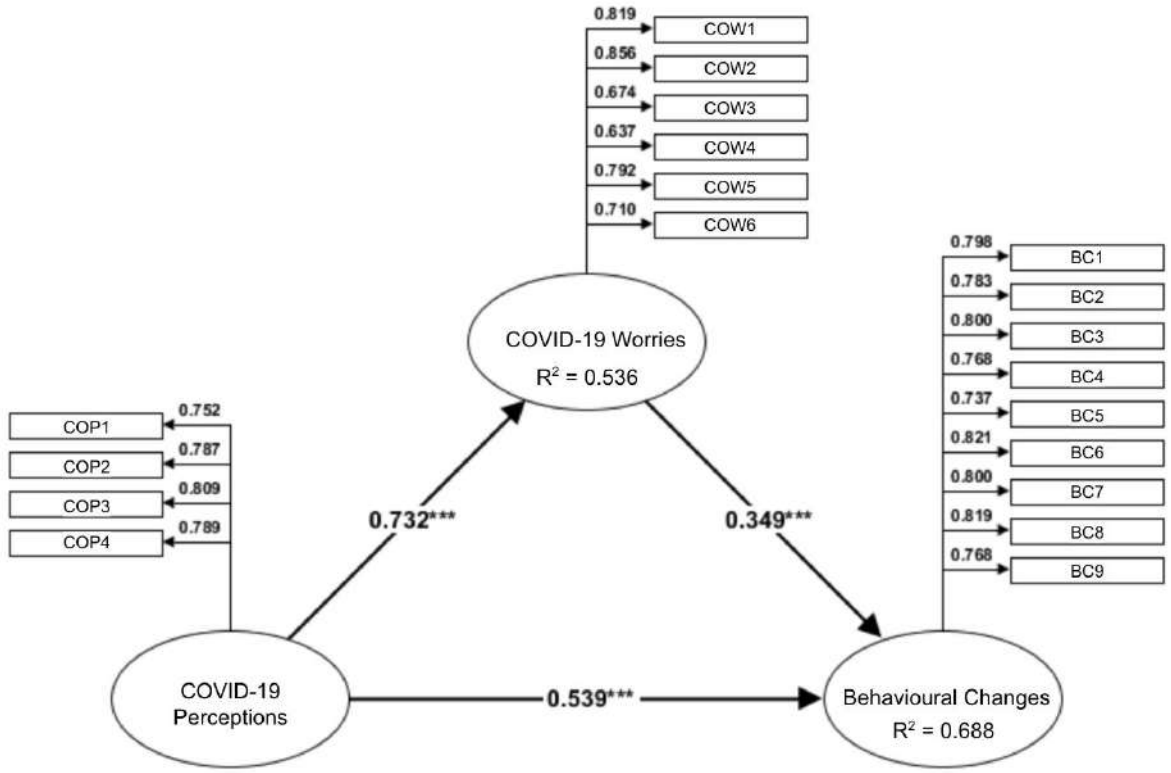

Figure 2. PLS-Structural Equation Model of the Study.

COVID-19 perceptions can predict COVID-19 worries at $\beta=0.7321$, $p<0.001$ (two tails at 0.0000 and one tail at 0.0000). COVID-19 perceptions can predict behavioural changes at $\beta=0.5393$, $p<0.001$ (two tails at 0.0000 and one tail at 0.0000). COVID-19 worries can predict behavioural changes at $\beta=0.3486$, $p<0.001$ (two tails at 0.0000 and one tail at 0.0000). Overall, COVID-19 worries significantly mediate COVID-19 perceptions and behavioural changes by about 68.8% ($R^2=0.688$). Therefore, H1, H2, H3 and H4 were supported.

4.2. Assumptions

Table 7. Summary of Hypothesis Testing.

Hypotheses	Results	Actions
H1: COVID-19 Perceptions → COVID-19 Worries	$\beta=0.7321$ at $p<0.001$	Accepted
H2: COVID-19 Perceptions → Behavioural Changes	$\beta=0.5393$ at $p<0.001$	Accepted
H3: COVID-19 Worries → Behavioural Changes	$\beta=0.3486$ at $p<0.001$	Accepted
H4: COVID-19 worries are a significant mediator between COVID-19 perceptions and behavioural changes.	$R^2=0.536$ at $p<0.001$	Accepted
		Overall, the relationship phenomenon can be explained by 68.8% ($R^2=0.688$).

5. DISCUSSION AND CONCLUSION

5.1. Discussion

The study's PLS-SEM model confirmed the proposed conceptual framework. The findings indicate that COVID-19 perceptions are related to COVID-19 worries and behavioural changes. Moreover, COVID-19 worries significantly mediate COVID-19 perceptions and behavioural changes among students. The results supported the previous research of Barber & Kim (2021) and Khosravi (2020) that there was a relationship between COVID-19 perceptions, COVID-19 worries and behavioural changes. Also, the findings supported the previous research of Choi & Bum (2020), Karlsson et al. (2021), Rokni (2021), and Sobkow et al. (2020) that there was a relationship between COVID-19 perceptions, COVID-19 worries and intentional behaviours. Therefore, COVID-19 perceptions are significantly related to COVID-19 worries and behavioural changes. COVID-19 worries significantly impact behavioural changes. Finally, COVID-19 worries mediate COVID-19 perceptions and behavioural changes significantly.

5.2. Conclusions

COVID-19 perceptions are related to COVID-19 worries and behavioural changes, according to the findings. Furthermore, COVID-19 worries mediate COVID-19 perceptions and behavioural changes in students. School administrators and teachers should encourage students' perceptions of COVID-19 knowledge, especially COVID-19 is more dangerous than flu, and everyone needs the COVID-19 vaccination. The students' worries about COVID-19 disrupt

their learning in school. Also, the students worry that their friends and teachers could be infected with COVID-19 in schools if they learn onsite. Thus, COVID-19 vaccination and information are necessary for the students. The practical measurements for students' behavioural changes could be evaluated through everyone in school wearing masks, washing their hands, and using sanitiser more often during the pandemic. Therefore, it might help school administrators, teachers, and students cope with students' perceptions and worries about COVID-19. Finally, students' behaviours will change to keep them safe from the COVID-19 pandemic at school.

5.3. Research Implication

This study may assist school administrators and teachers to enhance students' perceptions of COVID-19 knowledge and prevention strategies. As a result, students' behavioural changes will incur to prevent them far from the COVID-19 pandemic in the school. Furthermore, this study added to the existing literature on the relationship between COVID-19 perceptions, COVID-19 worries and behavioural changes. This study's findings may aid academics in broadening their research by incorporating more potential elements. The measurements could be used to guide future research on COVID-19 perceptions, COVID-19 worries and behavioural changes. The researchers adopted English version questions that may be practical tools to improve the students' English learning skills in reading, grammar, and vocabulary.

5.4. Limitations and Recommendations

This study is self-administered via an online questionnaire. The relationship phenomenon was explained only for the students' behavioural changes in Ammartpanichnukul School in Krabi, Thailand. It may not cover other areas. Thus, the researchers should expand sampling to other schools for more empirical findings of students' behavioural changes through COVID-19 perceptions and COVID-19 worries among students. Moreover, qualitative research methods such as interviews, observations, and focus groups may shed additional comprehensiveness on future findings.

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