

Perceived Self-Efficacy, Preventive Health Behaviors and Quality of Life Among Nursing Students in Nakhon Si Thammarat Province, Thailand During the COVID-19 Pandemic

Kiatkamjorn Kusol , Pastraporn Kaewpawong 

School of Nursing, and the Excellence Center of Community Health Promotion, Walailak University, Nakhon Si Thammarat, Thailand

Correspondence: Pastraporn Kaewpawong, School of Nursing, and the Excellence Center of Community Health Promotion, Walailak University, Nakhon Si Thammarat, Thailand, Email Pastraporn3@gmail.com

Purpose: COVID-19 is a threat to health worldwide. For nursing students, it affects the physical, mental, social, and family economy. This research aimed to study the relationship between perceived self-efficacy, preventive health behaviors in COVID-19, and quality of life among nursing students during the COVID-19 pandemic.

Samples and Methods: This study was descriptive research. The samples included 273 nursing students by simple random sampling. The data was collected using a questionnaire about perceived self-efficacy, preventive health behaviors, and quality of life. The data were analyzed by descriptive statistics, chi-square, and binary logistic regression statistics.

Results: The mean score of perceived self-efficacy and preventive health behaviors against COVID-19 were high ($M = 71.47$, $S.D. = 8.46$; $M = 69.10$, $S.D. = 8.72$; respectively). The mean score of quality of life was also high ($M = 97.69$, $S.D. = 13.62$). In addition, it was found that perceived self-efficacy and preventive health behaviors were significantly related to quality of life among nursing students ($p < 0.001$). Confirmation with binary logistic regression found that perceived self-efficacy and preventive health behaviors were significantly related to the quality of life ($OR = 2.87$; 95% CI: 1.415–5.85; $OR = 3.39$; 95% CI: 1.43–8.03; respectively) ($p < 0.01$). To clarify, the group with high perceived self-efficacy tended to have 2.87 times good quality of life than the group with low-moderate perceived self-efficacy. The group with high preventive health behaviors tended to have a 3.39 times good quality of life than the group with low-moderate preventive health behaviors.

Conclusion: Well-perceived self-efficacy and preventive health behaviors against COVID-19 among nursing students were related to good quality of life. Therefore, their perceived self-efficacy should be promoted to build their confidence in the adjustment of preventive behaviors to be safe from COVID-19. This will lead to good quality of life among nursing students.

Keywords: perceived self-efficacy, preventive health behaviors, quality of life, nursing students

Introduction

The coronavirus disease 2019 (COVID-19) is a huge public health problem worldwide. The outbreak started at the end of 2019 and then spread rapidly all over the world. WHO announced COVID-19 as a worldwide coronavirus pandemic.¹ The disease causes illnesses and death. It also affects physical health, mental health, social health, and the economic system worldwide.² It was reported that there were around 640 million infected patients in the world. Around 6.49 million patients died.¹ In Thailand, the pandemic started in January 2020. There were around 4.73 million patients and around 33,989 who died (as of 16 May 2023).³ According to the statistical data between 1 January 2020 and 12 March 2022 (1st to 4th wave), 18,428 medical personnel were found infected, and 29 of them died.⁴

COVID-19 can simply be transmitted from human to human through airways or contact with droplets of the virus. The symptoms among infected patients are different, from mild to severe; or they may show acute respiratory distress syndrome and multi-organ dysfunction.⁵ Despite the COVID-19 vaccination campaign that has relieved mortality and

severity of the illness worldwide, it still cannot completely prevent the infection, possibly due to viral mutation. Therefore, there is still a continual spread of the disease in waves. Even vaccinated people can also get infected. For this reason, WHO keeps emphasizing the use of personal preventive measures (PPMs), ie social distancing, wearing surgical masks, and frequent hand washing. These are all necessary and efficient preventive tools.⁶

Nursing institutions paid attention to nursing students during the COVID-19 pandemic as a group with a high risk of infection because they were required to practice with real patients in wards.⁷ Therefore, the instructional mode and practice phase was adjusted to online instruction instead. Equipment, technology, problems, and scenarios were used as instructional media. This sudden change caused a large number of nursing students to be confronted with different issues. It was found that there were improper levels of stress, confusion, and adaptation due to the temporary suspension of clinical practice in hospitals during their practical phase at the early stage of the pandemic, with fear and worries about infection.⁸ Some nursing students were affected by the lower income of their families, illnesses, and the death of family members and their loved ones. A certain number of nursing students were infected with COVID-19, resulting in anxiety, stress, and fear; which all hugely affected their health conditions and quality of life.^{9,10}

According to the survey on national and international research on the quality of life among nursing students during the COVID-19 pandemic, it was found that international research used surveys on quality of life in different aspects based on WHO instruments/tools. The research studied the quality of life among nursing students at universities in South Korea and the Philippines. It was found that the overall quality of life among nursing students was moderate.^{11,12} However in Malaysia, it was found that quality of life among nursing students in mental health and social aspects was lower than in the pre-pandemic period.¹³ For the studies in Thailand, it was found that the overall quality of life among nursing students was moderate as well.^{14,15} In regard to the effects, poor quality of life could affect their learning process or dropout, finally resulting in lower quality and standard of graduate nurses. Thailand is undergoing a huge shortage of registered nurses. Therefore, keeping a good quality of life among nursing students is necessary for nursing instructors to help take care of students in shaping them as efficient registered nurses.¹⁶

According to a previous study among 696 Norwegian teenagers aged 14–15 years, it was found that high perceived self-efficacy generated good quality of life.¹⁷ According to a study of 1085 undergraduates at a university in Spain, it was found that high perceived self-efficacy related to higher self-confidence was a factor facilitating behavioral change, and was related to confrontation with problems and perceived risks of health.¹⁸ According to the concept of Bandura, it states that perceived self-efficacy can be a key factor that supports efficient actions of desirable behaviors, particularly during the COVID-19 pandemic. Previous studies on nursing students mainly focused on mental health, stress,^{19,20} Psychological distress, coping styles,²¹ and fear of the COVID-19 pandemic.^{22,23} The results found that those issues were different based on personal characteristics, gender, and year of study. However, there are still few studies on the quality of life among nursing students under the context of the COVID-19 pandemic, particularly among infected and non-infected nursing students as part of health teams in hospitals, with close physical contact with patients and a higher risk of infection than other students.

The researchers as nursing instructors perceived the problems as stated. Therefore, we were determined to study the relationship between perceived self-efficacy, preventive health behaviors against COVID-19, and quality of life among nursing students at Walailak University during the COVID-19 pandemic. The data obtained can be used as a key foundation for developing guidelines for promoting the self-efficacy of nursing students and preventive health behaviors against COVID-19 to be effective for nursing students can have a good quality of life and well-being and can be good role models for other people in self-care to prevent COVID-19 in the New Normal.

Research Conceptual Framework

This research used the perceived self-efficacy theory of Bandura²⁴ as the conceptual framework. It is believed that perceived skills and efficacy of decision-making, management, or increasing capabilities to perform a particular task are the key factors to generate good health behaviors. Preventive behaviors against infectious diseases are based on self-confidence and perceived self-efficacy. Bandura suggested four components, such as mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal. For preventive behaviors against COVID-19, the researchers relied on preventive and control measures of COVID-19 from the Department of Disease Control,³ along with the “Stay

Home, Stop the Virus, For the Nation” measure from the Ministry of Public Health. Good self-efficacy among nursing students generates good direction of preventive behavior, better quality of life, and improved well-being. Their assessed quality of life included physical health, mental health, and social and environmental relationships.

Material and Methods

Study Design and Sample

In the cross-sectional descriptive research. The samples included 273 nursing students from the School of Nursing, Walailak University.²⁵ The sample size was calculated by Krejcie & Morgan’s formula²⁶ with 95% reliability. A total of 248 samples were obtained in this research. To prevent a loss of samples, 10% of the total was added. Therefore, 273 samples were used in the research. Then, the samples were selected by probability proportional to size. When the samples of each year of study were obtained, they were brought for simple random sampling (drawing without replacement) until the expected number of samples was obtained. Inclusion criteria: The samples included nursing students from the School of Nursing, Walailak University, studying between 1st – 4th year and with no severe illness as an obstacle for answering the research questions. They showed consent and willingness to participate in the research. The data was collected from May to June 2022.

Research Instrument

Research instruments were detailed as follows:

Part 1: There were 8 questions about personal data (gender, age, year of study, residence while studying, number of members living together, underlying disease, history of COVID-19 infection, and history of COVID-19 vaccination).

Part 2: There were 18 questions about perceived self-efficacy among nursing students to prevent COVID-19, developed from preventive and control measures of COVID-19 from the Department of Disease Control,³ with a 5-rating scale (5 = most confident, 4 = very confident, 3 = moderately confident, 2 = slightly confident, and 1 = not confident). For the interpretation of perceived self-efficacy to prevent COVID-19, the total score was between 18–90 points and divided into 3 levels as follows: 18–42 points refer to low perceived self-efficacy, 43–66 points refer to moderate perceived self-efficacy and 67–90 points refer to high perceived self-efficacy.

Part 3: There were 17 questions about preventive health behaviors among nursing students to prevent COVID-19, developed from preventive and control measures of COVID-19 from the Department of Disease Control,³ with a 5-rating scale (5 = every time, 4 = often, 3 = sometimes, 2 = rarely, and 1 = never). For the interpretation of preventive health behaviors to prevent COVID-19, the total score was between 17–85 points and divided into 3 levels as follows: 17–39 points refer to low preventive health behaviors, 40–62 points refer to moderate preventive health behaviors and 63–85 points refer to high preventive health behaviors.

Part 4: There were 26 questions about the quality of life among nursing students. The WHOQOL-BREF (Thai-version) of Suwat Mahatnirunkul et al²⁷ was used, with a 5-rating scale with 4 components (physical health, mental health, social relationship, and environmental aspect). There were 23 positive questions and 3 negative questions. For the interpretation of the WHOQOL-BREF, the total score was between 26–130 points and divided into 3 levels as follows: 26–60 points refer to low quality of life, 61–95 points refer to moderate quality of life and 96–130 points refer to high quality of life.

Validity and Reliability

The content validity of the instruments was tested by five experts (one nursing instructor from the Psychiatric Nursing Program, two nursing instructors from the Pediatric Nursing Program, and two nursing instructors from the Community Nursing Program). CVI (content validity indexes) obtained conformed to the concepts and theories used. To clarify, the CVI of the questions about perceived self-efficacy, preventive health behaviors, and quality of life was 0.98, 0.86, and 0.96, respectively.

For the reliability of the instruments, the improved questionnaires were brought for try-out among a sample of 30 nursing students with similar characteristics to the target sample in the study. The reliability of the questionnaires was calculated by Cronbach’s alpha coefficient. To clarify, the reliability of the questions about perceived self-efficacy, preventive health behaviors, and quality of life was 0.93, 0.92, and 0.95, respectively.

Statistical Analysis

SPSS (Version 24) for Windows™ (IBM Corporation, New York, NY, USA) was used with the following statistics.

1. Descriptive statistics were used to analyze the demographic data, perceived self-efficacy, preventative health behaviors, and quality of life among nursing students, ie frequency, percentages, means, and standard deviations (SD).
2. The relationship between perceived self-efficacy, preventative health behaviors, and quality of life among nursing students was analyzed by chi-square and binary logistic regression, with a significance level of 0.05.

Results

Demographic Data of Samples

Most samples were female (93.4%) aged 18–19 years (43.6%), followed by 20–21 years (42.5%). Most of them did not have an underlying disease (93.8%), were vaccinated against COVID-19 (99.3%), and had been infected with COVID-19 (44.3%). Most of them lived in the university dorms (71.4%), with ≥ 4 members living together (48.4%) followed by 2 members (30%) (Table 1).

Table 1 Number and Percentage of the Samples' Demographic Data (n = 273)

Demographic Data	Number	%
Year of Study		
First	76	27.8
Second	70	25.7
Third	64	23.4
Fourth	63	23.1
Gender		
Female	255	93.4
Male	18	6.6
Age groups		
18–19 years	120	43.6
20–21 years	116	42.5
22–23 years	37	13.5
Have an underlying disease		
No	256	93.8
Yes	17	6.2
Have been vaccinated against COVID-19		
No	2	0.7
Yes	271	99.3
Have a history of COVID-19 infection		
No	152	55.7
Yes	121	44.3
Residence while studying		
On-campus dormitories	195	71.4
Residence near university	74	27.1
Home	4	1.5
Number of members living together		
One	45	16.5
Two	82	30.0
Three	14	5.1
\geq Four	132	48.4

Perceived Self-Efficacy, Preventative Health Behaviors, and Quality of Life

The overall mean perceived self-efficacy was high ($M = 71.47$, $S.D.=8.46$) (75.5%), followed by moderate perceived self-efficacy (24.2%). The overall mean preventative health behaviors were high ($M = 69.10$, $S.D.=8.72$) (83.2%), followed by moderate preventative health behaviors (16.8%). The overall mean quality of life was high ($M = 97.69$, $S.D.=13.62$) (60.1%), followed by moderate quality of life (38.8%) (Table 2).

Relationship Between Perceived Self-Efficacy, Preventative Health Behaviors, and Quality of Life Among Nursing Students

The relationship between perceived self-efficacy, preventative health behaviors, and quality of life was assessed using chi-square. This study found that perceived self-efficacy and preventative health behaviors were significantly related to the quality of life at 0.000 ($p < 0.001$) (Table 3).

When analyzing by binary logistic regression, it was found that perceived self-efficacy and preventative health behaviors were significantly related to quality of life. To clarify, the group with high perceived self-efficacy tended to have 2.87 times good quality of life ($p < 0.01$) than the group with low-moderate perceived self-efficacy ($OR = 2.87$; 95% CI: 1.41–5.85). In terms of preventative health behaviors, the group with high preventative health behaviors tended to have 3.39 times good quality of life ($p < 0.01$) than the group with low-moderate preventative health behaviors ($OR = 3.39$; 95% CI: 1.43–8.03) (Table 4).

Table 2 Number and Percentage of Perceived Self-Efficacy, Preventive Health Behaviors, and Quality of Life ($n = 273$)

Variable	Number	%
Perceived self-efficacy (Mean = 71.47, SD = 8.467)		
Low (score = 18–42)	1	0.3
Moderate (score = 43–66)	66	24.2
High (score = 67–90)	206	75.5
Preventive health behaviors (Mean = 69.10, SD = 8.722)		
Low (score = 17–39)	0	0
Moderate (score = 40–62)	46	16.8
High (score = 63–85)	227	83.2
Quality of life (Mean = 97.69, SD = 13.623)		
Low (score = 26–60)	3	1.1
Moderate (score = 61–95)	106	38.8
High (score = 96–130)	164	60.1

Table 3 Relationship Between Perceived Self-Efficacy, Preventive Health Behaviors, and Quality of Life ($n = 273$)

Variable	Quality of Life			χ^2	p-value
	Total n (%)	Not Good n (%)	Good n (%)		
Perceived self-efficacy				31.43	0.000***
Low-Moderate	67 (100)	46 (68.7)	21 (31.3)		
High	206 (100)	62 (30.1)	144 (69.9)		
Preventive health behaviors				30.86	0.000***
Low-Moderate	46 (100)	35 (76.1)	11 (23.9)		
High	227 (100)	73 (32.2)	154 (67.8)		

Note: *** $p < 0.001$.

Table 4 Binary Logistic Regression Analysis for Exploring the Relationship of Perceived Self-Efficacy and Preventive Health Behaviors with Quality of Life Among Nursing Students (n = 273)

Variable	Quality of Life		B	SE	Wald	df	EXP (B)	95% CI		p-value
	Not Good n (%)	Good n (%)						Lower	Upper	
Perceived self-efficacy										
Low-Moderate ^{Ref.} (Score ≤ 66)	46 (68.7)	21 (31.3)					1			
High (Score ≥ 67)	62 (30.1)	144 (69.9)	1.05	0.36	8.46	1	2.87	1.41	5.85	0.004**
Preventive health behaviors										
Low-Moderate ^{Ref.} (Score ≤ 62)	35 (76.1)	11 (23.9)					1			
High (Score ≥ 63)	73 (32.2)	154 (67.8)	1.22	0.44	7.70	1	3.39	1.43	8.03	0.006**

Notes: Cox and Snell R Square = 0.133, Nagelkerke R Square = 0.181, **p < 0.01, Ref. = reference.

Discussion

Perceived Self-Efficacy

The mean perceived self-efficacy in the samples was high, possibly because nursing students at Walailak University received good support and could access online media of knowledge and practical guidelines on self-care to prevent COVID-19 provided by the public and private sectors. In addition, nursing students were alert to learn about health protection. Health promotion and protection modules were also provided for them from their first year of study, followed by starting real practice at inpatient wards in the second to fourth year. Therefore, when nursing students had knowledge from theoretical and practical phases, with good support from advisors and university services, they had the self-confidence that led to higher perceived self-efficacy. This conformed to the research on nursing students at the Faculty of Nursing, Princess of Naradhiwas University, which found that high knowledge was related to high perceived self-efficacy to prevent COVID-19.²⁸

Preventive Health Behaviors

The overall mean preventative health behaviors against COVID-19 among nursing students was high. Their high preventative health behaviors were possibly due to the high efficiency of public health management in Thailand during the COVID-19 pandemic, along with publicized information and clear practical guidelines to reduce the pandemic (ie frequent hand washing to reduce the virus and to prevent its spread, no use of utensils or belongings with others, eating newly cooked food to make sure of cleanliness and safety, social distancing, wearing masks at all times when staying with others, and implementing health promotion). These were the efficient measures during the pandemic that could prevent the spread or transmission of the disease through close contact and interactions with infected patients.³ Therefore, nursing students could take action and show high preventative health behaviors. The result of this part conformed to other studies on preventive behaviors among the general public, where it was found that their preventive behaviors against COVID-19 were high.^{29,30} Likewise, the research on nursing students found that the overall preventive behaviors among nursing students at the Princess of Naradhiwas University in the New Normal to prevent COVID-19 were high.²⁸ The result of this study also found that the number of vaccinated nursing students against COVID-19 was very high (99.03%), implying their awareness of preventive behaviors against COVID-19.

Quality of Life Among Nursing Students During the COVID-19 Pandemic

Assessment of quality of life among nursing students included four aspects (ie physical health, mental health, social aspect, and environmental aspect) of the COVID-19 pandemic. This research found that the overall mean quality of life among nursing students was high. At the School of Nursing, advisors and instructors took good care of their students. This might be because most of the samples lived in and around the university dorms (98.5%). There was an infection

report system for students, along with an assistance system to find a place for self-quarantine and food and drug delivery for infected and quarantined students. This was inclusive care in all four dimensions that facilitated adaptation among nursing students during the pandemic. The results conformed to a study that found that health science students had higher quality of life than undergraduates from other fields.³¹ However, according to research from Norway on quality of life and fears among 2605 nursing students toward COVID-19 in 5 universities, it was found that their quality of life was lower during the first wave of the pandemic.²² Similarly, the research in Malaysia found that the quality of life among nursing students was lower, particularly in social relationships due to social distancing and limitations of social activities, as well as lower participation due to a higher number of infected patients. Therefore, practical guidelines on the prevention of infection and spread of the disease must be strict. Malaysia contained the third highest number of infected patients in Southeast Asia after Indonesia and the Philippines.¹³

Relationship Between Perceived Self-Efficacy, Preventive Health Behaviors, and Quality of Life Among Nursing Students

According to the research, it was found that good and preventive health behaviors against COVID-19 were related to good quality of life. Nursing students with high perceived self-efficacy had 2.87 times higher quality of life than those with low-moderate perceived self-efficacy (Table 4). That was because nursing students with good knowledge and a good support system exhibit self-confidence to perform preventive health behaviors, resulting in good health conditions in physical, mental, and social aspects that included all four dimensions of quality of life. This conformed to a study on perceived self-efficacy among nursing students in China, which found that perceived self-efficacy was positively related to adaptation in the university during the COVID-19 pandemic, with better quality of life.³² Our research also found that nursing students with high preventive health behaviors against COVID-19 had 3.39 times higher quality of life than those with low-moderate preventive health behaviors. That was because nursing students with high preventive health behaviors against COVID-19 (wearing masks at all times when going out; washing hands with soap and clean water; using 70% alcohol gel; social distancing; and implementing health promotion such as having regular exercise, having enough sleep for 7–8 hours, and receiving the COVID-19 vaccination) had all the necessary factors that promoted their physical and mental health. Consequently, this led to good quality of life. This part conformed to the result which found that preventive health behaviors against COVID-19 were positively and significantly related to quality of life.³³ Therefore, educational institutions should be required to focus on activities that promote high perceived self-efficacy among nursing students to build their confidence in living their daily life, particularly when they have to practice their nursing skills in patient wards. Some COVID-19 patients do not show any signs/symptoms. In this case, it is regarded as a very risky situation. However, if students are confident in themselves and receive a good support system, this can lead to good quality of life later on. The result conformed to the perceived self-efficacy concept and theory of Bandura, who stated that preventive behaviors against infectious diseases are based on self-confidence and perceived self-efficacy.²⁴ Good health can create a good quality of life.

Conclusion

Because of the severity of the COVID-19 pandemic worldwide, it is a major public health problem, and the focus must be on health protection at individual and social levels. It is also required for nursing students to study and perform activities together in their universities. They must also practice their nursing skills in hospitals. This study implied high perceived self-efficacy, preventive health behaviors against COVID-19, and quality of life among nursing students, with a significant relationship. Therefore, promoting well-perceived self-efficacy and high preventive health behaviors against COVID-19 can help generate good quality of life among nursing students, which can shape them as good role models for society.

Ethical Approval and Consent to Participate

The researchers conducted the study following the Declaration of Helsinki. All procedures performed in this study included human participants in accordance with the ethical standards of the Ethical Institutional Consideration. This

study was approved by the Ethics Committee on Human Research at Walailak University on 11 May 2022 (WUEC-22-144-01) as required by the process before data collection. Informed consent was obtained by the researchers from all individual participants included in the study.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

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References

1. World Health Organization (WHO). Coronavirus disease (COVID-19) situation report–126. Available from: <https://covid19.who.int/>. Accessed May 25, 2022.
2. Silva PC, Batista PV, Lima HS, et al. COVID-ABS: an agent-based model of the COVID-19 epidemic to simulate health and economic effects of social distancing interventions. *Chaos Solitons Fractals*. 2020;139:110088. doi:10.1016/j.chaos.2020.110088
3. Department of Disease Control, Ministry of Public Health. COVID-19 (EOC-DDC Thailand) Corona virus 2019. Nonthaburi: Department of Disease Control. Available from: <https://ddc.moph.go.th/viralpneumonia/index.php>. Accessed May 25, 2022.
4. Division of Epidemiology, Ministry of Public Health. Weekly epidemiological surveillance report. Nonthaburi: Department of Disease Control. Available from: <https://apps-doe.moph.go.th>. Accessed July 23, 2022.
5. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. *Acta Biomed*. 2020;91(1):157–160. doi:10.23750/abm.v91i1.9397
6. Coronavirus disease (COVID-19) technical guidance: risk communication and community engagement; 2020. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/riskcommunication-and-community-e>. Accessed April 8, 2023.
7. Phuekphan P, Setchoduk K, Saiklang P. The psychological impacts of the COVID-19 pandemic on nursing students. *Thai J Nurs*. 2022;71(4):55–62.
8. Yang SK, Kim M. Factors influencing preventive behavior of COVID-19 among nursing students in South Korea. *Int J Environ Res Public Health*. 2022;19(19):12094. doi:10.3390/ijerph191912094
9. Wang C, Wen W, Zhang H, et al. Anxiety, depression, and stress prevalence among college students during the COVID-19 pandemic: a systematic review and meta-analysis. *J Am Coll Health*. 2021;1–8. doi:10.1080/07448481.2021.1960849
10. Nobari H, Fashi M, Eskandari A, et al. Effect of COVID-19 on health-related quality of life in adolescents and children: a systematic review. *Int J Environ Res Public Health*. 2021;18(9):4563. doi:10.3390/ijerph18094563
11. Jang SJ, Lee H. Social jetlag and quality of life among nursing students during the COVID-19 pandemic: across-sectional study. *BMC Nurs*. 2023;22(1):61. doi:10.1186/s12912-023-01223-x
12. Berdida DJE, Grande RAN. Academic stress, COVID-19 anxiety, and quality of life among nursing students: the mediating role of resilience. *Int Nurs Rev*. 2023;70(1):34–42. doi:10.1111/inr.12774
13. Leong Bin Abdullah MFI, Mansor NS, Mohamad MA, Teoh SH. Quality of life and associated factors among university students during the COVID-19 pandemic: a cross-sectional study. *BMJ Open*. 2021;11(10):e048446. doi:10.1136/bmjopen-2020-048446
14. Romwapee W, Pramualsing W, Tubtimchuen W, et al. Factors associated with quality of life among the fourth year nursing students at boromarajonani sawanpracharak nakhonsawan under the third wave of Covid-19 pandemic situation. *J Res Innovat Evid Based Healthcare*. 2020;1(1):1–12.
15. Melarplont S, Meebunmak Y. Happiness and quality of life to COVID-19 epidemic among nursing students, boromarajonani college of nursing ratchaburi. *J Boromarajonani Coll Nurs*. 2022;5(1):67–78.
16. Thamlikitkul S, Sinudompol S. Factors predicting quality of life of undergraduate nursing students at Kuakarun Faculty of Nursing in Navamindradhiraj University. *Kuakarun J Nurs*. 2019;26(1):55–75.
17. Mikkelsen HT, Haraldstad K, Helseth S, et al. Health-related quality of life is strongly associated with self-efficacy, self-esteem, loneliness, and stress in 14–15-year-old adolescents: a cross-sectional study. *Health Qual Life Outcomes*. 2020;18(1):352. doi:10.1186/s12955-020-01585-9

18. Freire C, Ferrada's M, Regueiro B, et al. Coping strategies and self-efficacy in university students: a person-centered approach. *Front Psychol.* 2020;11:841. doi:10.3389/fpsyg.2020.00841
19. AlAteeq DA, Aljhani S, AlEesa D. Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. *J Taibah Univ Med Sci.* 2020;15(5):398–403. doi:10.1016/j.jtumed.2020.07.004
20. Aslan H, Pekince H. Nursing students' views on the COVID-19 pandemic and their perceived stress levels. *Perspect Psychiatr Care.* 2021;57(2):695–701. doi:10.1111/ppc.12597
21. Sharma A, Kumar R. Psychological distress and coping styles among baccalaureate nursing students: promoting the mental health of future nurses in COVID-19 pandemic. *J Educ Health Promot.* 2022;11(1):331. doi:10.4103/jehp.jehp_1140_21
22. Beisland EG, Gjeilo KH, Andersen JR, et al. Quality of life and fear of COVID-19 in 2600 baccalaureate nursing students at five universities: a cross-sectional study. *Health Qual Life Outcomes.* 2021;19(1):198. doi:10.1186/s12955-021-01837-2
23. Alsolaia A, Alquwez N, Alotaibi KA, et al. Risk perceptions, fear, depression, anxiety, stress and coping among Saudi nursing students during the COVID-19 pandemic. *J Ment Health.* 2021;30(2):194–201. doi:10.1080/09638237.2021.1922636
24. Bandura A. Self-efficacy. In: Ramachandran VS, editor. *Encyclopedia of Human Behavior*. New York: Academic Press; 1994:71–81. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1998).
25. Center for educational services of Walailak University. Available from: <https://ces.wu.ac.th/main/>. Accessed May 25, 2022.
26. Krejcie RV, Morgan DW. Determining sample size for research activities. *Educ Psychol Measure.* 1970;30(3):607–610. doi:10.1177/001316447003000308
27. Mahanirunkul S, Tantiphiwattanasakul W, Poomphaisanchai W, et al. Comparison of the WHOQOL-100 and the WHOQOL-BREF (26 items). *J Ment Health Thailand.* 1998;5(3):4–15.
28. Waedueramae R, Kaewsuksai R, Kongkum P, et al. Relationship between knowledge, perception and new normal behaviors on covid-19 prevention among nursing students, faculty of nursing, princess of Naradhiwas University. *Southern Coll Netw J Nurs Public Health.* 2021;8(2):80–92.
29. Glomjai T, Kaewjiboon J, Chachvarat T. Knowledge and behavior of people regarding self-care prevention from Novel Coronavirus 2019 (COVID-19). *J Nurs Public Health Educ.* 2020;21(2):29–39.
30. Bunthan W, Whaikit P, Soysang V, et al. Factor influencing health promotion behavior for coronavirus disease 2019 (COVID-19) prevention of older adults. *JOPN.* 2020;12(2):323–337.
31. Azzi DV, Melo J, Neto AAC, et al. Quality of life, physical activity, and burnout syndrome during online learning period in Brazilian university students during the COVID-19 pandemic: a cluster analysis. *Psychol Health Med.* 2022;27(2):466–480. doi:10.1080/13548506.2021.1944656
32. Jin J, An H. Nursing students' learning commitment, self-efficacy, and grit during the COVID-19 pandemic: quantitative empirical research on adaptation to college life. *Nurs Open.* 2023;10. doi:10.1002/nop2.1803
33. Duang A, Siripaiboon C, Kehanak S. Perceived self-efficacy and COVID-19 prevention behaviors with quality of life among older persons in Suphan Buri Province. *KKU J Public Health Res.* 2021;14(4):109–124.

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