Factors Predicting the Intention to Perform Prevention Behaviors for Coronavirus 2019 among Junior High School Students

Benyapa Sangiumsisakul M.N.S (Pediatric Nursing)*

*Autchareeya Patoomwan** Ph.D. (Nursing)*

*Jiraporn Punyoo*** Ph.D. (Nursing Science)*

Extended Abstract:

While the immediate danger of COVID-19 has decreased, emerging infectious diseases remain a global concern. As restrictions ease, maintaining preventive behaviors like wearing masks, practicing hand hygiene, and maintaining social distancing becomes increasingly challenging, especially among younger populations. Adolescents who are often asymptomatic may act as disease carriers and may become less vigilant about preventive practices, potentially spreading the infection to others in their families and communities through transmissions within schools. Adolescents in junior high school represent a critical group for interventions. They are at a developmental stage where habits and attitudes toward health behaviors are formed, making them an ideal target for reinforcing long-term preventive practices. Moreover, schools serve as high-contact environments where infectious diseases can spread rapidly. Understanding the factors that influence adolescents who are junior high school students to continue practicing preventive behaviors is essential for long-term preparedness for future pandemics.

This predictive correlational study aimed to investigate the ability of study variables, including attitudes, subjective norms, and perceived behavioral controls, to predict the intention to perform preventive behaviors for COVID-19 among junior high school students. The Theory of Planned Behavior (TPB) was used as a conceptual framework for this study. Three key factors, which consist of attitudes, subjective norms, and perceived behavioral control, play a crucial role in shaping intention and, in the end, behavior. Attitudes refer to students' evaluations of preventive measures. If students perceive these behaviors as valuable and efficient, they are increasingly likely to keep practicing them. Subjective norms involve the influence of peers, family, teachers, and society on students' behavioral choices. Social pressure or encouragement from significant others can shape students' decisions regarding health behaviors. Perceived behavioral control reflects students' confidence in their ability to engage in preventive measures. If they believe they have the resources and ability to continue these behaviors, they are more likely to do so.

**Master's student, Master of Nursing Science Program (Pediatric Nursing), Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University*

***Corresponding author, Assistant Professor, Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, E-mail: autchareeya.pat@mahidol.ac.th*

****Assistant Professor, Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University*

Received July 3, 2024, Revised September 27, 2024, Accepted September 28, 2024

Nurs Res Inno J • Vol. 31, No. 1 • January - April 2025. *pp.1-16*
https://doi.org/10.63647/nrij.v31i1.270306

The sample consisted of 99 junior high school students who attended a school in the Secondary Education Service Area Office 33, Surin province, during the academic year 2022. The sample was selected through purposive sampling based on the following criteria: age 12-15 years old, proficiency in reading, writing, and listening in the Thai language, willingness to participate in the study, and parental or guardian consent. The sample size was calculated using the G*Power program based on the multiple regression analysis formula. The effect size was set at 0.15, the test power at 0.80, and the significance level at 0.05, resulting in a sample size of 77 participants. The researchers increased the sample size by approximately 30% to account for any incomplete data. Therefore, the total sample was 99 students. The research instruments included the Demographic Data Record Form, the Attitude Questionnaire, the Subjective Norms Questionnaire, the Perceived Behavioral Control, and the Intention Questionnaire. All instruments were developed by Park and Oh and then were translated into Thai using the back-translation technique. Data were collected from February to March 2023 through on-site data collection and analyzed using descriptive statistics and stepwise multiple regression analysis.

The results showed that most of the sample were female and their age ranged from 12 to 15 years, with an average age of 13.85 (SD = 1.04). Most participants had prior knowledge about the COVID-19 infection and had experience accessing information about COVID-19 provided by national-level organizations. Additionally, most of the sample had experiences related to self-isolation due to COVID-19. The mean scores of variables indicated a positive attitude towards coronavirus 2019 infection prevention behaviors, good subjective norms, a high level of perceived behavioral control, and a high level of intention to perform prevention behaviors among the sample. The correlational analysis results indicate that intention is positively and significantly correlated with all three predictor variables. Perceived behavioral control exhibit the strongest correlation with Intention ($r = .64$, $p < .001$), followed by subjective norms ($r = .52$, $p < .001$). The weakest correlation is observed between attitude and intention ($r = .41$, $p < .001$). Attitudes and perceived behavioral control can collectively predict the intention to perform prevention behaviors for COVID-19 at a statistically significant level of 43.9% ($R^2 = .44$, p-value $= .027$). However, subjective norms do not predict the intention to perform prevention behaviors. This suggests that while subjective norms influenced how participants felt about social distancing, they did not directly translate into behavioral intentions. The baseline questionnaire on subjective norms showed that items related to reference figures like teachers, schools, and parents, had the highest average scores, while peer-related items had the lowest.

This study's findings can inform school-based health education programs that focus on promoting positive attitudes toward COVID-19 prevention behaviors and enhancing perceived behavioral control that encourages intention to perform these behaviors. Future research should consider exploring additional variables to better explain the variability in the intention to perform these behaviors.

Keywords: Adolescents, Coronavirus 2019, Intention, Prevention behaviors, Planned behavior

ปัจจัยทำนายความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 ของนักเรียนชั้นมัธยมศึกษาตอนต้น

เบญญาภา เสงี่ยมศรีสกุล พ.ย.ม. (การพยาบาลเด็ก)*
*อัจฉรียา ปทุมวัน** Ph.D. (Nursing)*
*จิราภรณ์ ปั้นอยู่*** Ph.D. (Nursing Science)*

บทคัดย่อขยาย :

แม้ว่าภัยคุกคามจากโรคติดเชื้อไวรัสโคโรนา 2019 จะลดลง แต่โรคติดเชื้ออุบัติใหม่ยังคงเป็นปัญหาสำคัญระดับโลก เมื่อมาตรการควบคุมโรคได้รับการผ่อนคลายลง การคงไว้ซึ่งพฤติกรรมป้องกัน เช่น การสวมหน้ากากอนามัย การล้างมือ และการเว้นระยะห่างทางสังคม กลับกลายเป็นเรื่องที่ท้าทายมากยิ่งขึ้น โดยเฉพาะอย่างยิ่งในกลุ่มวัยรุ่นที่มักไม่แสดงอาการ อาจเป็นพาหะนำโรคและมีแนวโน้มที่จะละเลยมาตรการป้องกัน ส่งผลให้เกิดการแพร่กระจายของเชื้อไปยังบุคคลอื่นภายในครอบครัวและชุมชน ผ่านการติดต่อภายในสถานศึกษา นักเรียนระดับมัธยมศึกษาตอนต้นถือเป็นกลุ่มเป้าหมายสำคัญ เนื่องจากอยู่ในช่วงพัฒนาการที่มีอิทธิพลต่อการสร้างพฤติกรรมด้านสุขภาพในระยะยาว อีกทั้งโรงเรียนยังเป็นสภาพแวดล้อมที่มีการสัมผัสใกล้ชิด ซึ่งเอื้อต่อการแพร่กระจายของการติดเชื้อ ดังนั้น การทำความเข้าใจถึงปัจจัยที่ส่งผลต่อการคงไว้ซึ่งพฤติกรรมป้องกันในกลุ่มนักเรียนระดับมัธยมศึกษาตอนต้นจึงเป็นสิ่งสำคัญ เพื่อเตรียมความพร้อมสำหรับการระบาดครั้งใหญ่ในอนาคต

การศึกษานี้เป็นการวิจัยเชิงพรรณนาแบบหาความสัมพันธ์เชิงทำนาย มีวัตถุประสงค์เพื่อศึกษาปัจจัยทำนายความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 ของนักเรียนชั้นมัธยมศึกษาตอนต้นในจังหวัดสุรินทร์ ประกอบด้วย เจตคติ บรรทัดฐานของกลุ่มอ้างอิง และการรับรู้การควบคุมพฤติกรรม โดยใช้ทฤษฎีพฤติกรรมตามแผนเป็นกรอบแนวคิดในการศึกษา ทฤษฎีนี้เน้นองค์ประกอบสำคัญสามประการ ได้แก่ ทัศนคติ บรรทัดฐานของกลุ่มอ้างอิง และการรับรู้การควบคุมพฤติกรรม ซึ่งมีบทบาทสำคัญในการกำหนดความตั้งใจและพฤติกรรม โดยเจตคติหมายถึงการประเมินของนักเรียนต่อมาตรการป้องกัน หากนักเรียนมองว่าพฤติกรรมป้องกันเป็นสิ่งที่มีคุณค่าและมีประสิทธิภาพ พวกเขาจะมีแนวโน้มที่จะปฏิบัติต่อไป ส่วนบรรทัดฐานของกลุ่มอ้างอิงสะท้อนถึงอิทธิพลของเพื่อน ครอบครัว ครู และสังคม ต่อการเลือกปฏิบัติด้านสุขภาพของนักเรียน โดยแรงกดดันทางสังคมหรือการสนับสนุนจากบุคคลสำคัญสามารถส่งผลต่อการตัดสินใจของนักเรียนได้ ส่วนการรับรู้ความสามารถในการควบคุมพฤติกรรมสะท้อนถึงความมั่นใจของนักเรียนในการดำเนินพฤติกรรมป้องกัน หากพวกเขาเชื่อว่ามีทรัพยากรและความสามารถในการปฏิบัติต่อไป ก็จะมีแนวโน้มที่จะปฏิบัติพฤติกรรมดังกล่าวมากขึ้น

กลุ่มตัวอย่างในการศึกษานี้ประกอบด้วยนักเรียนระดับมัธยมศึกษาตอนต้นจำนวน 99 ราย จากโรงเรียนในสำนักงานเขตพื้นที่การศึกษามัธยมศึกษาที่ 33 จังหวัดสุรินทร์ ปีการศึกษา

**นักศึกษา หลักสูตรพยาบาลศาสตรมหาบัณฑิต (การพยาบาลเด็ก) โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล*

***Corresponding author, ผู้ช่วยศาสตราจารย์ โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล, E-mail: autchareeya.pat@mahidol.ac.th*

****ผู้ช่วยศาสตราจารย์ โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล*

วันที่รับบทความ 3 กรกฎาคม 2567 วันที่แก้ไขบทความ 27 กันยายน 2567 วันตอบรับบทความ 28 กันยายน 2567

2565 โดยใช้การสุ่มตัวอย่างแบบเจาะจง ตามเกณฑ์ที่กำหนด ได้แก่ อายุระหว่าง 12–15 ปี มีความสามารถในการอ่าน เขียน และฟังภาษาไทยได้ มีความสมัครใจเข้าร่วมการศึกษา และได้รับความยินยอมจากผู้ปกครอง การคำนวณขนาดกลุ่มตัวอย่าง คำนวณโดยใช้โปรแกรม G*Power ตามสูตรวิเคราะห์การถดถอยพหุคูณ โดยกำหนดขนาดอิทธิพลที่ 0.15 อำนาจการทดสอบที่ 0.80 และระดับนัยสำคัญที่ 0.05 ได้ขนาดกลุ่มตัวอย่างที่ 77 ราย อย่างไรก็ตาม นักวิจัยเพิ่มจำนวนกลุ่มตัวอย่างอีกร้อยละ 30 เพื่อป้องกันการสูญหายของข้อมูล ดังนั้น จำนวนกลุ่มตัวอย่างทั้งหมดจึงมีจำนวน 99 คน เครื่องมือวิจัยประกอบด้วย แบบสอบถามข้อมูลทั่วไป แบบสอบถามเจตคติ แบบสอบถามบรรทัดฐานของกลุ่มอ้างอิง แบบสอบถามการรับรู้การควบคุมพฤติกรรม และแบบสอบถามความตั้งใจ เครื่องมือทั้งหมดพัฒนาโดยพาร์คและโอ และแปลเป็นภาษาไทยโดยใช้เทคนิคการแปลกลับ การเก็บรวบรวมข้อมูลดำเนินการระหว่างเดือนกุมภาพันธ์ถึงมีนาคม พ.ศ. 2566 โดยใช้การเก็บข้อมูลที่สถานศึกษา และวิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนาและการวิเคราะห์การถดถอยพหุคูณแบบขั้นตอน

ผลการศึกษา พบว่า กลุ่มตัวอย่างส่วนใหญ่เป็นเพศหญิง (ร้อยละ 85.90) มีอายุอยู่ในช่วง 12–15 ปี อายุเฉลี่ย 13.85 ปี (SD = 1.04) ส่วนใหญ่มีประสบการณ์การเรียนรู้เกี่ยวกับโรคติดเชื้อโควิด–19 (ร้อยละ 84.80) มีประสบการณ์ในการเข้าถึงเอกสารที่นำเสนอข้อมูลเกี่ยวกับโรคติดเชื้อโควิด–19 ที่จัดทำโดยหน่วยงานในระดับประเทศ (ร้อยละ 80.80) มีประสบการณ์ในการแยกกักตัวที่เกี่ยวข้องกับโรคติดเชื้อโควิด–19 (ร้อยละ 79.80) คะแนนเจตคติโดยเฉลี่ยเท่ากับ 26.61 (SD = 2.75) แสดงว่ากลุ่มตัวอย่างส่วนใหญ่มีเจตคติที่ดีต่อการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 คะแนนบรรทัดฐานของกลุ่มอ้างอิงเฉลี่ย 61.86 (SD = 11.62) แสดงว่ากลุ่มตัวอย่างส่วนใหญ่มีบรรทัดฐานของกลุ่มอ้างอิงต่อการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 ที่ดี คะแนนการรับรู้ความสามารถในการควบคุมพฤติกรรมเฉลี่ย 21.57 (SD = 2.68) แสดงว่ากลุ่มตัวอย่างส่วนใหญ่มีการรับรู้การควบคุมการปฏิบัติตนเพื่อป้องกันการติดเชื้อไวรัสโคโรนา 2019 อยู่ในระดับมาก และค่าคะแนนความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 ค่าเฉลี่ยคะแนน 17.34 (SD = 2.09) แสดงว่ากลุ่มตัวอย่างส่วนใหญ่มีความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 อยู่ในระดับมาก ผลการวิเคราะห์สหสัมพันธ์ พบว่า ความตั้งใจมีความสัมพันธ์ทางบวกกับตัวแปรต้นทั้ง 3 ตัวแปรอย่างมีนัยสำคัญทางสถิติ โดยการรับรู้การควบคุมพฤติกรรมและความตั้งใจมีความสัมพันธ์กันมากที่สุด ($r = .64$, $p < .001$) รองลงมาคือบรรทัดฐานของกลุ่มอ้างอิง ($r = .52$, $p < .001$) ส่วนตัวแปรที่มีความสัมพันธ์กับความตั้งใจน้อยที่สุดคือเจตคติ ($r = .41$, $p < .001$) ผลการวิเคราะห์พบว่าเจตคติและการรับรู้การควบคุมพฤติกรรม สามารถร่วมทำนายความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันการติดเชื้อไวรัสโคโรนา 2019 ได้ร้อยละ 43.9 อย่างมีนัยสำคัญทางสถิติ ($R^2 = .44$; p–value $= .027$) อย่างไรก็ตาม บรรทัดฐานของกลุ่มอ้างอิงไม่สามารถทำนายความตั้งใจดังกล่าวได้ ซึ่งแสดงให้เห็นว่าบรรทัดฐานของกลุ่มอ้างอิงอาจมีผลต่อความรู้สึกของกลุ่มตัวอย่าง เกี่ยวกับการเว้นระยะห่างทางสังคม แต่ไม่ได้มีอิทธิพลนำไปสู่ความตั้งใจในการปฏิบัติพฤติกรรมโดยตรง จากแบบสอบถามในข้อคำถามเกี่ยวกับบรรทัดฐานของกลุ่มอ้างอิง พบว่า บุคคลอ้างอิง เช่น ครู โรงเรียน และผู้ปกครอง มีคะแนนเฉลี่ยสูงสุด ในขณะที่รายการที่เกี่ยวข้องกับเพื่อนนั้นมีคะแนนต่ำสุด

ผลการศึกษาในครั้งนี้สามารถนำไปใช้เป็นแนวทางในการพัฒนาโปรแกรมการศึกษาสุขภาพในโรงเรียน โดยมุ่งเน้นการส่งเสริมเจตคติเชิงบวกต่อพฤติกรรมป้องกันโรคติดเชื้อไวรัสโคโรนา และเสริมสร้างการรับรู้การควบคุมพฤติกรรมเพื่อกระตุ้นความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันดังกล่าว นอกจากนี้ การวิจัยในอนาคตควรพิจารณาปัจจัยอื่นเพิ่มเติม เพื่ออธิบายความแปรปรวนของความตั้งใจในการปฏิบัติพฤติกรรมการป้องกันได้อย่างครอบคลุมยิ่งขึ้น

คำสำคัญ :วัยรุ่น เชื้อไวรัสโคโรนา 2019 ความตั้งใจ พฤติกรรมการป้องกัน พฤติกรรมตามแผน

Introduction

Coronavirus disease 2019 (COVID-19) started to spread by the end of 2019[1], and it has been over five years since the initial outbreak.[2] The disease has spread to more than 200 countries worldwide,[3] with a cumulative total of over 774 million infections and more than 7 million deaths globally.[2] Currently, Thailand has classified coronavirus 2019 as endemic. Since 2023, Thailand's epidemiological situation has shown a declining trend in infections, severe cases, and mortality rates. This was attributed to high levels of vaccination coverage among the population, resulting in increased immunity. Consequently, there is no need for lockdowns to control the spread of the disease as during the initial outbreak.[4] Although Thailand has passed the period of severe coronavirus 2019 outbreaks, there are still ongoing cases of coronavirus 2019. The virus remains a potential risk for resurgence and mutation, particularly among populations at high risk of severe symptoms, such as the elderly, individuals with chronic illnesses, and those with weak immune systems.[2] Though the infection and illness among adolescents were not as severe as among older persons, which most likely asymptomatic infection and a favorable prognosis,[5,6] they may perhaps a disease carrier and the infection can spread to families and communities.[6]

Regarding the spread of coronavirus 2019 among the adolescent population, statistical data on the outbreak in Thailand and globally indicate that adolescents typically have lower infection rates compared to adults and the elderly.[7,8] The statistic of cumulative infection among people younger than 18 years reached 13,608 cases, and infected people of all ages reached 173,401 cases, accounting for the infection in children by 7.8% of infected people of all ages.[7] Regarding COVID-19 case data in Surin province, the cumulative number of infected individuals aged 10-19 years reached 4,810, ranking second in the Health District 9.[9] Surin province as in many other provinces in Thailand, campaigns and prevention behaviors for coronavirus 2019 have been implemented, focusing on educating the public on self-protection methods, such as handwashing, mask-wearing, and maintaining social distance. However, there have been challenges in enforcing these measures in secondary schools, including inconsistencies in adherence and a need for more understanding about the importance of strict prevention. In Surin province, the majority of the population live in semi-urban communities. Previous studies showed that rural communities often perform different prevention behaviors for coronavirus 2019 compared to urban communities. Urban populations are typically consistently encouraged to adopt preventive measures such as wearing face masks and maintaining social distancing due to frequent exposure to crowded environments. However, rural communities may be more relaxed in their adherence to these practices due to less stringent social norms and lower population density. This difference in social norms contributes to varying levels of adherence to preventive behaviors between urban and rural communities.[10]

Adolescents are not ready to evaluate the danger caused by the infection, especially early adolescence, which is an age when they start developing their thinking and self-development. Consequently, they

believe that they are unable to get infected.[11] Adolescents wish to have freedom and become independent. Restrictions imposed during the spread of coronavirus 2019, along with the need to adapt to social environment and changes and modify health behaviors, can lead to stress and anxiety.[12] Therefore, adolescents often neglect measures such as handwashing and wearing masks. This will lead to neglecting healthcare recommendations and expressing behaviors that may increase a chance of infection.[11] Additionally, they tend to have better disease prognoses, often exhibiting milder symptoms and more frequently experiencing asymptomatic infections.[2] Infections among adolescents are often attributed to behaviors involving social gatherings with peers, such as parties, bars, and concerts. These behaviors stem from the developmental stage of adolescence, characterized by a need for social learning, relationship building with peers, and the development of social roles.[13] Adolescents engaging in risky behavior increases the likelihood of spreading coronavirus 2019.[14] Furthermore, negative subjective norms from parents and friends, who play a crucial role in shaping adolescents' perceptions, can influence their behavioral expressions.[15] Preventing the spread of disease among adolescents is not only crucial for safeguarding their health, but also reducing the likelihood of transmission to their families, particularly in households with elderly members or individuals at high risk.[6]

Studies on disease prevention behaviors mostly have been conducted within the framework of the health belief model (HBM),[16] which focuses on individual factors influencing health behaviors. However, adolescent health behaviors, including prevention behaviors for coronavirus 2019, are influenced not only by individual factors but also by external factors. Therefore, researchers have conducted studies to investigate factors predicting intention to perform prevention behaviors for coronavirus 2019 among adolescents. According to theory of planned behavior, developed by Ajzen,[15] behavior expressed by individuals is determined by the intention to practice such behavior. The more intention individuals have to participate in that behavior, the greater efficient the practice becomes. Intention is influenced by and correlated with three factors: attitude, subjective norms, and perceived behavioral control. The findings from the literature review indicated that the theory was studied to describe and predict the intention to practice a wide variety of behavior, such as drug use behavior,[17] sexual behavior,[18] helmet wearing behavior.[19] Reviews of the literature on studies of the intention to perform prevention behaviors for coronavirus 2019, it was found that attitude,[20] subjective norms,[11,20] and perceived behavioral control[11,20,21] were associated with and predictive of the intention to engage in these behaviors.[15] Adolescents hold specific beliefs and attitudes toward prevention behaviors for coronavirus 2019. These behaviors may be perceived as important or unimportant based on individual beliefs. Studying this aspect can help us understand whether adolescents have positive or negative attitudes toward these preventive measures, which in turn can inform the design of campaigns to tailor messages and strategies that resonate with their mindset more effectively. Adolescence is a stage where individuals are heavily influenced by peers, family, and social media.[22] Investigating how adolescents' adherence to prevention behaviors for coronavirus 2019 is affected by their

perception of social expectations. Perceived control over their ability to follow prevention behaviors for coronavirus 2019 is crucial to their decision-making. For example, some adolescents may struggle to comply with the measures due to educational, economic, or resource constraints.[21] Examining this variable will help us understand adolescents' barriers and how to address them to support more effective adherence to preventive measures.

Consequently, the researcher was interested in studying factors predicting the intention to perform prevention behaviors for coronavirus 2019 among junior high school students in Surin province, The study results will identify factors that can predict the intention to follow COVID-19 preventive practices, aiding in the development of guidelines to promote appropriate behavior, plan health education in schools, and prevent the spread of COVID-19 among adolescents.

Objectives of the study

To study the predictive power of attitude, subjective norms, and perceived behavioral control on the intention to perform prevention behaviors for coronavirus 2019 among junior high school students.

Conceptual framework

The theory of planned behavior by Ajzen[15] was employed as the conceptual framework of this study. The theory proposed internal factors of individuals that affect behavior expression of a certain individual. Behavior expressed by individuals is behavioral intention.[23] A person's intention is influenced by three factors: attitude, subjective norms, and perceived behavioral control. Firstly, adolescents are more likely to engage in COVID-19 preventive behaviors if they have a positive attitude toward them. Secondly, they feel pressured by family member, teachers, friends, and medical staff to do so. Thirdly, they believe that certain factors hinder their ability to perform COVID-19 preventive behaviors, but they still feel capable of carrying out these behaviors (perceived behavioral control).

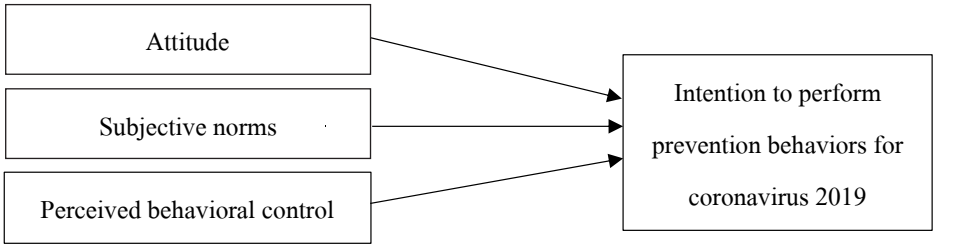

Figure 1 Conceptual framework of the study

Research hypothesis

Attitude, subjective norms, and perceived behavioral control can predict the intention to perform prevention behaviors for coronavirus 2019 among junior high school students.

Methods

A predictive correlational research, which aimed to study factors predicting the intention to perform prevention behaviors for coronavirus 2019 among junior high school students. The sample size was determined by the G*Power with the formula for multiple regression analysis. The effect size was set at 0.15,[24] the power of the test was set at .80, and the level of significance was set at .05. This study consisted 99 junior high school students enrolled in the 2022 academic year at a school under the Secondary Education Service Area Office 33, Surin province. The school was selected by purposive sampling. Subsequently, classrooms were randomly selected for study by simple random sampling, selecting one classroom per grade level. Then, a sample group of students was randomly selected from the classrooms using simple random sampling.

Instruments

The data collection tools used in this study were developed by Park & Oh[11] and translated into Thai using the back-translation technique as follows:

1. The Demographic Data Record Form was composed of gender, age, previous knowledge about coronavirus 2019, accessibility to information about coronavirus 2019 provided by national-level organizations, experiences related to self-isolation due to coronavirus 2019, and symptoms such as fever above 37.5 degrees Celsius and/or respiratory symptoms in the past week.

2. The Attitude Questionnaire was composed of questions about coronavirus 2019 infection prevention behavioral perform in adolescents, four items in the form of a semantic differential scale with adjective pairs in the evaluation (such as "useful-dangerous"), ranging from 1-7. The total score ranged from 4 to 28. Total high score means adolescents have positive attitude towards coronavirus 2019 infection prevention behavioral perform. For this study, the researcher used the Thai version of the questionnaire and had it checked for content validity by 3 qualified individuals. The content validity index (CVI) was .92. The researcher then revised unclear questions based on expert recommendations. After reevaluation, the CVI score was 1. In this study, the Cronbach's alpha coefficient was .89 in the pilot sample of 30 junior high school students and .91 in the main study sample.

3. The Subjective Norms Questionnaire was composed of six question items. There are three items about reference persons and three items about motivation for prevention behaviors for coronavirus 2019. The questions are a five-point Likert scale. Subjective norms towards prevention behaviors for coronavirus 2019 were calculated by multiplying the scores obtained from each question related to each reference group together. After that, the multiplied scores from all three reference groups were then

summed up.[25] The total score ranged from 3 to 75. A high total score indicates that adolescents have a positive perception of subjective norms regarding COVID-19 prevention behaviors. For this study, the researcher used the Thai version of the questionnaire and had it checked for content validity by 3 qualified individuals. The content validity index (CVI) was .92. The researcher then revised unclear questions based on expert recommendations. After reevaluation, the CVI score was 1. In this study, Cronbach's alpha coefficient was .81 in the pilot sample of 30 junior high school students and .83 in the main study sample.

4. The Perceived Behavioral Control Questionnaire comprised five questions about confidence in voluntarily adopting preventive measures in various situations. The questions are a five-point Likert scale. The total score ranged from 5 to 25. A high total score indicates that adolescents strongly believe in their ability to regulate themselves in practicing such behavior. For this study, the researcher used the Thai version of the questionnaire and had it checked for content validity by 3 qualified individuals. The content validity index (CVI) was .92. The researcher then revised unclear questions based on expert recommendations. After reevaluation, the CVI score was 1. In this study, Cronbach's alpha coefficient was .81 in the pilot sample of 30 junior high school students and .80 in the main study sample.

5. The Intention Questionnaire was composed of four questions about the intention to perform prevention behaviors for coronavirus 2019. The questions are a five-point Likert scale. The total score ranged from 4 to 20. A high total score means adolescents have the intention to perform prevention behaviors for coronavirus 2019 at a high level. For this study, the researcher used the Thai version of the questionnaire and had it checked for content validity by 3 qualified individuals. The content validity index (CVI) was .92. The researcher then revised unclear questions based on expert recommendations. After reevaluation, the CVI score was 1. In this study, Cronbach's alpha coefficient was .76 in the pilot sample of 30 junior high school students and .73 in the main study sample.

Human subject protection

The study was approved by the Ethical Review Committee for Human Research of the Faculty of Medicine at Ramathibodi Hospital, Mahidol University, under the reference number COA. MURA2023/24. A formal letter was sent from the Graduate School of Mahidol University to the Director of Sirindhorn School, under the jurisdiction of the Surin Secondary Education Service Area 33, selected for participation. Before commencing the study, the researcher explained the objectives, methods, and benefits to both the sample group and their parents to ensure understanding. They had the right to not participate or withdraw from the study without any adverse effects. The data collected was solely for academic purpose and presented as a whole, without revealing individual information.

Data collection

The data were collected after receiving approval and permission from the director of Sirindhorn School. The participants who were selected by simple random sampling and had agreed to participate were enrolled

in the study. For this study, the researcher chose onsite data collection because, during the data collection period, the coronavirus 2019 situation had subsided. Once all participants had arrived at the room, the researcher and research assistants proceeded to distribute the questionnaires on the scheduled day and time. The researcher collaborated with the research assistants of the selected class to explain the questionnaire completion process. The participant completed the questionnaires for approximately 20-30 minutes. All participants took the questionnaire home and completed it at their convenience. Data were collected between February and March 2023.

Statistical analysis

Statistical analysis was performed with SPSS Version 18.0 statistic software package. Descriptive statistics, including frequency distribution, percentages, means, and standard deviations, were utilized to present general characteristics of the sample group. Multiple stepwise regression analysis was employed to determine the predictive power of the analyzed variables. The researchers conducted preliminary tests for the assumptions of multiple stepwise regression analysis, including normality, linearity, homoscedasticity, and multicollinearity. No violations of these assumptions were found.

Results

The majority of the sample group were females (85.90%). Their ages ranged from 12 to 15 years, with an average age of 13.85 years (SD = 1.04). Most of them had prior knowledge about the coronavirus 2019 infection (84.80%) and had an experience accessing information about coronavirus 2019 provided by national-level organizations (80.80%). Additionally, 79.80% of the students had experiences related to self-isolation due to coronavirus 2019.

The sample group had an average attitude score of 26.61 (SD = 2.75), indicating generally positive attitudes. The subjective norms had an average score of 61.86 (SD = 11.62), showing a good subjective norms. The perceived behavioral control had a mean score of 21.57 (SD = 2.68), signifying a high level of perceived behavioral control. Additionally, the intention to perform prevention behaviors for coronavirus 2019 had an average score of 17.34 (SD = 2.09), indicating a high level of intention among the sample group.

The Correlational analysis shows that intention has a significant positive correlation with all three predictor variables. Among them, perceived behavioral control has the strongest correlation with intention ($r = .64$, $p < .001$), followed by subjective norms ($r = .52$, $p < .001$). The weakest correlation is between attitude and intention ($r = .42$, $p < .001$). The predictor variables for perform prevention behaviors for coronavirus 2019 were tested in this study. In the multiple stepwise regression analysis, it was found that perceived behavior control and attitude could significantly predict intention to perform prevention behaviors for coronavirus 2019, accounting for 43.9% of the variance, $F_{(2,96)} = 5.07$, $p = .027$. Perceived behavior control emerged as the strongest predictor ($\beta = .57$, $p < .001$) (as shown in Table 1)

Table 1 Results of predictive factors analysis for the intention to perform prevention behaviors for coronavirus 2019 using stepwise multiple regression analysis (N = 99)

Predictors	B	SE_b	β	R^2	R^2 Change	t	p-value
Perceived behavioral control	.44	.06	.57	.41	.41	6.84	< .001
Attitude	.14	.06	.19	.44	.03	2.25	0.027
Constant	4.03	1.72				2.33	0.021

R = .66; R^2= .44; Adjusted R^2= .43; $F_{(2,96)}$= 5.07; p-value = .027

Discussion

From the analysis of predictive power regarding the intention to perform prevention behaviors for coronavirus 2019, the study found partial support for the hypotheses. Perceived behavioral control was a stronger predictor than attitude ($\beta_{\text{perceived behavioral control}} = .567, p < .001; \beta_{\text{attitude}} = .187, p < .05$) when considering the Theory of Planned Behavior. Perceived behavioral control, in the context of this study, was determined by beliefs about the presence or absence of stimuli and barriers to performing the behaviors. It signifies motivational forces shaping the intention to perform prevention behaviors. Adolescents who perceived difficulty or obstacles in performing prevention behaviors for coronavirus 2019 tended not to have the intention to perform these behaviors, even if they held positive attitudes toward the behaviors.[15] This finding aligns with Park & Oh,[11] which found that adolescents' perceived behavioral control influenced their intention to engage in COVID-19 prevention behaviors. Oosterhoff et al.'s study[26] also found that when adolescents effectively controlled their behavior, their health behavior levels improved. It also corresponds with Ahmad et al.'s study,[21] found that the factor influencing them to perform prevention behavior was the government measures. When they perceive that performing the behavior is easy, it leads to them performing preventive behaviors accordingly, aligning with Tran et al.'s study.[27] The study revealed that perceived behavioral control, encompassing knowledge and prevention skills, was associated with and influenced adolescents' intention to engage in preventive behaviors.

The results of this study also revealed that attitude could significantly predict the intention to perform prevention behaviors for coronavirus 2019 at the .05 significance level. Considering the Theory of Planned Behavior, it can be explained that an individual's attitude is shaped by beliefs about the behavior. Attitude becomes a determinant of the intention to perform the behavior. If an individual strongly believes that performing the behavior will lead to favorable outcomes, they are likely to intend to perform the behavior.[15] Therefore, adolescents evaluate Coronavirus 2019 prevention behavior as favorable or unfavorable based on their attitudes. Adolescents form positive or negative opinions and feelings. If adolescents have a positive attitude toward the prevention behavior, it results in the intention to

perform the behavior. This finding aligns with Tran et al.'s study,[27] which found that attitudes toward preventive behaviors, including beliefs about their benefits and consequences, were associated with and influenced the intention to engage in such behaviors. This also corresponds with Fenitra et al.'s study,[28] which found that attitudes were positively related to the intention to perform prevention behaviors. Furthermore, regular access to valuable information on COVID-19 prevention behaviors—whether through television, online social media, or government public relations efforts[29]—can help individuals develop positive attitudes[30] toward engaging in preventive behaviors. This, in turn, enchances motivation and promotes prevention behaviors for Coronavirus 2019.[31,32] However, this study's findings do not align with Park & Oh's study,[11] which found that adolescents' attitudes could not predict the intention to perform prevention behaviors for coronavirus 2019. The discrepancy in findings may be attributed to the timing of data collection. While Park and Oh's study was conducted during a period when Coronavirus 2019 remained a significant threat in South Korea (2021), intentions were likely more influenced by safety concerns and social pressures. In contrast, the timing of data collection in the present study may have amplified the role of internal factors, such as attitudes, as participants felt more relaxed and had greater opportunities to reflect on their decisions.

For variables that cannot predict the intention to perform prevention behaviors for coronavirus 2019, namely the subjective norms, this study found that it does not align with the Theory of Planned Behavior.[15] However, this study's findings are consistent with Kumar's study,[33] which found that subjective norms were significant in predicting attitude but not directly significant in predicting intentions. The study found that attitudes mediated the relationship between subjective norms and intentions. This suggests that while subjective norms influenced how participants felt about social distancing, they did not directly translate into behavioral intentions. The findings of this study suggest that while peer groups play a crucial role in adolescents' lives, particularly from early to mid adolescence, influencing their behavior both positively and negatively[22,34] adolescents also have a desire for independence. Being restricted by various measures might lead to stress and anxiety.[12] Furthermore, adolescents have a strong sense of self-confidence and believe they can evaluate or decide on various matters due to self-identity development.[35] Therefore, peer groups, along with other reference groups like parents and teachers, may not significantly impact adolescents′ intention to engage in COVID-19 prevention behaviors.

When considering the item scores of the baseline questionnaire of subjective norms, it was found that the item with the highest average score is related to reference persons such as teachers and schools, parents, followed by the lowest scores which belong to the peer group. Some adolescents may develop a heightened awareness of the importance of following disease prevention measures through teachers and schools, possibly due to education or interactions with knowledgeable individuals.[36] Additionally, information from teachers or schools might be perceived as more reliable than information from other

sources, as it often stems from trusted sources within the community or educational institutions.[37] Another possible reason influencing the study results is the timing of data collection, which occurred during a period when coronavirus 2019 outbreak had subsided. During this time, adolescents had already received sufficient information and guidelines prevention behaviors for coronavirus 2019. This may have shaped their attitudes by enchancing their understanding of the benefits of prevention and encouraging appropriate behaviors. Consequently, attitude played a more prominent role and became a clearer predictor of intention compared to subjective norm. This is because adolescents' decision-making during this period was likely driven by their personal knowledge and beliefs rather than social expectations or external pressures.

Recommendations for future research

This study found that perceived behavioral control and attitude together predict the intention to perform prevention behaviors for coronavirus 2019, accounting for 43.9% of the variance. However, other factors might influence the intention to perform prevention behaviors for coronavirus 2019 that were not examined in this study. Therefore, future research should consider exploring additional variables to better explain the variability in the intention to perform prevention behaviors for coronavirus 2019. To promote prevention behaviors for coronavirus 2019 among adolescents, nurses should enhance and stimulate adolescents' intention to perform these behaviors by focusing on positive attitudes and enhancing their perceived behavioral control.

Limitations of the study

1. This study was conducted in a secondary school where the proportion of female students was higher than that of male students, which may affect the analysis of various variables. For future studies, it is recommended to conduct research in schools with an equal proportion of male and female students.

2. The data collection for this research was conducted by distributing structured questionnaires for participants to complete at home, which may have resulted in incomplete responses or misinterpretation of questions among early adolescent participants. Therefore, for future studies, it is recommended that participants complete the questionnaires together in a classroom setting, with the researcher present to observe the process, allocate sufficient time, allow participants to ask questions for clarification, and review the responses for completeness before participants leave the room.

3. This study collected data from students in a single school within the province, which limits the ability to generalize the findings to students in other schools across the province. Future research should be designed to compare the characteristics of students from schools with different contexts (e.g., urban versus rural schools) to identify factors influencing behaviors or intentions in each group.

Acknowledgments

Grateful acknowledgment is extended to the panel of experts for validating the content of the instruments, as well as to the instrument specialists

who granted permission for the questionnaires. Furthermore, this study was supported by Faculty of Nursing, Rambhai Barni Rajabhat University for the first author's study through the Master of Nursing Science (Pediatric Nursing) Program at Mahidol University.

References

1. Wu JT, Leung K, Leung GM. Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study. The Lancet. 2020;395:689-97. doi: 10.1016/S0140-6736 (20)30260-9.
2. World Health Organization. Update on COVID-19 in Thailand: 7 February 2024. 2024 [cited 2024 June 30]. Available from: https://www.who.int/thailand/news/detail/06-02-2024-update-on-covid-19-in-thailand--7-February- 2024
3. Shangguan Z, Wang MY, Sun W. What caused the outbreak of COVID-19 in China: from the perspective of crisis management. Int J Environ Res Public Health. 2020;17:1-16. doi: 10.3390/ijerph17093279.
4. Department of Disease Control. Summarize the epidemiologically significant events report. 2023 [cited 2023 November 24]. Available from: https://ddc.moph.go.th/uploads/publish/1426920230519085830.pdf
5. Fantini MP, Reno C, Biserni GB, Savoia E, Lanari M. COVID-19 and the re-opening of schools: a policy maker's dilemma. Ital J Pediatr. 2020;46:79. doi: 10.1186/s13052-020-00844-1.
6. Qiu H, Wu J, Hong L, Luo Y, Song Q, Chen D. Clinical and epidemiological features of 36 children with coronavirus disease 2019 (COVID-19) in Zhejiang, China: an observational cohort study. Lancet Infect Dis. 2020;20(6):689-96. doi: 10.1016/ S1473-3099(20) 30198.
7. The Royal College of Pediatricians of Thailand, Pediatric Society of Thailand. Situation of COVID-19 among children (0-18 years old) in Thailand from 1 April 2021 to 29 December 2021. 2022 [cited 2022 March 4]. Available from: https://www.thaipediatrics.org/Media/media-20220426030306.pdf.
8. Wu Z, Mcgooganm JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72,314 cases from the Chinese center for disease control and prevention. JAMA. 2020;323(3):1239-42. doi: 10.1001/jama.2020.2648.
9. Ministry of Public Health. Information on people infected with COVID-19. 2022 [cited 2022 December 6]. Available from: https://ddc.moph.go.th/covid19-dashboard/?dashboard=select-trend-line (in Thai)
10. Payaprom Y, Tantipon H, Manasatchakun P, Chandeekeawchakool S. Adherence to COVID-19 preventive measures among people living in semi-urban community, Chiang Mai province. Journal of Nursing, Siam University. 2022;23(44):61-76. (in Thai)
11. Park S, Oh S. Factors associated with preventive behaviors for COVID-19 among adolescents in South Korea. J Pediatr Nurs. 2022;62:69-76. doi: 10.1016/j.pedn.2021.07.006.
12. Roger AA, Ha T, Ockey S. Adolescents' perceived socio-emotional impact of COVID-19 and implications for mental health: results from a U.S.-based mixed-methods study. J Adolesc Health. 2021;68(1):43-52. doi: 10.1016/j.jadohealth.2020.09.039.
13. Azuji IM, Nwanna UC. Elements of adjustment process in adolescents: suggestions for counselling. IJRISS. 2019;3(4):456-62.
14. World Health Organization. COVID-19 disease in children and adolescents. 2021 [cited 2022 September 9]. Available from: https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci_Brief-Children_and_adolescents-2021.1

15. Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process. 1991;50:179-211.
16. Becker MH. The health belief model and personal health behavior. Health Educ Mongr. 1974;2(4):324-473.
17. Junchoungchot T, Yongyuan B, Musikaphan W, Seree P. Psychosocial factors affecting drug abstinence among children and youth. Academic Services Journal, Prince of Songkla University, 2019;30(1):200-10. (in Thai)
18. Mantham W, Thato R. Factors predicting condom use intention among men who have sex with men students. Kuakarun Journal of Nursing. 2021;28(1):70-81. (in Thai)
19. Konkaew K, Srijaroen W. Causal factors affecting helmet use behavior among public health students of Pibulsongkram Rajabhat university, Phitsanulok province. Journal of Science and Technology Mahasarakham University. 2020;39(3):323-30. (in Thai)
20. Andarge E, Fikadu T, Temesgen R, Shegaze M, Feleke T, Haile F, et al. Intention and practice on personal preventive measures against the COVID-19 pandemic among adults with chronic conditions in Southern Ethiopia/ a survey using the theory of planned behavior. J Multidiscip Healthc. 2020;13:1863-77. doi: 10.2147/JMDH. S284707.
21. Ahmad M, Iram K, Jabeen G. Perception-based influence factors of intention to adopt COVID-19 epidemic prevention in China. Environ Res. 2020;190:1-9. doi:10. 1016/j.envres.2020.109995.
22. Gray KM, Squeglia LM. Research review: what have we learned about adolescent substance use?. J Child Psychol Psychiatry. 2018;59(6):618-27. doi: 10.1111/ jcpp.12783
23. Montano DE, Kasprzyk D. Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In: Glanz K, Rimer BK, Viswanath K, editors. Heath behavior and health education. 4th ed. USA: John Wiley & Sons; 2008. p.68-75.
24. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates; 1988.
25. Ajzen I. The theory of planned behavior: frequently asked questions. Hum Behav Emerg Technol. 2020;2:312-24. doi: 10.1002/hbe2.195.
26. Oosterhoff B, Palmer CA, Wilson J, Shook N. Adolescents' motivations to engage in social distancing during the COVID-19 pandemic: associations with mental and social health. J Adolesc Health. 2022;67(2):179-85. doi: 10.1016/j.jadohealth.2020.05.004.
27. Tran QT, Nguyen HT, Bui TV, Tran NT, Nguyen NT, Nguyen TT, et al. Factors associated with the intention to participate in coronavirus disease 2019 frontline prevention activities among nursing students in Vietnam: an application of the theory of planned behavior. Front Public Health. 2021;9:1-8. doi: 10.3389/fpubh. 2021.699079.
28. Fenitra RM, Usman I, Praptapa A, Suyono E, Kusuma PDI, Usman I. Factors influencing preventive intention behavior towards COVID-19 in Indonesia. J. Behav. Sci. 2021;16(1):14-27.
29. Lomae U, Yeepaloh M, Kajornkittiya K. Factors predicting preventive behaviors of COVID-19 among guardians of preschool aged children. Journal of Prachomklao College of Nursing, Phetchaburi Province. 2022;5(1):14-25. (in Thai)
30. Udonsat S, Wannapuek P, Pongkaew A, Treesorn K. Factors affecting behaviors for corona virus disease 2019 prevention of older adults with diabetes mellitus. Thai Pharmaceutical and Health Science Journal. 2023;18 (2):142-8. (in Thai)
31. Chantorn A, Sarapat P, Sananreangsak S. Predictors of preventive behaviors for coronavirus disease 2019 among early adolescents. The Journal of Boromarjonani College of Nursing, Suphanburi. 2023;6(1):82-96. (in Thai)
32. Phonpinyo M, Phajan T, Vonok L. Factors associated with preventive behaviors for coronavirus 2019 (COVID-19) of monks and novices in Chum Phae district, Khon Kaen province. Regional Health Promotion Center 9. 2023; 17(3):827-41. (in Thai)
33. Kumar A. Do operational facilitating conditions and subjective norms improve the intention to use social distancing nudge during a pandemic: a case of SARS-CoV-2(COVID-19) outbreak in India. Research Square. 2022. doi: 10.21203/rs.3.rs-2075093/v1.

34. Rageliene T. Links of adolescents identity development and relationship with peers: a systematic literature review. J Can Acad Child Adolesc Psychiatry. 2016;25(2): 97-105.
35. Erikson EH. Identity: youth and crisis. New York: W.W.Norton & Company; 1968.
36. Yoon S, An S, Noh DH, Tuan LT, Lee J. Effects of health education on adolescents' non-cognitive skills, life satisfaction and aspirations, and health-related quality of life: a cluster-randomized controlled trial in Vietnam. PLoS ONE. 2021;16(12):1-18. doi: 10.1371/journal.pone.0259000.
37. Hatlevik IKR, Hatlevik OE. Students' evaluation of digital information: the role teachers play and factors that influence variability in teacher behaviour. CHBAH. 2018;83:56-63. doi: 10.1016/j.chb.2018.01.022.