

# Factors Associated with Breastfeeding Intention among Late Adolescent Female Students<sup>1</sup>

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## Factors Associated with Breastfeeding Intention among Late Adolescent Female Students

### Significance

Breastfeeding knowledge, attitudes toward breastfeeding, subjective norm, and perceived behavioral control are associated with breastfeeding intention. However, studies are limited in late adolescent female students in vocational education.

### Objective

To examine associations between breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, and perceived breastfeeding behavioral control with breastfeeding intention in late adolescent female students in vocational education

### Results

#### Factors associated with breastfeeding intention

Breastfeeding Knowledge (r = .172, p = .002)

Attitudes toward breastfeeding behavior (r = .190, p < .001)

Subjective norm about breastfeeding (r = .389, p < .001)

Perceived breastfeeding behavioral control (r = .429, p < .001)

332

Female students



### Recommendation

Knowledge, attitude, subjective norm, and perceived behavioral control can be used to plan for promoting breastfeeding intentions in late adolescent female students in vocational education.



### Extended Abstract

**Introduction** Breast milk contains essential nutrients, including proteins, carbohydrates, fats, vitamins, and minerals. Breastfeeding benefits both mothers and infants by enhancing the immune system and reducing respiratory and gastrointestinal infections. However, the breastfeeding rates among adolescent mothers worldwide and in Thailand remain low. As adolescents transition to adulthood, it is crucial to promote breastfeeding intention before pregnancy, particularly among late school-aged students in vocational education. Previous studies have shown that breastfeeding knowledge, attitudes toward breastfeeding, subjective norms, and perceived behavioral control are associated with breastfeeding intention. However, studies are limited in late adolescent female students in vocational education.

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**Objective** This research aimed to 1) study the intention to breastfeed and 2) investigate factors associated with breastfeeding intention, including breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, and perceived breastfeeding behavioral control among late adolescent female students in vocational education.

**Design** A descriptive correlational design. This study utilized the Theory of Planned Behavior (TPB) by Ajzen, which explains that a person's intention is related to their attitudes toward breastfeeding behavior, subjective norms about breastfeeding behavior, perceived behavioral control over breastfeeding, and breastfeeding knowledge, which is a background factor associated with breastfeeding intention.

**Methodology** The participants included late adolescent students aged 17–19 years who were studying in the third year of vocational program and the first and second year of higher vocational program under the Vocational Education Commission in Bangkok from May to June 2024. The sample size was calculated using the G\*Power program. The effect size was set at 0.184, the power of the test was .95 and the level of significance was .05, obtaining 311 participants. The researchers added 10% to account for data incompleteness, resulting in a total of 342 participants. The research instruments consisted of 6 parts, including 1) a personnel information questionnaire, 2) breastfeeding knowledge questionnaire, 3) attitudes toward breastfeeding questionnaire, 4) subjective norm about breastfeeding questionnaire, 5) perceived behavioral control questionnaire, and 6) breastfeeding intention questionnaire. In this study, the content validity indices of the breastfeeding knowledge questionnaire, attitudes toward breastfeeding questionnaire, subjective norms about breastfeeding questionnaire, perceived breastfeeding behavioral control questionnaire, and breastfeeding intention questionnaire were .96, 1, .80, .96, and 1 respectively. The reliability, Kuder–Richardson 20 for the breastfeeding knowledge questionnaire was .72. The attitudes toward breastfeeding questionnaire, subjective norms about breastfeeding questionnaire, and perceived breastfeeding behavioral control questionnaire had Cronbach's alpha coefficient of .74, .86, and .93, respectively. Data were collected using self administration, from May to June 2024. Data were then analyzed using descriptive statistics and Pearson's product moment correlation coefficient.

**Results** Among 342, 332 participants met the criteria in this study. The average age of the participants was 18.27 years old (SD = 0.69). Most of them lived with their parents (78.31%). The family income of 10,001–20,000 baht/month was the highest frequency (34.6%). The results showed that breastfeeding intention was high. It was significantly associated with breastfeeding knowledge ( $r = .172, p = .002$ ), attitudes toward breastfeeding ( $r = .190, p < .001$ ), subjective norm about breastfeeding ( $r = .389, p < .001$ ), and perceived breastfeeding behavioral control ( $r = .429, p < .001$ ).

**Recommendation** This study provides preliminary data for nurses to plan the promotion of breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, and perceived breastfeeding behavioral control. These efforts will contribute to increasing breastfeeding rates in the future.

**Keywords** attitudes/ breastfeeding intention/ knowledge/ perceived behavioral control/ subjective norms/ Theory of Planned Behavior

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# ปัจจัยที่มีความสัมพันธ์กับความตั้งใจในการเลี้ยงลูกด้วยนมแม่ ของนักเรียนหญิงวัยรุ่นตอนปลาย<sup>1</sup>

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## บทคัดย่อขยาย

บทนำ นำนมแม่ประกอบด้วยสารอาหารที่มีประโยชน์ ได้แก่ โปรตีน คาร์โบไฮเดรต ไขมัน วิตามิน และเกลือแร่ต่าง ๆ การเลี้ยงลูกด้วยนมแม่นั้นมีประโยชน์ทั้งต่อมารดาและทารก ช่วยพัฒนาระบบภูมิคุ้มกัน ลดการติดเชื้อในระบบทางเดินหายใจและระบบทางเดินอาหาร แต่อัตราการเลี้ยงลูกด้วยนมแม่ของมารดา กลุ่มวัยรุ่นทั่วโลกและประเทศไทยยังอยู่ในระดับต่ำ ซึ่งวัยรุ่นจะต้องเติบโตเป็นผู้ใหญ่ ดังนั้นจึงควรส่งเสริมความตั้งใจในการเลี้ยงลูกด้วยนมแม่ตั้งแต่วัยเยาว์ ไม่ตั้งคร่ำครึ จากการศึกษาที่ผ่านมาพบว่าความรู้ในการเลี้ยงลูกด้วยนมแม่ ทักษะคิดต่อการเลี้ยงลูกด้วยนมแม่ บรรทัดฐานของกลุ่มอ้างอิงต่อการเลี้ยงลูกด้วยนมแม่ และการรับรู้ความสามารถในการควบคุมพฤติกรรมการเลี้ยงลูกด้วยนมแม่มีความสัมพันธ์กับความตั้งใจในการเลี้ยงลูกด้วยนมแม่ อย่างไรก็ตาม การศึกษาที่มีจำกัดในนักเรียนหญิงวัยรุ่นตอนปลายที่ศึกษาอยู่ในหลักสูตรอาชีวศึกษา

วัตถุประสงค์การวิจัย การศึกษานี้มีวัตถุประสงค์เพื่อ 1) ศึกษาความตั้งใจในการเลี้ยงลูกด้วยนมแม่ของนักเรียนหญิงวัยรุ่นตอนปลายและ 2) ศึกษาความสัมพันธ์ของความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ ทักษะคิดต่อการเลี้ยงลูกด้วยนมแม่ บรรทัดฐานของกลุ่มอ้างอิงต่อการเลี้ยงลูกด้วยนมแม่ และการรับรู้ความสามารถในการควบคุมพฤติกรรมการเลี้ยงลูกด้วยนมแม่ กับความตั้งใจในการเลี้ยงลูกด้วยนมแม่ของนักเรียนหญิงวัยรุ่นตอนปลายหลักสูตรอาชีวศึกษา

การออกแบบการวิจัย การวิจัยแบบพรรณนาเชิงวิเคราะห์ความสัมพันธ์ การศึกษานี้ประยุกต์ทฤษฎีพฤติกรรมตามแผนของ Ajzen ซึ่งอธิบายว่าความตั้งใจของบุคคลเกี่ยวข้องกับทัศนคติต่อพฤติกรรม การเลี้ยงลูกด้วยนมแม่ บรรทัดฐานทางสังคมเกี่ยวกับพฤติกรรมการเลี้ยงลูกด้วยนมแม่ การรับรู้การควบคุมพฤติกรรมการเลี้ยงลูกด้วยนมแม่ และความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ ซึ่งเป็นปัจจัยพื้นฐานที่เกี่ยวข้องกับความตั้งใจในการเลี้ยงลูกด้วยนมแม่

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วิธีดำเนินการวิจัย กลุ่มตัวอย่างเป็นนักเรียนหญิงวัยรุ่นตอนปลายที่มีอายุ 17-19 ปี กำลังศึกษาอยู่ในระดับประกาศนียบัตรวิชาชีพ (ปวช.) ชั้นปีที่ 3 และระดับประกาศนียบัตรวิชาชีพชั้นสูง (ปวส.) ชั้นปีที่ 1 และ 2 สังกัดสำนักงานคณะกรรมการการอาชีวศึกษา ในเขตกรุงเทพมหานครจำนวน 1 แห่ง คำนวณขนาดตัวอย่าง โดยใช้โปรแกรม G\*Power กำหนดขนาดอิทธิพล 0.184 อำนาจการทดสอบ .95 และระดับนัยสำคัญที่ .05 ได้ตัวอย่างจำนวน 311 คน ผู้วิจัยเพิ่มขนาดของกลุ่มตัวอย่างอีกร้อยละ 10 ในกรณีที่ได้ข้อมูลไม่ครบถ้วน ได้กลุ่มตัวอย่างทั้งหมด 342 คน เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลประกอบด้วย 6 ส่วน ได้แก่ 1) แบบสอบถามข้อมูลส่วนบุคคล 2) แบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ 3) แบบสอบถามทัศนคติต่อการเลี้ยงลูกด้วยนมแม่ 4) แบบสอบถามบรรทัดฐานของกลุ่มอ้างอิงต่อการเลี้ยงลูกด้วยนมแม่ 5) แบบสอบถามการรับรู้ความสามารถในการควบคุมพฤติกรรมกรรมการเลี้ยงลูกด้วยนมแม่ และ 6) แบบประเมินความตั้งใจในการเลี้ยงลูกด้วยนมแม่ ในการศึกษาครั้งนี้ตรวจสอบดัชนีความตรงเชิงโครงสร้างของแบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ แบบสอบถามทัศนคติต่อการเลี้ยงลูกด้วยนมแม่ แบบสอบถามบรรทัดฐานของกลุ่มอ้างอิงต่อการเลี้ยงลูกด้วยนมแม่ แบบสอบถามการรับรู้ความสามารถในการควบคุมพฤติกรรมกรรมการเลี้ยงลูกด้วยนมแม่ และแบบสอบถามความตั้งใจในการเลี้ยงลูกด้วยนมแม่ เท่ากับ .96, 1, .80, .96 และ 1 ตามลำดับ ความเที่ยงของแบบสอบถามความรู้ มีค่าความเที่ยงของคูเดอริชาร์ดสันเท่ากับ .72 ค่าแอลฟาของครอนบาคของแบบสอบถามทัศนคติแบบสอบถามบรรทัดฐานของกลุ่มอ้างอิงและแบบสอบถามการรับรู้ความสามารถในการควบคุมพฤติกรรมกรรมการเลี้ยงลูกด้วยนมแม่เท่ากับ .74, .86 และ .93 ตามลำดับ เก็บรวบรวมข้อมูลในระหว่างเดือนพฤษภาคมถึงมิถุนายน พ.ศ. 2567 โดยการตอบด้วยตนเอง วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนาและวิเคราะห์ความสัมพันธ์โดยใช้สัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน

ผลการศึกษา กลุ่มตัวอย่างที่มีคุณสมบัติตามเกณฑ์จำนวน 332 คน มีอายุเฉลี่ย 18.27 ปี (SD = 0.69) ส่วนใหญ่อาศัยอยู่กับบิดามารดา ร้อยละ 78.31 โดยมีรายได้เฉลี่ยของครอบครัว 10,001-20,000 บาท/เดือนมากที่สุด (ร้อยละ 34.6) ความตั้งใจในการเลี้ยงลูกด้วยนมแม่ของกลุ่มตัวอย่างมีค่าเฉลี่ยที่สูง ผลการศึกษาความสัมพันธ์พบว่า ความตั้งใจในการเลี้ยงลูกด้วยนมแม่มีความสัมพันธ์กับความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ ( $r = .172, p = .002$ ) ทัศนคติต่อการเลี้ยงลูกด้วยนมแม่ ( $r = .190, p < .001$ ) บรรทัดฐานของกลุ่มอ้างอิงต่อการเลี้ยงลูกด้วยนมแม่ ( $r = .389, p < .001$ ) และการรับรู้ความสามารถในการควบคุมพฤติกรรมกรรมการเลี้ยงลูกด้วยนมแม่ ( $r = .429, p < .001$ ) อย่างมีนัยสำคัญทางสถิติ

ข้อเสนอแนะ ผลการศึกษาในครั้งนี้เป็นข้อมูลเบื้องต้นสำหรับพยาบาลในการวางแผนการส่งเสริมความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ ทัศนคติต่อการเลี้ยงลูกด้วยนมแม่ บรรทัดฐานของกลุ่มอ้างอิงต่อการเลี้ยงลูกด้วยนมแม่ และการรับรู้ความสามารถในการควบคุมพฤติกรรมกรรมการเลี้ยงลูกด้วยนมแม่ อันจะนำไปสู่การเพิ่มอัตราการเลี้ยงลูกด้วยนมแม่ได้ในระยะต่อไป

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คำสำคัญ ทัศนคติ ความตั้งใจในการเลี้ยงลูกด้วยนมแม่ ความรู้การรับรู้ความสามารถในการควบคุมพฤติกรรมบรรทัดฐานของกลุ่มอ้างอิง ทฤษฎีพฤติกรรมตามแผน

วันที่ได้รับ 29 พ.ย. 67 วันที่แก้ไขบทความเสร็จ 26 มี.ค. 68 วันที่รับตีพิมพ์ 28 มี.ค. 68

## **Introduction**

Breastfeeding is beneficial for both mothers and infants, as breast milk contains proteins, carbohydrates, fats, vitamins, and various minerals that play crucial roles in the development of the baby's immune system, reducing respiratory infections, preventing COVID-19, and decreasing gastrointestinal infections.<sup>1-3</sup> Mothers who breastfeed can aid in the involution of the uterus, restore weight quickly, and reduce the incidence of ovarian cancer, breast cancer, and type 2 diabetes.<sup>4-5</sup> The most significant aspect is the bonding and attachment between mother and baby.<sup>6</sup> The World Health Organization (WHO) has set a 50.0% exclusive breastfeeding target for the first six months by 2025. However, the global average for exclusive breastfeeding in infants aged 0-6 months is 44.0%.<sup>7</sup> Thailand has set a similar goal to WHO and aims to increase the rate to 60.0% by 2030.<sup>8</sup> Moreover, the exclusive breastfeeding rate among adolescent mothers (17.39%) is lower than that of adult mothers.<sup>9</sup> This is due to teenage mothers' lack of maturity, skills, experience in breastfeeding, and family support.<sup>10</sup>

Teenage pregnancy has become a global concern. In 2023, the pregnancy rate for females aged 15-19 worldwide was 41.3 per 1,000 adolescents. Thailand has the sixth-highest teenage pregnancy rate among Southeast Asian countries, with 23.5 per 1,000 adolescents.<sup>11</sup> A study of teenage pregnancy in Bangkok revealed a rate of 17.2 per 1,000 adolescents aged 15-19 years. It was found that 69.4% of teenage mothers lacked the necessary skills to care for their

babies, and 31.4% of teenage mothers lacked the knowledge to care for their children.<sup>8</sup> The study found that 56.1% of adolescent mothers are students, with the majority (83.9%) in the formal education system. Additionally, 77.0% of adolescent mothers did not intend to get pregnant.<sup>12</sup>

In vocational education, 39.2% of female students in their second year reported being sexually active, which is higher than the 16.2% reported by grade 11 students.<sup>8</sup> Teenagers are susceptible to being influenced to engage in sexual activity due to their curiosity about sexuality and sexual emotions. Among vocational students residing in dormitories, the risk is 14.3%. The factor that influenced sexual activity was being alone, which accounted for 20.3% of their first sexual experience, and 24.1% of sexual activity occurred in dormitories or rental houses. These risk behaviors were found in 50.5% of students who had a partner while studying, with 52.7% instances of sexual intercourse in this group.<sup>13</sup> This group of adolescents is at risk of becoming teenage mothers. Therefore, promoting breastfeeding is an important concept that should be encouraged even before these teenagers become pregnant.

In the transition to adulthood, adolescents develop physically and mentally, gaining concrete thinking abilities, the capacity to learn and understand things deeply, and the skills to think critically and synthesize information. Acceptance from family or friends can lead to an increase in self-confidence and self-worth for adolescents.<sup>14</sup> The intention of adolescents to express themselves will be reflected

in their behaviors. If adolescents are provided with accurate information, it will result in proper knowledge and attitudes. This will positively impact their intention to breastfeed and the rate of breastfeeding.<sup>15</sup>

Literature has revealed that adolescents' knowledge about breastfeeding is insufficient, and their attitudes are incorrect.<sup>16</sup> Previous studies have found that positive attitudes toward breastfeeding and public acceptance of breastfeeding are associated with breastfeeding intentions. Furthermore, subjective norms affect the intention to breastfeed. Adolescents with stronger subjective norms about breastfeeding behavior are more likely to intend to breastfeed.<sup>17</sup> Promoting breastfeeding in schools can increase knowledge and long-term breastfeeding rates. The school's breastfeeding teaching program for adolescent students has been found to improve their knowledge and develop positive attitudes towards breastfeeding, enabling them to breastfeed in the future. Evaluating knowledge and intention is also related to breastfeeding within six months following the implementation of a breastfeeding teaching program for students, helping develop knowledge and intention among the students. Since female adolescents in vocational programs can become mothers and need to breastfeed, it is important to educate and promote the intention of breastfeeding before they become pregnant.

Promoting breastfeeding in schools can lead to an increase in knowledge and long-term breastfeeding rates.<sup>18</sup> The school's breastfeeding teaching program for students has been found to improve their knowledge and develop positive attitudes towards breastfeeding,

enabling them to breastfeed in the future.<sup>19</sup> Evaluating knowledge and intention is also related to breastfeeding within six months following the implementation of a breastfeeding teaching program for students, helping develop knowledge and intention among the students.<sup>20</sup> Since female adolescent students in vocational programs can become mothers and need to breastfeed, it is important to educate and promote the intention of breastfeeding before they become pregnant.

The rate of breastfeeding in Thailand remains low. It is crucial to start educating and promoting breastfeeding intentions among adolescent mothers while in school. In Thailand, the literature shows only one study involving non-pregnant adolescents, which examines knowledge, attitudes, and factors related to adolescent breastfeeding.<sup>21</sup> Family conditions, society, culture, beliefs, and parenting differ between Thai people and foreigners. In Thailand, breastfeeding education is not being promoted among students. Students studying in vocational programs should receive attention due to their high risk of pregnancy. These adolescents may transition into motherhood when they become pregnant and have a child. This study focused on late adolescents aged 17-19 because they have developed cognitive abilities related to perception, thinking processes, and decision-making. Their intellectual development changes during this stage, leading to a greater understanding of abstract concepts. By focusing on breastfeeding as early as adolescence, we can better understand the factors contributing to breastfeeding intentions among adolescents.

### Research Objectives

1. To describe the breastfeeding intention among late adolescent female students
2. To investigate the associations between breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, and perceived breastfeeding behavioral control with breastfeeding intention among late adolescent female students

### Research Hypothesis

Breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, and perceived breastfeeding behavioral control are positively associated with breastfeeding intention among late adolescent female students.

### Conceptual framework

This study utilized the Theory of Planned Behavior (TPB) by Ajzen,<sup>22</sup> which explains that a person's intention is related to their attitude toward breastfeeding behavior, subjective norms about breastfeeding behavior, perceived behavioral control over breastfeeding, and

breastfeeding knowledge, which is a background factor associated with breastfeeding intention.<sup>22</sup>

Attitude is the mental state of readiness that arises from experience. It influences a person's response to liking or disliking and is related to the situation, affecting their decision and intention to engage in that behavior. Subjective norms of the reference group are derived from individuals' beliefs and perceptions, which their close friends or peers can impact. Perceived behavioral control is influenced by the availability of information, skills, opportunities, and resources needed to express behavior and recognize obstacles that must be overcome. The greater the perceived behavioral control, the more likely it is that the intention to exhibit that behavior will be. Moreover, knowledge is an important part of determining behavior. It helps individuals gather more information to make decisions. By having the right information or knowledge, individuals can choose the way that is advantageous for them.<sup>22</sup> (Figure 1)

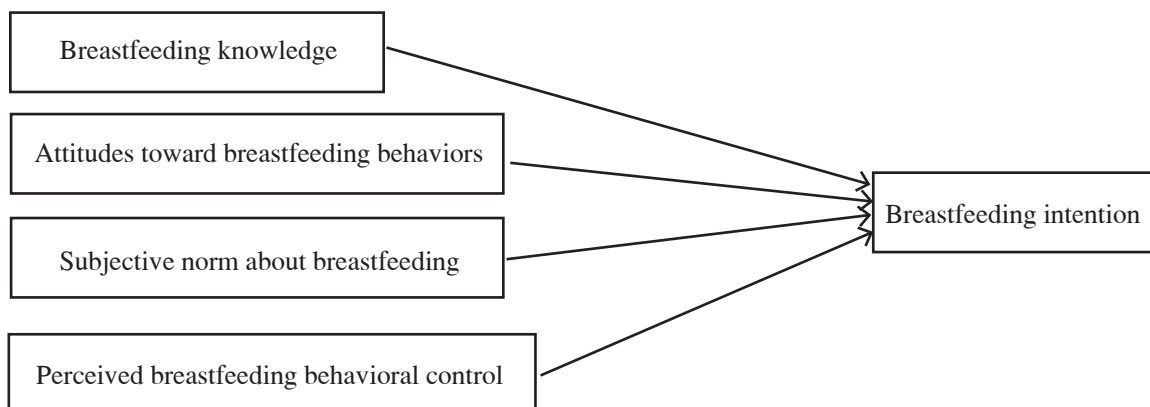


Figure 1 Conceptual Framework

## **Methodology**

### **Study design**

This study employed a descriptive correlational design.

### **Population and sample**

The target population in this study included late teenage female students aged 17–19 years who were studying in the third year of the vocational program and the first and second year of the high vocational program in a college of the Office of the Vocational Education Commission in Bangkok.

The participants were 342 late adolescent female students aged 17–19 years who were studying in the first semester of the academic year 2024, the third year of the vocational program, and the first and second year of high vocational programs in a college of the Office of the Vocational Education Commission in Bangkok.

### **Sample size determination**

The sample size was calculated using G\*Power version 3.1.9.4. The effect size 0.184, was calculated from two similar research.<sup>17,23</sup> The researchers obtained 311 participants and added 10% to cover incomplete data. Thus, the total sample size for this study was 342.

### **Sampling**

The multi-stage random sampling was utilized by randomly selecting a vocational school out of 21 schools and eight classrooms per grade. A simple random sampling was employed to select 114 female students from each grade following the inclusion

criteria: students' consent to participate in the study. For students under 18 years old, parents needed to sign their consent to participate in the study. The exclusion criteria included getting pregnant and having a child.

### **Research instruments**

The instruments used in the present study consisted of 6 parts.

**Part 1: The demographic characteristics questionnaire** was developed by the researchers including 6 items: age, education, area of study, experience of being pregnant and having a child, family status, and monthly income for the family.

**Part 2: The breastfeeding knowledge questionnaire** was modified from Chainok (2015).<sup>24</sup> It was composed of 20 items, 14 of which were positive items and the other 6 were negative items. Interpretation was based on a total scoring range from 0–20. High total scores indicate that the respondent had a high breastfeeding knowledge. According to Bloom (1986),<sup>25</sup> breastfeeding knowledge was categorized into three levels according to the score criteria: high (scores 16–20), moderate (scores 12–15), and low (scores 0–11).

**Part 3: The attitude toward breastfeeding questionnaire** was adapted from the breastfeeding attitude questionnaire developed by Chansiri et al. (2017).<sup>17</sup> It was composed of 22 items. It contained two components: the affective component, 10 items, and the cognitive component, 12 items. The questions were ranked using a 5-point Likert scale. Interpretation was based on a total scoring range of 22–110. High scores indicate high attitudes toward breastfeeding.

**Part 4: The subjective norms about breastfeeding questionnaire** was modified from the breastfeeding subjective norms questionnaire developed by Chansiri et al. (2017).<sup>17</sup> It was composed of 5 items. The questions were ranked using a 5-point Likert scale. Interpretation was based on a total scoring range of 5–25. High scores indicate a highly subjective norm about breastfeeding.

**Part 5: The perceived breastfeeding behavioral control questionnaire** was developed by the researchers based on Ajzen's concept (2010)<sup>22</sup> and literature review. It contained two components: control breastfeeding beliefs (11 items) and perceived breastfeeding behavioral control (11 items). The questions were ranked using a 5-point Likert scale. Interpretation was based on a total scoring range of 11–275. High scores indicate highly perceived breastfeeding behavioral control.

**Part 6: The breastfeeding intention questionnaire** was adapted from the exclusive breastfeeding intention developed by Chansiri.<sup>17</sup> The question was modified to suit female adolescents who are not pregnant or have children. It is composed of one item. The question was rated on a numerical rating scale with a scoring range of 0–10. A high score indicates a high breastfeeding intention.

### **Validity and Reliability**

The instruments were tested for content validity by five experts: a nursing instructor specializing in child and adolescent health promotion, a nursing instructor in maternal–infant and midwife, a nursing

instructor breastfeeding specialist, a specialist nurse in a breastfeeding clinic, and a teacher in vocational program. The content validity indices of the breastfeeding knowledge questionnaire, attitude toward breastfeeding questionnaire, subjective norms about breastfeeding questionnaire, and perceived breastfeeding behavioral control questionnaire, and breastfeeding intention questionnaire were .96, 1, .80, .96, and 1, respectively. The reliability tests were conducted on 30 female students with the same characteristics as the research participants. The Kuder–Richardson 20 for the breastfeeding knowledge questionnaire was .72. The attitude toward breastfeeding questionnaire, subjective norms about breastfeeding questionnaire, and perceived breastfeeding behavioral control questionnaire had Cronbach's alpha coefficient of .74, .86, and .93, respectively.

### **Ethical consideration**

This study was approved by the Human Research Ethics Committee, Faculty of Medicine Ramathibodi Hospital, Mahidol University (COANo. MURA2024/283). Data collection started after approval, and the researcher strictly followed ethical principles throughout the research process.

### **Data Collection**

Through self-administration, the primary researcher collected data from May to June 2024 in the classroom. The researcher coordinated with the teacher assigned by the vocational college director to clarify the data collection details and make an

appointment for the researcher to collect the data, lasting approximately 20–30 minutes/person.

### **Data Analysis**

Data analysis was conducted using the SPSS version 29 program. Analyzed using descriptive statistics, such as the distribution of frequencies, percentages, mean, and standard deviations. The correlations between breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, and perceived breastfeeding behavioral control associated, and breastfeeding intention were analyzed using Pearson’s Product Moment Correlation Coefficient. Testing the initial statistical agreement revealed that the study variables have a normal distribution, allowing parametric statistics to be used in data analysis.

### **Results**

The participants in this study were 332 female students. One student was not allowed by her parents to participate in the study. Additionally, two students were pregnant and had children, and the questionnaire

was incomplete for seven students. There were 113 students (34%) in the third year of the vocational program, 110 students (33.1%) in the first year of the high vocational program, and 109 students (32.9%) in the second year of the high vocational program. The average age of participants was 18.3 years (SD = 0.69), with most being 18 years old. Among the participants, 21.4% studied accounting, and 20.2% studied marketing. Most of them (78.3%) lived with their parents. The highest frequency of family income range was 10,001–20,000 baht/month (34.6%).

Results revealed that the participants had breastfeeding knowledge scores ranging from 2 to 19, with a mean of 9.8 (SD = 3.01), indicating a low level of breastfeeding knowledge. According to Bloom (1986),<sup>25</sup> it was found that most students (69.6%) had a low level of knowledge. The mean scores for attitudes toward breastfeeding, subjective norms about breastfeeding, perceived breastfeeding behavioral control, and breastfeeding intention were 74.6, 19.9, 153.5, and 8.2, respectively, as shown in Table 1.

**Table 1** Description of breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, perceived breastfeeding behavioral control, and breastfeeding intention in the participants (n = 332)

<b>Variables</b>	<b>Possible Score</b>	<b>Min–Max</b>	<b>M</b>	<b>SD</b>
Breastfeeding knowledge	0–20	2–19	9.8	3.01
Attitudes toward breastfeeding	22–110	60–93	74.6	6.67
Subjective norms about breastfeeding	5–25	10–25	19.9	3.75
Perceived breastfeeding behavioral control	11–275	30–275	153.5	52.53
Breastfeeding intention	0–10	1–10	8.2	1.90

Pearson’s product–moment correlation analysis revealed that breastfeeding intention was positively and significantly correlated with breastfeeding knowledge, showing a low correlation ( $r = .172$ ,  $p = .002$ ), attitudes toward breastfeeding, also with

a low correlation ( $r = .190$ ,  $p < .001$ ), subjective norms about breastfeeding, with a moderate correlation ( $r = .389$ ,  $p < .001$ ), and perceived breastfeeding behavioral control, with a moderate correlation ( $r = .429$ ,  $p < .001$ ) (Table 2).

**Table 2** Correlation Coefficients between breastfeeding knowledge, attitudes toward breastfeeding, subjective norms about breastfeeding, perceived breastfeeding behavioral control, and breastfeeding intention ( $n = 332$ )

Variables	Breastfeeding Intention	
	r	p-value
Breastfeeding knowledge	.172	.002
Attitudes toward breastfeeding	.190	<.001
Subjective norms about breastfeeding	.389	<.001
Perceived breastfeeding behavioral control	.429	<.001

**Discussion**

The participants had a mean breastfeeding intention of 8.19 (SD = 1.90), indicating a high intention. In most cases, the students reasoned that breast milk is beneficial and contains essential nutrients for the baby. Breast milk contributes to the baby’s strength and saves costs, and many students receive breast milk during their infancy. Thus, they desired their child to receive it too. Additionally, breastfeeding promotes bonding between mother and baby. On the other hand, the reasons for having a low level of breastfeeding intention include obligations or lack of time to breastfeed, lack of confidence in breastfeeding, the mother not feeling well, and concerns that the baby might not receive enough nutrients if exclusively breastfed.

This study found that knowledge, attitude, subjective norm, and perceived behavioral control

significantly correlate with breastfeeding intention. This is explained by the Theory of Planned Behavior,<sup>22</sup> which states that when a person has high knowledge, attitude, subjective norms, and perceived behavioral control, they tend to behave accordingly. Consistent with previous research, 82.5% of female teenage students have a future intention to breastfeed. It was also found that knowledge, attitude, and perceived behavioral control can predict the intention to breastfeed. Promoting breastfeeding intentions in adolescents before they become adults is crucial to ensure they develop a strong commitment to breastfeeding at a young age.

According to Bloom,<sup>25</sup> most participants have low breastfeeding knowledge. Similarly, a study in India found that the level of breastfeeding knowledge among adolescents aged 17–18 years is low, with 74.0% of them not yet pregnant due to a lack of

education.<sup>26</sup> The study by Čatipović et al.<sup>20</sup> showed that breastfeeding intention among 18-year-old secondary school students significantly correlated with breastfeeding knowledge.

In this study, attitudes toward breastfeeding were significantly positively correlated with breastfeeding intention. This is consistent with a previous study,<sup>18</sup> which found that breastfeeding intentions in adolescents aged 14–19 were correlated with breastfeeding attitudes. This group of teenage breastfeeding attitudes consists of both positive and negative attitudes, which vary according to the level of knowledge.<sup>19</sup> Consistent with the study by Hamade et al.,<sup>23</sup> which stated that breastfeeding intentions were correlated with breastfeeding attitude, the belief that breastfeeding improves the relationship between the mother and child influences these attitudes. Therefore, attitudes arise from the thinking process, understanding, and acceptance of a person, which affects their decisions and intentions regarding behavior.<sup>23</sup>

This study's results revealed that subjective norms about breastfeeding were significantly positively correlated with breastfeeding intention. Additionally, participants reported that they could ask questions about breastfeeding from their parents (88.3%), friends (42.3%), and teachers (38.0%). Teachers play an important role in teaching and guiding students about breastfeeding.<sup>18</sup> Family influences are related to the intent to breastfeed among female students.<sup>18</sup> It was found that students' families impacted their intentions.<sup>27</sup> Family norms are also related to the breastfeeding intention of female students.<sup>18</sup> Being

breastfed as a baby is related to family norms. Family influences can help support breastfeeding and correct societal negative attitudes regarding breastfeeding.<sup>27</sup> Previous research in Thailand has shown that adolescents who recognize that their reference group supports breastfeeding will listen and accept, resulting in the intention to breastfeed.<sup>17</sup>

Perceived breastfeeding behavioral control was positively correlated with breastfeeding intention. Consistent with the study by Giles et al.,<sup>27</sup> breastfeeding intentions were positively correlated with perceived breastfeeding behavioral control. However, the study by Hamade et al.<sup>23</sup> found that breastfeeding intention was negatively correlated with perceived breastfeeding behavioral control. The perception of this group of adolescents is influenced by culture and religion. Most Syrian and Lebanese adolescents are reluctant to breastfeed in public. The research showed that 74.9% and 71.1% of Syrian and Lebanese adolescents, respectively, are against breastfeeding in restaurants. According to this study, 35.7% of adolescents breastfed in public without feeling embarrassed, and 57.8% breastfed at home without feeling embarrassed, even with family members nearby. This indicates that adolescents still lack the confidence to breastfeed in public and in front of others.<sup>23</sup>

In conclusion, this study found that breastfeeding intention among late adolescent female students is linked to breastfeeding knowledge, attitudes, subjective norms, and perceived behavioral control. Encouraging breastfeeding in adolescents is crucial for understanding their perspectives as they transition to adulthood.

Fostering breastfeeding intention will result in breastfeeding behavior, increasing breastfeeding rates.<sup>28</sup>

### Limitation of the study

This study focused on female students in the Office of the Vocational Education Commission in Bangkok, including only one setting. Generalizability is, therefore, limited.

### Recommendation

1. According to the results of this study, adolescents have limited breastfeeding knowledge. To promote breastfeeding knowledge among adolescents in vocational education, a plan should be created for breastfeeding education. Positive attitudes, subjective norms, and perceived behavioral control are important for fostering breastfeeding intentions.

2. Future research employing a predictive design should be conducted. Research involving male adolescents may be conducted and utilized as planning information to encourage their participation in supporting breastfeeding.

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### References

1. Christensen N, Bruun S, Søndergaard J, Christesen HT, Fisker N, Zachariassen G, et al. Breastfeeding and infections in early childhood: A cohort study. *Pediatrics* 2020;146:1–9. <https://doi.org/10.1542/peds.2019-1892> PMID: 33097658
2. Sabino JS, Amorim MR, de Souza WM, Marega LF, Mofatto LS, Toledo-Teixeira DA, et al. Clearance of persistent SARS-CoV-2 RNA detection in a NF $\kappa$ B-Deficient patient in association with the ingestion of human breast milk: a case report. *Viruses* 2022;14:1–10. <https://doi.org/10.3390/v14051042> PMID: 35632784
3. Le Doare K, Holder B, Bassett A, Pannaraj PS. Mother's milk: a purposeful contribution to the development of the infant microbiota and immunity. *Front Immunol* 2018;9:1–10. <https://doi.org/10.3389/fimmu.2018.00361> PMID: 29599768
4. Babic A, Sasamoto N, Rosner BA, Tworoger SS, Jordan SJ, Risch HA, et al. Association between breastfeeding and ovarian cancer risk. *JAMA oncol* 2020;6,1–8. <https://doi.org/10.1001/jamaoncol.2020.0421> PMID: 32239218
5. Unar-Munguía M, Torres-Mejía G, Colchero MA, González de Cosío T. Breastfeeding mode and risk of breast cancer: a dose-response meta-analysis. *J Hum Lact* 2017;33:422–34. <https://doi.org/10.1177/0890334416683676> PMID: 28196329
6. Teles MC, Cardoso SD, Oliveira RF. Social plasticity relies on different neuroplasticity mechanisms across the brain social decision-making network in Zebrafish. *Front behav neurosci* 2016;10:1–12. <https://doi.org/10.3389/fnbeh.2016.00016> PMID: 26909029
7. World Health Organization. Infant and young child feeding [homepage on Internet]; 2023 Dec 20 [cited 2025 Mar 16]. Available from: <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>

8. Bureau of Reproductive Health, Department of Health, Ministry of Public Health. Statistics on Adolescent Births, Thailand 2022 [homepage on the Internet]; 2022 [cited 2025 Mar 17]. Available from: [https://rh.anamai.moph.go.th/web-upload/7x027006c2abe84e89b5c85b44a692da94/m\\_magazine/35430/4729/file\\_download/8ef9ce93951bc46134d960dd8c0106ed.pdf](https://rh.anamai.moph.go.th/web-upload/7x027006c2abe84e89b5c85b44a692da94/m_magazine/35430/4729/file_download/8ef9ce93951bc46134d960dd8c0106ed.pdf)
9. Thaitae S, Yimyam S, Polprasarn P. Prevalence and predictive factors for exclusive breastfeeding at six months among Thai adolescent mothers. *Children (Basel)*. 2023;10(4):1-12. <https://doi.org/10.3390/children10040682> PMID: 37189931
10. Supasiripenpong K. Factors effecting continuing breastfeeding of adolescent mothers at Suratthani hospital. *Reg 11 med* 2018;32(1):853-62. Available from: <https://he02.tci-thaijo.org/index.php/Reg11MedJ/article/view/155366> (in Thai)
11. World Health Organization. Adolescent birth rate (per 1,000 females aged 15-19 years) [homepage on Internet]; 2024 March 26 [cited 2025 Mar 16]. Available from: <https://data.who.int/indicators/i/24C65FE/27D371A>
12. Bureau of Reproductive Health, Department of Health. Teenage pregnancy surveillance report Thailand 2021 [homepage on Internet]; 2021 [cited 2025 Mar 17]. Available from: [https://rh.anamai.moph.go.th/web-upload/7x027006c2abe84e89b5c85b44a692da94/m\\_magazine/35435/3331/file\\_download/d618f313b0007cf9244f16418e60f6dd.pdf](https://rh.anamai.moph.go.th/web-upload/7x027006c2abe84e89b5c85b44a692da94/m_magazine/35435/3331/file_download/d618f313b0007cf9244f16418e60f6dd.pdf)
13. Dengmasa S, Chaimay B, Woradet S. Sexual risk behaviors among vocational students in district of the south central region province. *AJCPH* 2019;5:14-28. Available from: <https://he02.tci-thaijo.org/index.php/ajcph/issue/view/16740/3975> (in Thai)
14. Ketumarn P. Adolescent behavior problems. [monograph on the Internet]; 2007 [cited 2024 Oct 1]. Available from: [http://www.psyclin.co.th/new\\_page\\_56.htm](http://www.psyclin.co.th/new_page_56.htm)
15. Pérez MCH, Díaz-Gómez NM, Manzano AMR, Gómez JMD, Pérez VR, Sosa AJ. Effectiveness of an intervention to improve breastfeeding knowledge and attitudes among adolescents. *Rev esp salud public* 2018;92:1-12. Available from: <https://pubmed.ncbi.nlm.nih.gov/29911663/> PMID: 29911663
16. Ho Y, McGrath J. Effectiveness of a breastfeeding intervention on knowledge and attitudes among high school students in Taiwan. *J Obst Gyn Neo* 2016;45:71-7. <https://doi.org/10.1016/j.jogn.2015.10.009> PMID: 26815800
17. Chansiri S, Phahuwatanakorn W, Yusamran C. Influences of breastfeeding attitude, subjective norm, and self-efficacy on intention to exclusive breastfeeding among teenage pregnant women. *Nurs Sci J Thail* 2017;35(4):49-60. Available from: <https://he02.tci-thaijo.org/index.php/ns/article/view/116181> (in Thai)
18. Moukarzel S, Jaoudeh MA, Farhat A, Saade M, Mamas C, Daly A. Exploring the latitude of attitude: intentions to breastfeed among adolescents in Lebanese schools. 1. Christensen N, Bruun S, Søndergaard J, Christesen HT, Fisker N, Zachariassen G, et al. Breastfeeding and infections in early childhood: A cohort study. *Pediatrics* 2020;146:1-9. <https://doi.org/10.1542/peds.2019-1892> PMID: 33097658 PMID: 31486280
19. Reyes C, Barakat-Haddad C, Barber W, Abbass-Dick J. Investigating the effectiveness of school-based breastfeeding education on breastfeeding knowledge, attitudes and intentions of adolescent. *Midwifery* 2019;70:64-70. <https://doi.org/10.1016/j.midw.2018.12.010> PMID: 30580074

20. Čatipović M, Marković M, Grgurić J. Effects of a breastfeeding educational intervention on secondary school students after 6 months. *Acta Clin Croat* 2021;60:569–78. <https://doi.org/10.20471/acc.2021.60.04.02> PMID: 35734500
21. Angsirirak N, Jirakunjana T, Arunyaphark P, Parai W. Knowledge attitude concept and factor about breastfeeding in Sripradu teenagers. in: report of the national academic conference in 2017, Association of Private Higher Education Institutions of Thailand; 2017 May 25; Rattana Bundit University. Bangkok: 2017. 905–15. <https://e-library.siam.edu/e-journal/wp-content/uploads/2019/01/ProceedingAPHEIT2017-905-915.pdf> (in Thai)
22. Fishbein M, Ajzen I. Predicting and changing behavior: The reasoned action approach. New York: Taylor and Francis Group; 2010.
23. Hamade H, Naja F, Keyrouz S, Hwalla N, Karam J, Al-Rustom L, et al. Breastfeeding knowledge, attitude, perceived behavior, and intention among female undergraduate university students in the Middle East: the case of Lebanon and Syria. *Food Nutr Bull* 2014; 35:179–90. <https://doi.org/10.1177/156482651403500204> PMID: 25076765
24. Chainok L. Factors influencing breast feeding behaviors of postpartum adolescent mothers in Maharat Nakhonratchasima hospital [Thesis]. Nakhonratchasima: Suranaree University of Technology; 2015. (in Thai)
25. Bloom BS, Madaus GF, Hastings JT. Handbook on formative and summative evaluation of student learning. New York: McGraw–Hill; 1986.
26. Giles M, McClenahan C, Armour C, Millar S, Rae Gordon, Mallett J, et.al. Evaluation of a theory of planned behaviour – based breastfeeding intervention in Northern Irish school using a randomized cluster design. *Br J Health Psychol* 2014;19:16–35. <https://doi.org/10.1111/bjhp.12024> PMID: 23350961
27. Oberoi S, Kishore K, Rai SK, Patnaik S. Are adolescents ready for future responsibilities? experience from a cross-sectional study regarding breastfeeding knowledge and attitude. *J Family Med Prim Care* 2019;8:1621–5. [https://doi.org/10.4103/jfmpe.jfmpe\\_192\\_19](https://doi.org/10.4103/jfmpe.jfmpe_192_19) PMID: 31198726
28. Khoonphet C, Kala S. The experience of breastfeeding intention among adolescent mothers. *PNUJR* 2019; 11(2):1–11. Available from: <https://li01.tci-thaijo.org/index.php/pnujr/article/view/123175> (in Thai)