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# ORIGINAL ARTICLE

# Female university students' attitude toward fertility and childbearing in Vietnam

**Nguyen Thi Thu Ha[1,2], Hoang Thanh Luong[1,3]*, and Pham Thi Thu Phuong[1]**

[1]University of Medicine and Pharmacy, Vietnam National University, Hanoi - 144 Xuan Thu, Hanoi, Vietnam
[2]National hospital of obstetrics and gynecology – 1 Trieu Quoc Dat, Ha Noi, Vietnam
[3]Hanoi Obstetrics and Gynecology Hospital – 929 La Thanh, Ha Noi, Vietnam

*** Correspondence Author:**
Hoangthanh9794@gmail.com

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## ABSTRACT

**BACKGROUND**

Population aging and declining fertility rates are emerging concerns worldwide. In Vietnam, fertility rates have decreased rapidly in recent years. Understanding young women's attitudes toward fertility and childbearing is important for developing appropriate reproductive and population policies. This study aimed to assess attitudes toward fertility and future childbearing among female students at the University of Medicine and Pharmacy, Vietnam National University, Hanoi.

**METHODS**

A cross-sectional online survey was conducted among 187 nulliparous female students from September 2024 to March 2025. Data were collected using the Attitudes Toward Fertility and Childbearing Scale (AFCS). Descriptive statistics, chi-square tests, independent t-tests, and one-way analysis of variance were used to analyze the data.

**RESULTS**

Overall, 66.3% of participants expressed a desire for future childbearing, 23.0% were uncertain, and 10.7% did not desire children. The desire for future childbearing was significantly higher among students aged >22 years compared with those aged ≤22 years (85.1% vs. 60.0%) and among participants in a relationship compared with single students (79.5% vs. 62.2%). The mean scores for the AFCS domains "Importance of fertility for the future," "Childbearing as a hindrance at present," and "Female identity" were 3.41 ± 0.97, 3.90 ± 0.74, and 2.96 ± 0.93, respectively. Greater importance placed on future fertility was associated with older age, rural residence, cohabiting parents, and desire for children ($p<0.05$).

**CONCLUSION**

Future childbearing intention among female students was relatively low and influenced by age and relationship status. Although fertility was considered important, childbearing was widely perceived as a present burden.

**Keywords:** Fertility attitudes, childbearing intention, female students, AFCS, reproductive attitudes, Vietnam

## INTRODUCTION

The global population continues to increase, reaching 7.8 billion by the mid-2020s, with an average annual growth rate of approximately 1.1%.[1] However, the slowing pace of population growth is closely linked to declining fertility rates. In 2020, the global total fertility rate (TFR) was 2.4 births per woman of reproductive age, down from 2.7 in 2000, 3.7 in 1980, and 5.0 in 1950.[2] In high-income and upper-middle-income countries, TFR has remained below the replacement level (2.1 births per woman) for decades, the threshold needed to sustain population levels in low-mortality settings.[2] In some countries, TFR has even declined to critically low levels, at or below 1.5 births per woman, persisting for several decades.[2]

In Vietnam, the population growth rate in 2025 is projected to increase by 0.61% compared to 2024; however, this rate is also on a declining trend.[3] Notably, the current birth rate for Vietnam in 2025 is 14.613 births per 1,000 people, marking a 1.77% decrease from 2024.[4] Education and women's awareness significantly influence fertility rates, as numerous global studies have concluded that higher education levels among women are associated with lower fertility rates and a tendency to have fewer children.[5,6]

The Attitudes toward Fertility and Childbearing Scale (AFCS), developed in 2013, has demonstrated adequate validity, analytical capability, and acceptable reliability in assessing women's attitudes toward fertility and childbearing. Previous studies using the AFCS reported high fertility desire rates, including 87.1% in Sweden and 92.7% in Turkey, suggesting that the AFCS is a useful tool for evaluating reproductive intentions across different populations.[7-10]

A cross-sectional study involving 2172 Arabic-speaking women aged 18–50 years in Saudi Arabia, found that younger women and those with psychiatric disorders showed lower scores regarding the importance of future childbearing, while college students exhibited more concerns about hindrance and preparation.[11] A cross-sectional study among female university students in Cameroon found that most of the female students intend to have children in the future, but their fertility awareness knowledge was suboptimal. Significant factors associated with hindrance scores include age and marital status. This study showed that here was a statistically significant association between age and fertility awareness knowledge. Older sexually active students (>25 years) were more likely to know their fertile period compared to their younger counterparts, and married students were more likely to know their fertile period compared to single/never married students (52.1% vs 48.7%).[12] In order for female students to receive improved reproductive and sexual health information and counselling, it is important for the counsellors to understand attitudes towards fertility and childbearing among women who are not yet mothers.

The objective of the present study was to assess attitudes toward fertility and future childbearing among female students at the University of Medicine and Pharmacy, Vietnam National University, Hanoi. Specifically, the study aimed to describe perceptions regarding the importance of future childbearing, concerns about potential hindrances to childbearing, and preparation for future parenthood among female students who had not yet become mothers.

## METHODS

### Research design

A cross-sectional study was conducted among nulliparous female students at the University of Medicine and Pharmacy, Vietnam National University from September 2024 to March 2025.

### Research subjects

The sample size was estimated for a proportion with absolute precision using the following formula:

$$n = z^2_{(1-\alpha/2)} \frac{p*(1-p)}{d^2} \approx 104$$

(i) n is the estimated sample size (unit: participants); (ii) $z^2_{(1-\alpha/2)} \approx 1.96$ the confidence coefficient for α=0.05, corresponding to a 95% confidence interval (CI); (iii) p is based on the study by Koçak,[7] where 92.7% of students expressed a desire to have children in the future. Thus, p=0.927; d is the desired margin of error between the sample and the population, set at d=0.05.

In the validation study of the AFCS, the scale scores were reported as follows: "Importance of fertility in the future": 26.52 ± 5.98, "Childbearing as a hindrance at present": 28.06 ± 8.25, "Female

identity": 15.68 ± 5.41. The required sample size for each subscale was calculated using the formula:

For "Importance of fertility in the future":

$$\frac{z^2_{(1-\alpha/2)} * SD^2}{(Mean * d)^2} \approx \frac{1.96^2 * 5.98^2}{(26.52 * 0.05)^2} \approx 78$$

For "Childbearing as a hindrance at present":

$$\frac{z^2_{(1-\alpha/2)} * SD^2}{(Mean * d)^2} \approx \frac{1.96^2 * 8.25^2}{(28.06 * 0.05)^2} \approx 133$$

For "Female identity":

$$\frac{z^2_{(1-\alpha/2)} * SD^2}{(Mean * d)^2} \approx \frac{1.96^2 * 5.41^2}{(15.68 * 0.05)^2} \approx 183$$

Thus, the optimum required sample size for this study was 183 participants.

The study was completed with 187 female students who met all inclusion criteria and voluntarily agreed to participate.

Inclusion criteria*:* (i) voluntary participation in the study. (ii*)* female students. (iii) currently enrolled at the University of Medicine and Pharmacy, Vietnam National University, Hanoi, from September to October 2024. Exclusion criteria*:* (i) history of pregnancy or childbirth. (ii) physical, mental, visual, or auditory impairments preventing the participant from reading, comprehending, or responding to the questionnaire.

**Data collection**

Data were collected using the Attitudes Toward Fertility and Childbearing Scale (AFCS), which was developed to assess the attitudes of nulliparous women toward fertility and future childbearing. Originally created by Söderberg et al.[13] in 2013 with 27 items, the scale was revised and shortened to 21 items in 2015. The AFCS is a Likert-type scale, with each item rated on a five-point scale: 1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, and 5 – Strongly agree. Lower scores indicate a more negative attitude toward fertility and the desire for future childbearing. The AFCS consists of three subscales: "Importance of fertility in the future" (7 items), "Childbearing as a hindrance at present" (9 items), "Female identity" (5 items).

| **Attitudes Toward Fertility and Childbearing Scale** | | |
|---|---|---|
| ***Importance of fertility in the future*** | ***Childbearing as a hindrance at present*** | ***Female identity*** |
| 1. I look forward to one day become a mother | 8. Having children would limit my leisure time activities | 17. Being fertile is important to my feeling of femininity |
| 2. I can imagine being pregnant and giving birth | 9. Childbearing does not fit into my life right now | 18. My fertility makes me feel communion with other women |
| 3. Becoming a mother is important to me | 10. I do not want to take the responsibility as a mother now | 19. Becoming a mother is important for my identity as a woman |
| 4. I look forward to being pregnant in the future | 11. An unplanned pregnancy would hinder me in my current life | 20. Being fertile is an important part of my present life |
| 5. Having a child is an essential part of life | 12. Having children would limit socializing with my friends | 21. It is important for me to be able to get pregnant any time |
| 6. It is important for me to be able to get pregnant in the future | 13. Being a mother would take too much of my own time | |
| 7. Being fertile is an important part of my future life | 14. Having children would limit my study opportunities | |
| | 15. I want to take advantage of my freedom before I have children | |
| | 16. Having children would limit my career | |

The original AFCS and its subscales demonstrated strong internal consistency, with Cronbach's alpha values ranging from 0.862 to 0.945. The 2021 Turkish validation study by Sinem Goral Turkcu reported a total Cronbach's alpha of 0.82, with values of 0.93 for "importance of fertility in the future," 0.87 for "childbearing as a current barrier," and 0.81 for "social identity."[14]

**Measurements**

An online questionnaire was administered to all participants. The primary outcome was the proportion of participants expressing a desire to have children in the future. The secondary outcomes included AFCS scores assessing attitudes toward fertility and childbearing, as well as the associations between AFCS scores and

demographic factors, including age, place of residence, family income level, current living conditions, marital status, parents' highest educational attainment, and family structure.

**Statistical analysis**

The collected data were analyzed using SPSS version 26. Descriptive statistics were presented as percentages, means, and standard deviations (mean ± SD). After confirming normal distribution of the data, independent t-tests and one-way ANOVA were used to compare mean AFCS scores between groups. A p-value <0.05 was considered statistically significant.

**Ethical clearance**

This study was conducted as part of a senior thesis at the University of Medicine and Pharmacy, Vietnam National University, Hanoi. The university's IRB (IRB-VN01016, IORG0008741) confirmed that formal approval was not required, and the Scientific and Training Committee permitted the study before implementation.

**RESULT**

Of the 187 participants, 124 (66.3%) expressed a desire to have children in the future, whereas 43 (23.0%) were uncertain and 20 (10.7%) did not desire future childbearing.

**Participant characteristics**

The desire to have children in the future differs significantly between the ≤22 age group (60%) and the >22 age group (85.1%), between those with a rural hometown (71.8%) and those from urban areas (58.4%), and between the single group (62.2%) and those with a partner (79.5%) ($p<0.05$). The desire to have children is not associated with family income, current residence, parents' educational level, or family status ($p>0.05$).

Table 1. Distribution of desire to have children in the future by students characteristics ( n= 187)

| | Desire to have children in the future | | p value |
|---|---|---|---|
| | Sure n=124 (%) | Not sure n=63 (%) | |
| **Age (years)** | | | |
| ≤ 22 | 42 (60.0) | 28 (40.0) | **0.002** |
| > 22 | 82 (85.1) | 35 (14.9) | |
| **Birthplace** | | | |
| Urban | 69 (58.4) | 49 (41.6) | **0.05** |
| Rural | 55 (71.8) | 14 (28.2) | |
| **Family income (USD)** | | | |
| Under 400 | 36 (64.3) | 20 (35.7) | |
| From 400 to 800 | 39 (68.4) | 18 (31.6) | 0.869 |
| Over 800 | 49 (65.8) | 25 (34.2) | |
| **Current residence** | | | |
| Dormitory | 41 (66.7) | 20 (33.3) | |
| Rent rooms | 49 (67.6) | 23 (32.4) | 0.832 |
| With relatives | 34 (62.2) | 20 (37.8) | |
| **Marital status** | | | |
| Single | 45 (62.2) | 27 (37.8) | 0.034 |
| Dating | 79 (79.5) | 36 (20.5) | |
| **Parents' highest level of education** | | | |
| High school or below | 49 (67.1) | 24 (32.9) | 0.738 |
| College/Vocational school | 25 (71.4) | 10 (28.6) | |
| University or higher | 50 (63.5) | 29 (36.5) | |
| **Family status** | | | |
| Parents live together | 112 (68.3) | 52 (31.7) | 0.126 |
| Parents do not live together | 12 (52.2) | 11 (47.8) | |

Note : Values were given as n (%)

Table 2. Distribution of fertility and childbearing scale (AFCS) subdimensions by student characteristics

| | Importance of fertility for the future | | Childbearing as a hindrance at present | | Female identity | |
|---|---|---|---|---|---|---|
| | Mean ± SD | p value | Mean ± SD | p value | Mean ± SD | p value |
| **Age (years)** | | | | | | |
| ≤ 22 | 3.32 ± 0.98 | 0.031 | 3.89 ± 0.74 | 0.662 | 2.82 ± 0.92 | 0.000 |
| >22 | 3.68 ± 0.86 | | 3.95 ± 0.76 | | 3.36 ± 0.85 | |
| **Family income (USD)** | | | | | | |
| Under 400 | 3.59 ± 0.89 | 0.082 | 3.90 ± 0.65 | 0.742 | 3.32 ± 0.92 | 0.000 |
| 400 to 800 | 3.37 ± 1.01 | | 3.95 ± 0.65 | | 2.88 ± 0.97 | |
| Over 800 | 3.17 ± 0.96 | | 3.82 ± 1.02 | | 2.62 ± 0.71 | |
| **Current residence** | | | | | | |
| Dormitory | 3.39 ± 0.93 | | 3.90 ± 0.80 | | 3.11 ± 0.93 | |
| Rented rooms | 3.47 ± 0.99 | 0.571 | 3.92 ± 0.72 | 0.863 | 2.94 ± 0.91 | 0.352 |
| Staying with relatives | 3.28 ± 0.95 | | 3.85 ± 0.73 | | 2.81 ± 0.98 | |
| **Marital status** | | | | | | |
| Single | 3.35 ± 0.93 | 0.113 | 3.88 ± 0.73 | 0.472 | 2.94 ± 0.90 | 0.643 |
| Dating | 3.62 ± 1.07 | | 3.98 ± 0.78 | | 3.01 ± 1.02 | |
| **Parents' highest level of education** | | | | | | |
| High school or below | 3.49 ± 0.94 | 0.581 | 3.89 ± 0.68 | 0.721 | 2.99 ± 0.86 | 0.894 |
| College/Vocational school | 3.38 ± 0.98 | | 4.01 ± 0.75 | | 2.97 ± 0.98 | |
| University or higher | 3.33 ± 1.00 | | 3.88 ± 0.81 | | 2.92 ± 0.99 | |
| **Family status** | | | | | | |
| Parents live together | 3.47 ± 0.94 | 0.020 | 3.91 ± 0.73 | 0.624 | 3.01 ± 0.89 | 0.030 |
| Parents do not live together | 2.99 ± 1.06 | | 3.83 ± 0.78 | | 2.56 ± 1.08 | |
| **Desire to have children in the future** | | | | | | |
| Sure | 3.83 ± 0.79 | 0.000 | 3.85 ± 0.78 | 0.202 | 3.34 ± 0.72 | 0.000 |
| Not sure | 2.58 ± 0.72 | | 4.00 ± 0.65 | | 2.19 ± 0.82 | |

Note : data presented as mean ± SD; AFCS : Attitudes toward fertility and childbearing scale

**Distribution of fertility and childbearing scale**

The mean scores of the scales measuring "The Importance of Having Children in the Future," " Childbearing as a hindrance at present," and " Female identity " were 3.41 ± 0.97, 3.90 ± 0.74, and 2.96 ± 0.93, respectively.

Regarding the perceived importance of having children in the future, the mean score was significantly higher in the >22 age group (3.68 ± 0.86) compared to the ≤ 22 age group (3.32 ± 0.99) (p=0.031). Participants from rural areas reported significantly higher scores than those from urban areas (3.53 ± 0.93 vs. 3.24 ± 1.01) (p=0.04). Additionally, individuals whose parents lived together had significantly higher scores than those whose parents did not live together (3.47 ± 0.94 vs. 2.99 ± 1.06) (p=0.02). Those who were certain about wanting children had significantly higher scores than those who did not want children (3.84 ± 0.79 vs. 2.58 ± 0.72) (p=0.00) (Table 2).

With respect to the perception of childbearing as a current obstacle, no significant differences were observed among groups, as all groups generally agreed that having children represents a major challenge at present.

Regarding female gender identity, similar trends were observed. Participants in the >22 age group rated female gender identity significantly higher than those in the ≤22 age group (3.36 ± 0.85 vs. 2.82 ± 0.92) (p=0.00). Those from rural areas had significantly higher scores than those from urban areas (3.107 ± 0.893 vs. 2.74 ± 0.94) (p=0.011). Participants with a monthly income below 400 USD had significantly higher scores compared to the other two income groups (3.32 ± 0.92 vs. 2.88 ± 0.97 and 2.62 ± 0.71) Additionally, those whose parents lived together reported significant higher scores than those whose parents did not (3.01 ± 0.89 vs. 2.56 ± 1.08) (p=0.03). Finally, participants who were certain

about wanting children had significantly higher scores than those who were uncertain (3.34 ± 0.72 vs. 2.19 ± 0.82) (p=0.00) (Table 2).

## DISCUSSION

In our study, the proportion of female university students who expressed a desire to have children in the future was 66.3%. This percentage is considerably lower than findings from studies conducted in other countries. A study by Alfaraj et al.[15] found that nearly 80% of medical students in Saudi Arabia wished to have children, while research by Prior et al.[16] reported that over 90% of students expressed a desire to have children in the future. These findings suggest a declining trend in the desire for parenthood among young people in Vietnam, which may be attributed to the widespread perception that having children presents significant challenges.

In our study, age and current marital status significantly influenced the desire to have children. Individuals over 22 years old exhibited a higher interest in parenthood compared to those aged 22 years and younger. As individuals approach the typical marriageable age, increased concern about their reproductive potential is expected. Additionally, those in a romantic relationship demonstrated a stronger desire for parenthood. Having a committed partner provides more motivation for considering parenthood, as individuals envision forming a nuclear family within society. Consistent with findings from other studies, demographic factors such as place of residence, family status, and parental education level did not significantly affect future childbearing decisions.[7,17]

In our study, the total mean AFCS score was 73.80 ± 13.15, with subscale scores for "The Importance of Fertility for the Future", “Childbearing as a hindrance at present”, and "Female Identity" of 23.89 ± 6.77, 35.13 ± 6.66, and 14.78 ± 4.64, respectively. These scores show some differences compared to previous studies assessing the reliability and validity of the AFCS scale, where the subscale means were 26.52 ± 5.98, 28.06 ± 8.25, and 15.68 ± 5.41, respectively.[7] The perceived importance of fertility remains high but has declined compared to earlier studies, while the perception of childbearing as an obstacle has increased. The findings also indicate that participants associate motherhood with female identity and view it as an essential aspect of being a woman.

Our results highlight a generally positive attitude toward future fertility, consistent with other studies. For example, 74.9% of female students at an East Coast university in the U.S. considered fertility important [18], and 77% of female students in Ohio expressed concern about their future fertility.[19] Notably, 92.7% of female students at a university in Turkey desired motherhood.[7] In the "Importance of Future Fertility" subscale, four key factors influenced perceptions of motherhood: age, residence, family status, and the desire for children. Students over 22 years old, approaching the typical marriage age, placed greater importance on fertility. Those from rural areas, influenced by traditional values, rated motherhood more highly than urban residents, who are exposed to diverse perspectives. Students from intact families, who recognize their familial roles, valued fertility more. Additionally, those who expressed a definite desire for children rated fertility as significantly more important than those who were uncertain.

Regarding the perception of childbearing as a current obstacle, all groups agreed that having children at this stage poses significant challenges. Hickman et al.[19] and several recent studies [20,21] have consistently shown that financial stability and economic security are important factors influencing women’s reproductive decisions and fertility intentions. Economic security and living conditions are critical factors in childbearing decisions. For medical students who have yet to graduate, lack of financial independence makes the costs of childbirth and child-rearing prohibitively high. Other factors, such as age, career aspirations, and psychological readiness, further contribute to the reluctance to become mothers at this stage. Thus, effective policies supporting women before, during, and after childbirth could help encourage higher birth rates.

Age, residence, family income, family structure, and the desire for children influenced the "Female Gender Identity" subscale. Women from rural, low-income families were more likely to desire children, possibly due to social and familial pressures, such as the expectation to bear sons for lineage continuation or economic contributions. Conversely, urban women, who are exposed to modern perspectives and prioritize financial security, tend to value smaller families and reject the notion that childbirth is essential to womanhood. The high cost of living in urban areas further discourages childbearing, leading young

urban women to be less concerned with motherhood and less likely to agree with the belief that "having children is necessary to be a true woman."

This is the first study conducted in Vietnam using the AFCS scale, and as such, it has certain limitations. The restricted sample size and single-site study design may not fully represent the entire Vietnamese population. Additionally, our study focused solely on students' personal perspectives and attitudes without identifying the underlying causes of these changes. Future research should expand the study population and further investigate the factors contributing to the declining birth rate in Vietnam.

Future research should employ longitudinal and mixed-methods designs to better understand how fertility intentions evolve over time and how they translate into actual childbearing behaviors. Further studies involving more diverse populations, including male students and non-university young adults, are needed to enhance generalizability. In addition, qualitative research exploring personal, cultural, and institutional barriers to childbearing would provide deeper insights into underlying motivations and concerns.

The findings of this study have important clinical and public health implications. The relatively low desire for future childbearing and the perception of childbearing as a current obstacle among female university students highlight the need for early reproductive health education and fertility counselling programs targeting young adults. Healthcare providers, universities, and policymakers should promote fertility awareness, psychological preparedness for parenthood, and access to accurate reproductive information to support informed reproductive decision-making. In addition, policies aimed at reducing financial, educational, and career-related barriers to childbearing may help improve reproductive confidence and address the declining fertility trend among young women in Vietnam.

## CONCLUSION

The desire for future childbearing among female students was relatively low and influenced by age and relationship status. Although fertility was considered important, childbearing was widely perceived as a present burden.

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**Conflict of Interest**

No relevant disclosures.

**Authors'Contributions**

HTL: Conceptualization, Methodology, Data Collection, Data Analysis, Writing – Original Draft. NTTH: Supervision, Validation, Review & Editing, Methodological Support. PTTP: Data Collection, Literature Review, Writing – Review & Editing. All authors have read and approved the final manuscript.

**Data Availability Statement**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable reque

**Declaration of AI Usage in Scientific Writing**

The authors declare that no generative AI or AI-assisted technologies were used in the writing or preparation of this manuscript

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