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# Impact of Nurse Navigator Programme on Male Adolescents' Pubertal Health Awareness and Attitudes: A Quasi-Experimental Study

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## ABSTRACT

**Background:** The school's Nurse Navigator Programme provides support services to assist male students in navigating the complex pubertal period, providing personalised guidance throughout the health awareness journey. **Objectives:** This study aims to evaluate the impact of the Nurse Navigator Programme on awareness, attitudes, and perceptions toward pubertal health among male school-age students. **Methods:** The design of the study was quasi-experimental (with non-randomised groups) and conducted on 166 male preparatory school students. A self-administered questionnaire for measuring puberty health awareness and the puberty attitudes and perceptions Pre-, post-, and follow-up scales were used for data collection, ensuring the thoroughness and reliability of the study. **Results:** The intervention group demonstrated significantly improved awareness and positive attitudes toward pubertal health compared to the control group. Statistical analyses indicated that students who participated in the Nurse Navigator Programme had higher scores on knowledge assessments ($p < 0.01$) and reported more favourable attitudes ($p < 0.01$) regarding pubertal changes. **Conclusion:** The Nurse Navigator Programme significantly enhances awareness and improves attitudes toward pubertal health among male elementary school students. These findings underscore the importance of targeted health education interventions in promoting healthy development during puberty.

***Keywords: Behavioral Change; Nurse Navigator Programme; Pubertal Health; Reproductive Health***

## INTRODUCTION

Adolescence is a critical developmental stage characterised by rapid physical, emotional and psychological changes. For male adolescents, puberty can present unique challenges, especially when access to accurate and age-appropriate health education is limited (Beckwith *et al*. 2024). In Egypt, the school Health Education Program (HEP) seeks to enhance students' understanding of pubertal changes and promote healthy behaviours. This approach aligns with global evidence emphasizing the value of structured, school-based health education for adolescents' physical and psychological development (Patton *et al*., 2016; Denno *et al*., 2015). However, most national educational initiatives have historically focused on female students, leaving a significant gap in structured, reliable health education for boys. This gap is often filled by informal sources such as peers or the internet, which may perpetuate myths and misinformation (Best & Ban, 2021; Fahme *et al*., 2023; Fevriasanty *et al.*, 2024).

Male students may lack adequate knowledge about key pubertal changes, including growth spurts, voice deepening, and hygiene-related practices. Additionally, they may feel uncertain or anxious about their

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development, especially if it differs from their peers, potentially affecting their self-image and confidence (Patton *et al.,* 2016). The absence of guided health education can also hinder their understanding of personal hygiene, emotional regulation, and general well-being. Studies have shown that adolescents with lower health literacy are more vulnerable to risky behaviours and reduced self-esteem. Therefore, early and gender-sensitive health education is essential to support healthy transitions through puberty (Ibigbami *et al*., 2023)

The Nurse Navigator Programme offers a promising model for school-based health education. It is designed to provide male students with structured, personalised, and culturally sensitive guidance throughout their pubertal development (Pautasso *et al*., 2020). The programme is theoretically grounded in the Health Belief Model (HBM), which suggests that individuals are more likely to adopt healthy behaviours when they perceive themselves as susceptible to health risks, recognise the benefits of preventive actions, and feel confident in their ability to act. Additionally, the program integrates Social Cognitive Theory (SCT) elements by emphasizing role modelling, observational learning, and building self-efficacy through interactive engagement (Wang *et al*. 2024). Nurse navigators play a key role in delivering health education modules on topics such as puberty, hygiene, nutrition, physical activity, and mental health while also collaborating with families and school staff to reinforce these messages (Byrne *et al*., 2024; Teggart *et al*., 2024).

### Significance of Study

Male adolescents in Egypt receive limited structured education about pubertal health compared to their female peers. Addressing this gender gap is essential for promoting equitable health literacy and psychosocial well-being. This study contributes by introducing a Nurse Navigator–led educational model tailored to male students, addressing a neglected area in school health education and potentially guiding national adolescent health policies.

## METHODOLOGY

### Study Design

A quasi-experimental design with cluster allocation by school was used to evaluate the impact of the Nurse Navigator Programme on puberty health awareness and self-esteem in male school-aged students, and to assess the resulting outcomes.

### Setting

The study was conducted in four state preparatory schools for boys in Mansoura City, Dakahlia Governorate, Egypt. These schools were selected randomly, ensuring a comprehensive and representative study from the diverse and rich educational landscape of the North Mansoura Educational District (Ibn Khaldoun Preparatory School for Boys and Ahmed Lotfy Alsayed School for Boys) and the East Mansoura Educational District (Al-Galaa Preparatory School for Boys and Ahmed Orabi Preparatory School).

### Sampling

This study used a multi-stage random sampling method to ensure representativeness and reduce selection bias. Phase 1: Approximately 10% of boys' preparatory schools in the North and West Mansoura Education Directorates were identified as the initial group. Phase 2: From this group, approximately four schools were randomly selected (representing 10% of the selected group). Phase 3: One first-grade preparatory class was randomly selected from each selected school for inclusion in the study.

### Inclusion Criteria

Participants were eligible if they were enrolled in the selected preparatory schools during the 2023/2024 academic year, demonstrated acceptable academic performance and behavior, obtained parental consent, and expressed willingness to participate. These criteria were carefully applied to ensure appropriate and ethical participant selection.

### Sampling Size

Based on the total number of male students enrolled in the West and East Educational Departments of Mansoura City (25,848 students in the 2023/2024 academic year), the required sample size was calculated using G*Power version 3.1.9.7 software. Assuming a statistical power of 80%, a 95% confidence level and an

estimated medium effect size (Cohen's d = 0.5) for detecting differences between two independent groups, the minimum sample size needed was 166 students. The sample was equally divided into 83 students in the intervention group and 83 in the control group, ensuring adequate power for comparative analysis.

**Group Allocation**

Participants are divided into two groups based on the locations of their schools. The intervention group includes male students from schools in the North Educational Department who will participate in the Nurse Navigator Programme. The control group consists of male students from schools in the West Educational Department who will not receive the intervention. This allocation enables a comparative analysis of the programme's effectiveness in improving puberty health awareness and self-esteem.

**Instruments**

Three tools were used to collect data for this study. The first tool was Demographic Information Form which gathered general participant information, including age, parental education and occupation, number of family members, and income. The second tool was the Puberty Health Awareness Questionnaire. The researchers developed a structured questionnaire based on a review of relevant literature, particularly Lee & Yeo (2022) and Alimohammadi *et al*. (2019). It assessed students' knowledge of puberty-related topics, including physical changes (e.g., growth spurts), emotional changes (e.g., mood swings), and the importance of hygiene measures. The questionnaire used a variety of multiple-choice formats, true/false, and short-answer questions. Responses were scored as correct (1) or incorrect (0), with total scores out of 100 categorised as high (75–100), moderate (50–74), or low (25–49) awareness.

The third tool was the Puberty Attitudes and Perceptions Scale (PAPS) Likert-scale instrument measures attitudes and perceptions toward puberty across five subscales: Physical Changes, Emotional Changes, Social Changes, Attitudes Toward Puberty Education, and Self-Esteem and Body Image. Scores range from 1 (strongly disagree) to 5 (strongly agree), with higher total scores indicating more positive attitudes and greater preparedness and lower scores reflecting anxiety or negative perceptions of puberty.

**Validity of the Tools**

A panel of three experts specialising in community health nursing and paediatric nursing reviewed the data collection tools to evaluate their content validity. The experts confirmed that the tools were appropriate, relevant, and comprehensive for the study objectives. A pre-test was conducted, which demonstrated that the tools were clear, practical, and free from linguistic ambiguity.

**Reliability Test**

A pilot study assessed the data collection tools' clarity, feasibility, and reliability. Internal consistency was evaluated using Cronbach's alpha test. The reliability coefficient for the Pubertal Health Awareness Assessment Sheet was 0.852, indicating high internal consistency. Similarly, the Attitude and Perception Scale demonstrated strong reliability with a Cronbach's alpha of 0.862. These results confirmed that the tools were suitable for the main study.

**Procedures for Data Collection**

The fieldwork of a Nurse Navigator Programme on awareness and attitude towards pubertal health among male students involved several structured phases to ensure comprehensive and effective implementation from October to March 2023. Here is a breakdown of the key components and activities that might be involved.

**Preparation Phase**

Securing approval and ethical permissions from schools and educational administrations, highlighting the researchers' unwavering dedication to the project and ethical guidelines when working with minors. Additionally, the researchers met with school principals, select teachers, and parents to explain the programme's objectives, timeline, and expectations.

**Baseline Assessment (Pre-Intervention)**

Participants (intervention and control groups) were assessed on their initial knowledge, awareness, and attitudes toward pubertal health through an interview questionnaire prepared about their understanding of puberty,

physical and emotional changes, hygiene practices, and common myths or misconceptions about puberty.

**Intervention Phase (Nurse Navigator Programme for the Intervention Group)**

The Nurse Navigator Programme was conducted over four structured classroom sessions, each lasting 45–60 minutes and delivered across two consecutive weeks. Each session targeted a specific aspect of pubertal health among male students: Physical and Emotional Changes in Puberty. It covered the typical physical and emotional developments adolescents experience, promoting self-awareness and reducing anxiety associated with these changes. Hygiene Measures: Focused on proper personal hygiene, skincare, and grooming practices tailored to the needs of adolescent boys, promoting health and social confidence. Mental and Emotional Health: Addressed psychological challenges during puberty, including stress management, self-esteem, emotional regulation, and body image. Myths and Misconceptions: Clarified widespread misconceptions about puberty, emphasising the normal variation in timing and experience among individuals.

To enhance comprehension and engagement, various validated and age-appropriate educational materials were utilised, including visual aids and posters, such as illustrated PowerPoint presentations designed to depict puberty health education and reinforce key concepts. Interactive activities, such as role-plays, quizzes, and group discussions, were incorporated to promote active learning and encourage student participation. These methods allowed students to ask questions, clarify misunderstandings, and engage more deeply with the content. To ensure the effectiveness of these instructional tools, all teaching materials, including interactive components, were reviewed by a panel of experts in community health nursing and adolescent education to establish content validity and cultural appropriateness. Additionally, the materials were pre-tested during the pilot phase with a small group of students (excluded from the main study) to evaluate their clarity, relevance, and level of engagement. Feedback from this pre-testing phase was used to make minor adjustments, enhancing the overall reliability and effectiveness of the educational content used in the Nurse Navigator Programme.

**Post-Intervention and Follow-up**

After completing the Nurse Navigator Programme's four educational sessions, a post-test (second round of questionnaires) was administered one week later to evaluate immediate changes in students' awareness and attitudes regarding pubertal health. This allowed for a direct comparison between the pre- and post-intervention data in both the intervention and control groups, ensuring a comprehensive assessment of the programme's short-term impact.

To further assess the sustainability of the intervention's effects, a third round of questionnaires was conducted ten weeks after the intervention. This follow-up evaluation focused on identifying any sustained changes in students' attitudes toward puberty, body image, and self-esteem, thereby providing insights into the potential long-term impact of the Nurse Navigator Programme.

**Statistical Analysis**

The study used SPSS Version 27 for data analysis. Descriptive statistics assessed students' characteristics, awareness, and attitude scores, while chi-square tests compared demographic data between control and study groups. Repeated Measures ANOVA analysed continuous variables across pre-, post-, and follow-up intervention phases, adjusting for total awareness and attitude scores. Mauchly's test revealed a violation of sphericity, so Huynh–Feldt corrections were applied. A significant interaction between time and group was identified, with post hoc tests (Least Significant Difference) showing no difference between the groups at pre-intervention.

**Ethical Consideration**

The research obtained ethical clearance from the Research Ethics Committee, Faculty of Nursing, Mansoura University, Egypt, with Reference Number 0442 on 19$^{th}$ June, 2019.

**RESULTS**

**Sociodemographic Characteristics**

The Intervention (n = 83) and Control (n = 83) groups were comparable at baseline. The average age was 13.13 ± 0.80 years in the intervention group and 13.31 ± 0.90 years in the control group, with no significant

difference ($p > 0.05$). Similarly, there were no statistically significant differences between groups regarding residence, birth order, parental education, occupations, or family income, confirming baseline equivalence (Table 1).

***Table 1: Frequency and Distribution of Sociodemographic Characteristics in Intervention and Control Groups***

| Items | Intervention group (n= 83) | | Control group (n= 83) | | Test used (*P* value) |
|---|---|---|---|---|---|
| | N | % | No | % | |
| **Age (years)** | | | | | |
| **Mean ±SD** | 13.13 ± .80 | | 13.31 ± .90 | | 1.36 (*P*>0.05) 0.174 |
| **Residence** | | | | | |
| Urban | 43 | 51.8 | 32 | 42.2 | 4.11 ($p > 0.05$) |
| Rural | 40 | 48.2 | 53 | 54.2 | |
| **Male Order** | | | | | |
| 1st | 21 | 25.3 | 30 | 36.1 | 0.237 ($p$>0.05) |
| 2nd | 43 | 51.8 | 38 | 45.8 | |
| 3rd and other | 19 | 22.9 | 15 | 18.1 | |
| **Father Education** | | | | | |
| Basic education | 5 | 6.0 | 8 | 9.6 | 1.27 ($p$>0.05) |
| Intermediate education | 42 | 50.6 | 36 | 43.4 | |
| High education | 36 | 43.4 | 39 | 47.0 | |
| **Mother Education** | | | | | |
| Basic education | 8 | 9.6 | 6 | 7.2 | 0.946 ($p$>0.05) |
| Intermediate education | 45 | 54.2 | 51 | 61.4 | |
| High education | 30 | 36.1 | 26 | 31.3 | |
| **Mother Job** | | | | | |
| Working | 58 | 69.9 | 52 | 62.7 | 0.097($p$>0.05) |
| Housewife | 25 | 30.1 | 31 | 37.3 | |
| **Father Job** | | | | | |
| Government work | 27 | 32.5 | 25 | 30.1 | 0.447($p$>0.05) |
| Freelance work | 45 | 54.2 | 49 | 59.0 | |
| Pension / Not working | 11 | 13.3 | 9 | 10.8 | |
| **Income** | | | | | |
| Enough | 35 | 42.2 | 35 | 42.2 | 0.049 ($p$>0.05) |
| Enough and saving | 14 | 16.9 | 15 | 18.1 | |
| Not enough | 34 | 41.0 | 33 | 39.8 | |

## Impact on Puberty Health Awareness

***Table 2: Comparison of Awareness Scores on Puberty Health Dimensions Between Intervention and Control Groups***

| Variables | Group | Pre (n = 83) | Post (n = 83) | Follow-up (n = 83) | F (*P* value) & $\eta^2$ |
|---|---|---|---|---|---|
| Physical Changes | Intervention | 3.94 ± 1.43 | 8.65 ± 0.97 | 8.87 ± 1.61 | 277.11 (<0.001*) & 0.63 |
| | Control | 3.97 ± 1.29 | 3.93 ± 1.29 | 3.88 ± 1.36 | |
| | Significance (d) | 0.865 | <0.001* | <0.001* | |
| Hygiene and Self-Care | Intervention | 0.42 ± 1.85 | 8.52 ± 1.13 | 8.48 ± 1.07 | 227.04 (<0.001*) & 0.58 |
| | Control | 3.77 ± 1.87 | 3.70 ± 1.88 | 3.69 ± 1.84 | |
| | Significance (d) | 0.146 | <0.001* | <0.001* | |
| Emotional Changes | Intervention | 3.07 ± 1.59 | 7.89 ± 0.44 | 7.37 ± 1.11 | 402.73 (<0.001*) & 0.71 |
| | Control | 2.92 ± 1.53 | 2.87 ± 1.50 | 2.86 ± 1.52 | |
| | Significance (d) | 0.552 | <0.001* | <0.001* | |
| Reproductive Health | Intervention | 1.41 ± 0.88 | 3.90 ± 0.34 | 3.64 ± 0.97 | 227.04 (<0.001*) & 0.60 |
| | Control | 1.27 ± 0.92 | 1.25 ± 0.90 | 1.22 ± 0.88 | |
| | Significance (d) | 0.305 | <0.001* | 0.004* | |
| Social and Peer Interaction | Intervention | 1.17 ± 0.64 | 1.84 ± 0.37 | 1.70 ± 0.46 | 27.17 (<0.001*) & 0.14 |
| | Control | 1.12 ± 0.69 | 1.00 | 1.07 ± 0.62 | |
| | Significance (d) | 0.641 | <0.001* | <0.001* | |
| **Total** | Intervention | 13.76 ± 3.34 | 30.81 ± 1.66 | 27.27 ± 2.29 | 979.26 (<0.001*) & 0.86 |
| | Control | 13.06 ± 2.61 | 0.77 ± 2.61 | 13.01 ± 022 | |
| | Significance (d) | 0.135 | <0.001* | <0.001* | |

Table 2 and Figure 1 demonstrate a significant improvement in the intervention group across all awareness domains after participating in the Nurse Navigator Program. In contrast, the control group showed no statistically significant changes. Total awareness scores increased from a baseline mean of 13.76 (SD ± 3.34) to 30.81 (SD ± 1.66) following the intervention and then slightly declined to 27.27 (SD ±2.29) at the follow-up. The effect size was exceptionally high ($\eta^2 = 0.86$), indicating a significant impact. In the control group, scores remained statistically unchanged across all time points ($p > 0.05$), confirming that the improvements observed in the intervention group were due to the program itself.

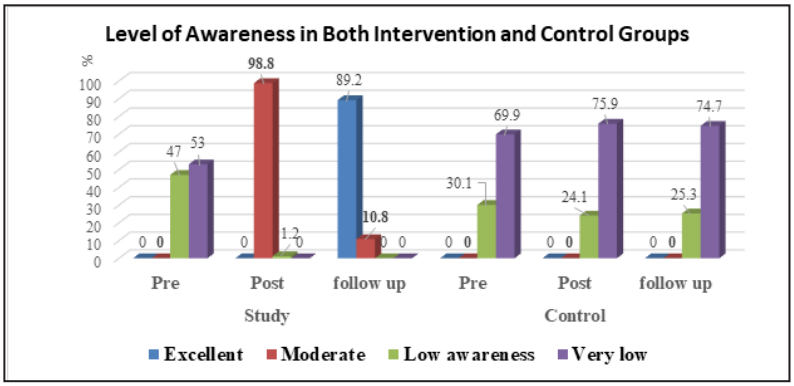


***Figure 1: Percentage Distribution of Awareness Levels among Intervention and Control Groups Across Time Points***

***Table 3: Comparison of Mean Scores on Pubertal Attitudes between Intervention and Control Groups Across Time Points***

| Variables | Group | Pre (n=83) | Post (n=83) | Follow-up (n=83) | F (*P* value) & $\eta^2$ |
|---|---|---|---|---|---|
| Physical Changes | Intervention | 3.29 ± 8.39 | 23.96 ± 1.95 | 22.63 ± 2.67 | 497.85 (<0.001*) & 0.75 |
| | Control | 8.42 ± 3.35 | 8.12 ± 2.96 | 7.89 ± 2.82 | |
| | Significance (d) | 0.499 | <0.001* | <0.001* | |
| Emotional Changes | Intervention | 6.90 ± 2.49 | 65.00 ± 19.08 | 80.00 ± 18.51 | 662.92(<0.001*) & 0.80 |
| | Control | 6.87 ± 2.45 | 7.60 ± 2.30 | 7.89 ± 2.82 | |
| | Significance (d) | 0.925 | <0.001* | <0.001* | |
| Social Changes | Intervention | 7.47 ± 2.85 | 19.49 ± 1.28 | 18.57 ± 1.77 | 561.37(<0.001*) & 0.77 |
| | Control | 6.87 ± 2.45 | 7.49 ± 2.10 | 7.67 ± 2.38 | |
| | Significance (d) | 0.146 | <0.001* | <0.001* | |
| Attitudes Toward Puberty Education | Intervention | 7.61 ± 2.98 | 18.39 ± 2.75 | 18.04 ± 2.66 | 269.54(<0.001*) & 0.62 |
| | Control | 8.42 ± 3.35 | 8.12 ± 2.96 | 7.89 ± 2.82 | |
| | Significance (d) | 0.103 | <0.001* | 0.004* | |
| Self-Esteem and Body Image | Intervention | 7.37 ± 2.55 | 18.34 ± 2.78 | 18.51 ± 1.80 | 271.86(<0.001*) & 0.62 |
| | Control | 7.71 ± 3.37 | 7.94 ± 2.91 | 7.77 ± 2.76 | |
| | Significance (d) | 0.468 | <0.001* | <0.001* | |
| **Total** | Intervention | 37.73 ± 7.18 | 99.27 ± 6.22 | 96.24 ± 5.40 | 992.97(<0.001*) & 0.86 |
| | Control | 38.29 ± 11.66 | 39.28 ± 10.39 | 39.12 ± 13.32 | |
| | Significance (d) | 0.713 | <0.001* | <0.001* | |

## Impact on Pubertal Attitudes and Perceptions

Table 3 demonstrates that the intervention group experienced significant and lasting improvements in pubertal attitudes following the Nurse Navigator Program. The total attitude score increased from 37.73 ± 7.18 at baseline to 99.27 ± 6.22 post-intervention, with a slight decline to 96.24 ± 5.40 at follow-up, indicating a huge effect size ($\eta^2 = 0.86$). Substantial gains were also observed across specific domains: attitudes toward physical changes improved from 3.29 to 23.96 ($\eta^2 = 0.75$), emotional changes from 6.90 to 65.00 ($\eta^2 = 0.80$), and social changes ($\eta^2 = 0.77$). Attitudes toward puberty education ($\eta^2 = 0.62$) and self-esteem and body image (7.37 to 18.34; $\eta^2 = 0.62$) also showed meaningful improvements, reflecting enhanced psychosocial well-being. In contrast, the Control group showed no significant changes across any domain ($p > 0.05$), reinforcing the program's effectiveness in positively shaping students' perceptions of puberty.

## DISCUSSION

The Nurse Navigator Program (NNP) for male adolescents demonstrated a meaningful role in improving their physical and mental readiness during puberty. By offering structured, evidence-based guidance, the program filled crucial gaps in pubertal health education and support.

### Impact on Awareness

Findings confirmed a significant increase in students' knowledge about puberty, particularly in areas such as physical changes, emotional development, hygiene, and reproductive health. This aligns with the Health Belief Model (HBM), which posits that behavior change occurs when individuals perceive risks and benefits effectively (Choi *et al*. 2025). The Nurse Navigator Program appears to enhance students' health literacy and motivation by addressing perceived susceptibility and benefits through culturally tailored messages.

These results are consistent with research by Naert *et al*. (2025), who reported improved health engagement through nurse-led navigation programs. Similarly, Leung *et al*., (2024) found that strategic school-based guidance significantly increased students' reproductive health awareness and confidence.

### Impact on Attitudes

The intervention group demonstrated marked improvements in attitudes toward puberty, body image, and self-esteem. Students became more accepting of physical changes and developed healthier emotional responses, which supports earlier findings by Msovela *et al*. (2025) in Tanzanian schools, were structured guidance enhanced adolescents' perceptions of puberty. Likewise, Nazmi *et al*. (2025) found that addressing puberty openly with trained professionals improved confidence and reduced anxiety.

These results support the notion that nurse-facilitated education not only imparts knowledge but also reshapes emotional and psychological readiness.

### Comparison with Prior Research

This study's findings align with global literature on adolescent health interventions. Integrating HBM and Social Cognitive Theory (SCT) has been shown to produce superior results compared to passive information delivery. Nurse-led interventions foster credibility and offer tailored responses to adolescents' concerns. For example, Waghmare and Jajoo (2024) highlighted the role of nurse educators in adolescent gynecological health, and Best *et al*. (2024) emphasized their impact on health equity in schools.

Additionally, findings from Salahshouri *et al*. (2024) in Iran showed that mobile-based HBM interventions effectively increased knowledge among adolescent boys. Guo *et al*. (2025) further support this, finding that digital interventions in China significantly improved knowledge and behavior, especially when supported by facilitators.

The stagnation observed in the control group parallels research by Salahshouri *et al*. (2024), who concluded that students lacking structured programs exhibit minimal change in awareness or attitude over time.

### Limitations

A limitation of this study was the brief three-month follow-up period, which may not fully capture the long-term effects of the intervention. Future studies are encouraged to include extended follow-up intervals to better assess the sustainability and long-term impact of the Nurse Navigator Program on pubertal health awareness and attitudes among students.

### Recommendation

Based on the study findings, it is recommended that the Nurse Navigator Program be expanded and integrated into school health education, particularly for male students. To ensure sustained impact, future programs should include more extended follow-up periods and involve structured nurse training, culturally appropriate educational materials, and active parental engagement. Policymakers should adopt gender-sensitive approaches that address the academic needs of both boys and girls. Replication of the program in diverse regions is advised to enhance generalizability. Additionally, leveraging digital tools for follow-up and

conducting qualitative research can further strengthen and refine the program's effectiveness in supporting adolescent development.

## CONCLUSION

The findings of this study have significant implications for school health education policy. The Nurse Navigator Program proves to be a valuable, scalable model for improving male adolescents' knowledge and attitudes about puberty. It addresses critical gaps in gender-sensitive education and provides a replicable template for public health efforts in similar contexts.

Given its effectiveness, this program should be institutionalized across schools, particularly where male students have limited access to health education. Policymakers and educators should consider expanding the curriculum to include longer-term follow-ups, digital tools, and parental involvement. Broader adoption could yield long-term improvements in youth health outcomes, behavior, and self-concept, contributing to healthier transitions through adolescence.

The article confirms the pivotal role of the nurse navigator program during puberty and adolescence. The Nurse Navigator Program has profoundly impacted awareness and attitudes toward pubertal health among male school-age students. It has improved the intervention group's knowledge and attitudes regarding puberty's physical, emotional, and social aspects. Future research could explore the program's long-term effectiveness, assessing whether improvements in awareness and attitudes translate into healthier behaviors over time.

### Conflict of Interest

The authors declare that there are no conflicts of interest related to this study.

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