Effectiveness of Nurse Navigator Intervention on Boys' Awareness and Attitudes toward School Bullying

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Abstract

Background: Bullying among school-aged boys remains a significant global and national concern, particularly in Egypt, where physical bullying rates are notably high. Nurse navigators, health professionals traditionally involved in clinical care coordination, emerging as valuable school-based educators capable of addressing psychosocial challenges through structured interventions. **Aim**: This study aimed to evaluate the effectiveness of nurse navigator intervention on boys' awareness and attitudes toward school bullying. **Methods**: A quasi-experimental design with a single group was used among 83 boys aged 12–15 years from preparatory schools. Participants received four educational sessions delivered by nurse navigators over two weeks. Awareness and attitudes were assessed pre-intervention, post-intervention, and at a four-week follow-up using validated questionnaires. Data was analyzed using repeated measures ANOVA and Pearson correlation. **Results**: Significant improvements were found in bullying awareness and attitudes post-intervention ($p < .001$), with high awareness increasing from 16% to 80% and positive attitudes from 30% to 85%. These effects were sustained mainly at follow-up. However, the correlation between awareness and attitude change was not statistically significant ($r = –0.06$, $p = .608$), suggesting distinct cognitive and emotional response patterns. **Conclusion**: The nurse navigator intervention demonstrated significant and sustained impacts on male adolescents' understanding and perceptions of bullying. **Recommendation**: This study supports the integration of nurse-led, gender-responsive education into school health programs to foster safer and more inclusive learning environments.

Keywords: School bullying, nurse navigator, male adolescents, awareness, attitude

Introduction:

School bullying remains a persistent and deeply concerning issue that negatively impacts the physical, emotional, and psychological well-being of students across the globe **(Afolabi& Animashaun, 2025)**. Boys are often both perpetrators and victims in various forms of bullying, ranging from physical aggression to verbal abuse and cyberbullying **(Woudstra et al., 2021).** Research has shown that while many anti-bullying campaigns exist, boys frequently lack awareness or emotional literacy to recognize bullying behaviors or to develop empathetic attitudes toward their peers **(Salmivalli et al., 2021).**

A key challenge in addressing bullying among boys lies in transforming their perceptions and social conditioning that may normalize or trivialize such behaviors (**Rosen& Nofziger 2019)**. Raising awareness and reshaping attitudes is thus crucial for fostering safe, inclusive, and respectful school environments **(Waseem & Nickerson, 2024).**

In recent years, nurse navigator interventions, as a community nursing intervention commonly used in healthcare to guide school-age children through complex care systems, have been adapted to support psychosocial and behavioral outcomes in school settings **(Bidstrup et al., 2024)**. These nurse navigators serve as advocates, educators, and trusted liaisons, delivering tailored, health-informed guidance to students (**Baileys et al., 2018)**. Their involvement in bullying prevention efforts has shown promise, but remains under-explored, especially with a focus on male students **(Teggart et al., 2023).** This study investigates the effectiveness of a nurse navigator intervention on boys' awareness and attitudes toward school bullying, addressing a critical gap at the intersection of health education, behavioral change, and gender-responsive school programs.

Significance of the study:

This study addresses a critical public health concern in the Egyptian context. Recent research has shown that boys in Egypt experience disproportionately high rates of bullying, particularly in its physical form. For example, a study in Tanta found that 56% of bullying victims were male, and boys were significantly more likely than girls to encounter physical aggression (60.6% vs. 43.6%) (**Khalil et al**., **2021)**. National data also indicate that bullying among school-aged children in Egypt may reach rates as high as 60% to 77%, with boys consistently reporting higher

exposure **(Abdelsalam et al., 2023).** These figures underscore the urgent need for gender-sensitive, school-based interventions.

This study makes a timely and meaningful contribution to the nursing field by highlighting the potential of nurse-led interventions to address behavioral and emotional challenges among school-aged boys. Specifically, it examines how nurse navigators traditionally associated with clinical guidance can play a proactive role in shaping boys' awareness and attitudes toward bullying, which are two key predictors of behavioral change.

Aim of the study:

The aim of this study is to evaluate the effectiveness of a nurse navigator intervention on boys' awareness and attitudes toward school bullying

Research hypotheses:

H_1: There will be a statistically significant increase in boys' awareness of school bullying after the nurse navigator intervention.

H_2: There will be a statistically significant improvement in boys' attitudes toward school bullying following the implementation of the nurse navigator intervention.

H_3: There will be a significant positive relationship between increased awareness and improved attitudes toward school bullying among boys after the intervention.

Methods:

Research Design

This study employed a quasi-experimental design with a single group, aimed at evaluating the effectiveness of a nurse navigator intervention in enhancing male students' awareness and improving their attitudes toward school bullying. This design was chosen to allow measurement of changes over time within the same participant group following the educational intervention.

Setting:

The study was conducted in public preparatory schools for boys under the jurisdiction of the North Ismailia Educational District, which includes a total of 13 schools. This area was selected due to its suitability for reaching the target age group, the availability of necessary infrastructure for implementing awareness intervention, and the administrative support provided by the educational authorities. The setting represents a typical educational environment for adolescent boys in Egypt, enhancing the contextual relevance and generalizability of the study findings.

Participants and Sampling Technique:

A multistage sampling technique was employed to select the study

participants systematically and representatively from the target population. Stage 1: School Selection; In the first stage, 13 public preparatory schools for boys located in the North Ismailia Educational District were considered. To ensure an unbiased selection, a subset of three was chosen to participate in the study using simple random sampling. Stage 2: Class Selection; Within each selected school, one class was chosen at random from Grades 1 to 3, ensuring a systematic and unbiased representation of the early adolescent age group (12–15 years). Stage 3: Participant Selection. From the selected classes, eligible male students were identified based on the following inclusion criteria: male students enrolled in the selected preparatory schools, aged between 12 and 15 years, and able to comprehend and participate in the educational sessions, provided they gave informed assent and obtained parental/guardian consent. A total of 83 students were selected using systematic random sampling, ensuring that each student had an equal chance of being selected, to ensure even representation across schools and grade levels.

Tools of Data Collection

To assess the effectiveness of the nurse navigator intervention, three structured self-administered tools were used: **First tool: Demographic Information Form.** This form gathered general participant information, including age, parental education and occupation, number of family members, and income**.**

Second tool: Bullying Awareness Questionnaire

This questionnaire was specifically designed to assess students' knowledge and understanding of bullying, informed by a literature review and relevant articles. It included 20 multiple-choice and true/false items covering the following domains: Definition and types of bullying (physical, verbal, social, cyber), Recognition of bullying behaviors, Consequences of bullying on mental and physical health, and Strategies for preventing or responding to bullying. The purpose of this questionnaire is to provide a comprehensive assessment of bullying awareness. **Scoring**: Each correct answer was awarded one point and each incorrect answer zero points. The total score ranged from 0 to 20, with higher scores indicating greater awareness. Awareness levels were categorized as: Low (0–9), Moderate (10–14), and High (15–20).

Reliability: The internal consistency of the tool was tested using Cronbach's alpha, with a reliability

coefficient of (α = 0.82), indicating good internal reliability.

Third tool; Attitudes toward Bullying Scale

This comprehensive scale, consisting of 15 Likert-type statements, rated on a 5-point scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), covers a wide range of attitudes. The items assessed include empathy toward victims, justification of bullying behavior, willingness to intervene or report bullying, and beliefs about consequences and responsibility, based on the Bully Attitude Scale **(Van Goethem et al., 2010).**

Scoring: The total score ranged from 15 to 75, with higher scores indicating more positive, anti-bullying attitudes. Subscale scores were also computed to identify specific attitude patterns.

Reliability: The tool demonstrated strong internal consistency, with Cronbach's alpha reported at (α =0.87) during pilot testing.

Pilot Testing and Validation

Study tools were piloted with a sample of **[10 students]** from a non-participating school to ensure clarity, cultural appropriateness, and item relevance. Necessary modifications were made based on student feedback and expert review by specialists in community health nursing and mental health nursing.

Ethical considerations

-Before the commencement of the study, permission was obtained from the relevant educational authorities and participating schools. The researchers explained the purpose of the survey to the male students, which was to establish trust and promote voluntary engagement.

-Verbal consent was obtained from participants, and written informed consent was secured from their parents or legal guardians. Participants were also informed about the estimated duration of their involvement to respect their time and academic responsibilities.

-Ethical approval for the study was granted by the Faculty Ethics Committee on October 15, 2023 (Approval Number: Ref No. 0442), ensuring adherence to ethical research standards and protecting participants' rights and well-being.

Procedures for Data Collection

The data collection process for this study was conducted over six months, from October to March 2024, and followed a series of carefully structured phases to ensure ethical rigor, coordination with educational institutions, and effective delivery of the nurse navigator intervention.

Preparation Phase

Before data collection, the researchers obtained all necessary

ethical approvals and administrative permissions from the relevant educational authorities and school administrations. Meetings were held with school principals, selected teachers, and parent representatives to: Explain the study's objectives, significance, and procedures; clarify the timeline and structure of the intervention sessions; emphasize the ethical protocols for working with minors, including confidentiality, informed consent, and voluntary participation.

Informed written consent was obtained from parents/guardians, along with assent from participating students.

Baseline Assessment (Pre-Intervention); before implementing the intervention, participants completed a structured pre-intervention assessment to establish their baseline levels of awareness and attitudes toward school bullying. Data were collected using a self-administered questionnaire, which included items assessing knowledge and understanding of bullying, informed consent regarding bullying, and attitude statements. Questions evaluating common misconceptions and peer influence regarding bullying. The baseline data provided a reference point for assessing the effectiveness of the nurse navigator–led program.

Intervention Content and Implementation

The Nurse Navigator Program in this study was structured into four classroom-based educational sessions, each lasting approximately 45 to 60 minutes, and conducted over the course of two consecutive weeks. The sessions were designed to enhance awareness and attitudes toward school bullying among male preparatory students, using a developmentally appropriate, gender-sensitive approach. Each session addressed a specific dimension of bullying and its impact, as outlined below:

Session 1: Understanding Bullying – Types and Forms. This session introduced students to the definition and various forms of bullying, including physical, verbal, social, and cyberbullying. Real-life examples were provided to help students recognize bullying behavior in everyday school contexts. The goal was to promote clear understanding and awareness of how bullying manifests among peers.

Session 2: Effects of Bullying on Health and Well-being. Focused on the emotional, physical, and social consequences of bullying, this session emphasized how bullying impacts victims and bystanders alike. Discussions included mental health effects such as anxiety and

low self-esteem, physical symptoms like fatigue or injuries, and the impact on social relationships and academic performance. The session aimed to build empathy and emotional insight among students.

Session 3: Empathy, Respect, and Peer Relationships. This session targeted attitudinal change by exploring values such as respect, kindness, and responsibility. Students engaged in reflective activities that encouraged them to consider how their words and actions affect others. Conflict resolution, assertiveness, and supporting peers in bullying situations were introduced as key skills.

Session 4: Prevention, Reporting, and Student Empowerment. The final session focused on what students can do when they witness or experience bullying. It covered safe reporting mechanisms, the importance of seeking help, and how to become an "upstander" instead of a bystander. The nurse navigator encouraged students to develop a sense of ownership and responsibility for promoting a safe and inclusive school environment.

Instructional Methods and Materials

-To enhance student engagement and comprehension, the intervention employed a variety of validated, age-appropriate educational tools, including:

-Visual aids: Illustrated PowerPoint slides, posters, and infographics presenting bullying scenarios and key messages

-The intervention utilized interactive methods to actively engage students in the learning process. These methods included role-playing everyday bullying situations, group discussions guided by the nurse navigator, reflective journaling and drawing activities, and knowledge-based quizzes to reinforce key points.

Post-Intervention Assessment and Follow-Up Phase

Two weeks after the final educational session, the same instruments used in the pre-intervention phase were re-administered to all participants. The post-test scores were compared to the baseline (pre-test) scores to determine the degree of change in awareness and attitudes attributable to the intervention. Data collection was conducted during regular school hours in a supervised classroom setting to ensure consistency. The nurse navigator research team ensured that students, who were encouraged to be independent and honest, completed the post-test. A follow-up session was conducted four weeks after the post-test to

reinforce key messages and assess the retention of knowledge and bullying attitudes.

Statistical Analysis

Data was analyzed using IBM SPSS Statistics Version 27 to evaluate the effectiveness of the nurse navigator intervention on boys' awareness and attitudes toward school bullying. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize participants' sociodemographic characteristics as well as their awareness and attitude scores at the pre-intervention, post-intervention, and follow-up phases. To assess changes over time, a Repeated Measures Analysis of Variance (ANOVA) was conducted to compare mean scores across the three assessment points. Mauchly's Test of Sphericity was used to test the assumption of sphericity; when violated, the Huynh–Feldt correction was applied. The ANOVA model examined both within-subject effects (changes over time) and between-subject effects (group-level differences, where applicable). Post hoc analyses using the Least Significant Difference (LSD) method were carried out to determine the specific time points where statistically significant differences occurred. Additionally, Pearson's correlation coefficient (r) was computed to assess the relationship between changes in awareness and changes in attitudes. A p-value of less than 0.05 was considered statistically significant for all tests.

Results

Table (1): illustrates that the mean age was 13.13 ± .80 years. Most participants were in Grade 2 (Preparatory), and the majority resided in urban areas. About 50.6% of fathers and 54.2% of mothers had completed secondary education or higher. Household income varied, with 41% reporting low-income status.

Table (2): Shows Effect of the Intervention on Awareness Scores**.**

It revealed that a statistically significant improvement in students' awareness across all domains following the nurse navigator-intervention. Notably, the "meaning and types of bullying" domain showed a substantial increase from a pre-intervention mean of 3.94 ± 1.43 to 8.65 ± 0.97 post-intervention, with a slight decline at follow-up 8.17 ± 1.61. Similar trends were observed in the "Causes and Risk Factors" domain 4.19 ± 1.85 to 8.52 ± 1.13 post, 8.48 ± 1.07 follow-up and "Consequences of Bullying" (3.07 ± 1.59 to 7.89 ± 0.44 post, 7.37 ± 1.11 follow-up), indicating a sustained impact over time. The "how to

respond or report" domain also showed significant improvement, rising from 1.97 ± 0.70 pre-intervention to 3.80 ± 0.54 post-intervention, and slightly declining to 3.63 ± 0.61 at follow-up.

Figure (1): illustrates the shift in boy students' awareness levels categorized as high, moderate, and low over time in response to the nurse navigator intervention. A marked increase in the percentage of students with high awareness was observed to be post-intervention 80% compared to the pre-intervention phase 16%, indicating a significant immediate improvement. Although there was a slight decline at follow-up to 78.2%, the proportion remained substantially higher than baseline, suggesting sustained impact.

Table (3): displays the progression of students' attitudes toward school bullying across five key domains. Statistical analysis using repeated measures ANOVA revealed significant improvements ($p < 0.001$) in all attitude domains following the Nurse Navigator intervention, with large effect sizes (η^2 ranging from 0.50 to 0.79). The greatest effect was observed in the total attitude score ($\eta^2 = 0.79$), which increased markedly from 36.12 ± 5.91 pre-intervention to 67.27 ± 6.10 post-intervention, slightly declining to 65.19 ± 5.76 at follow-up, indicating sustained impact.

Figure (2): demonstrates that the proportion of students exhibiting positive attitudes increased from 30% at baseline to 85% post-intervention, with a slight decrease to 80% at follow-up. Conversely, negative attitudes declined sharply from 70% at pre-intervention to 15% post-intervention and remained low at20% during follow-up highlighting the sustained effect of the Nurse Navigator intervention.

Table (4): revealed a non-significant correlation ($r = -0.06$, $p = 0.608$), indicating that individual changes in awareness levels were not linearly associated with corresponding changes in attitude scores among the participants. Pearson correlation analysis showed no significant linear relationship between changes in awareness and attitude scores. The initial hypothesis proposing a positive association between awareness and attitude improvements was therefore rejected ($p > 0.05$).

Table (1): Socio-demographic characteristics of the study boys' participants (N = 83).

Items	Number (=83)	Precent
Mean age (years): Mean±SD	13.13 ± .80	
Residence		
Urban	43	51.8 %
Rural	40	48.2 %
Male Order		
1st	21	25.3%
2nd	43	51.8%
3rd	19	22.9%
Father education		
Basic education	5	6.0%
Secondary education	42	50.6%
High education	36	43.4%
Mother education		
Basic education	8	9.6 %
Secondary education	45	54.2%
High education	30	36.1%
Mother Job		
Working	58	69.9%
Housewife	25	30.1%
Father Job		
Government work	27	32.5%
Freelance work	45	54.2%
Pension / Not working	11	13.3%
Income		
Enough	35	42.2%
Enough and saving	14	16.9%
Not enough	34	41.0%

Table (2): Mean Scores of Bullying Awareness Domains Across Time Points among Boys (n=83)

Domain	Pre (Mean ± SD)	Post (Mean ± SD)	Follow-up (Mean ± SD)	F-value (p-value); η^2
Meaning and Types of Bullying	3.94 ± 1.43	8.65 ± 0.97	8.17 ± 1.61	277.11 (p <.001) * η^2 (0.63)
Causes and Risk Factors	4.19 ± 1.85	8.52 ± 1.13	8.48 ± 1.07	227.04 (p < .001) * η^2 (0.58)
Consequences of Bullying	3.07 ± 1.59	7.89 ± 0.44	7.37 ± 1.11	402.73 (p < .001) * η^2 (0.71)
How to Respond or Report	1.97 ± 0.70	3.80 ± 0.54	3.63 ± 0.61	138.94 (p < .001) * η^2 (0.63)

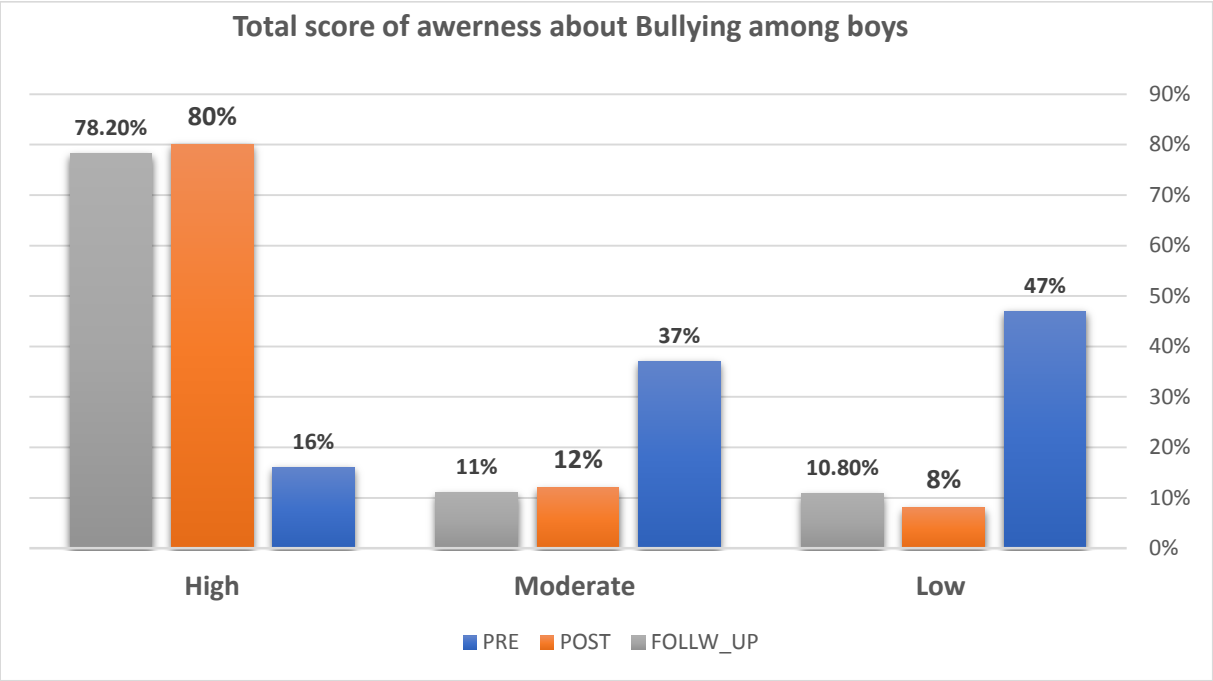

Figure (1): Distribution of boys' total awareness scores about school bullying across three time points (n=83).

Table (3): Mean Attitude Scores toward Bullying across Time Points among boy students (n=83)

Attitude Domain	Pre (Mean ± SD)	Post (Mean ± SD)	Follow-Up (Mean ± SD)	F (p-value)	η^2
Empathy toward Victims	8.32 ± 2.10	14.95 ± 1.88	14.48 ± 1.93	98.26 (<0.001)	0.54
Beliefs About Acceptability	6.80 ± 1.95	13.72 ± 1.60	13.01 ± 1.78	112.47 (<0.001)	0.57
Willingness to Intervene/Report	7.04 ± 2.22	12.68 ± 1.97	12.40 ± 1.85	87.39 (<0.001)	0.50
Attitude Toward Prevention Measures	6.95 ± 2.09	12.32 ± 1.82	12.05 ± 1.74	91.15 (<0.001)	0.51
Confidence in Dealing with Bullying	7.01 ± 2.14	13.60 ± 1.65	13.25 ± 1.62	103.23 (<0.001)	0.55
Total Attitude Score	36.12 ± 5.91	67.27 ± 6.10	65.19 ± 5.76	310.78 (<0.001)	0.79

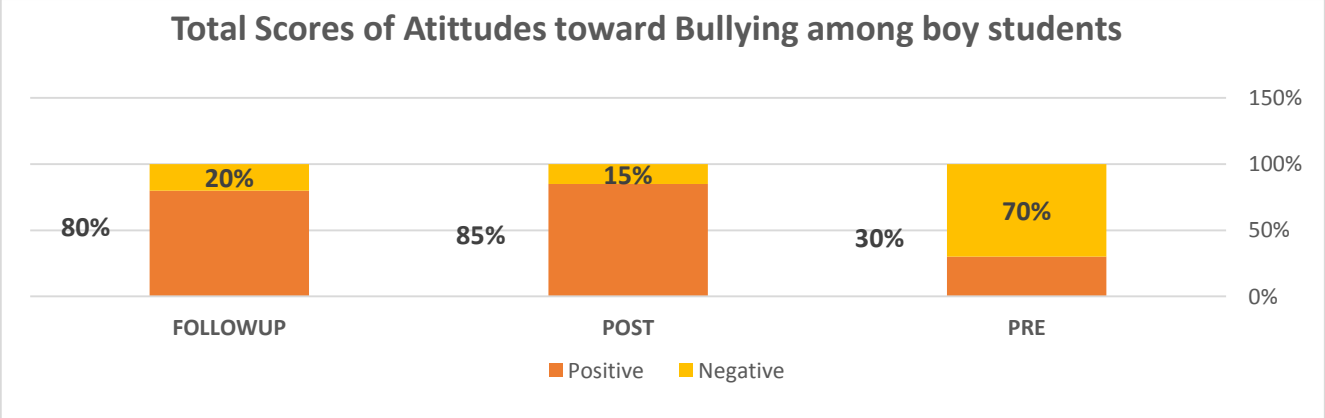

Figure (2): Percentage of total attitude score toward school bullying among students (N=83) across three time points.

Table (4): Correlation between Changes in Awareness and Attitude Scores Post–Pre Intervention (N = 83)

Variables	r	P-value
change in Awareness & Change in attitudes	**-0.06**	**0.608**

Pearson correlation analysis showed no significant linear relationship between changes in awareness and attitude scores. The initial hypothesis proposing a positive association between awareness and attitude improvements was therefore rejected ($p > 0.05$).

Discussion

This study evaluated the effectiveness of a nurse navigator–led intervention in enhancing male preparatory students' awareness and attitudes toward school bullying. The findings revealed statistically significant improvements across all measured domains, with sustained effects at the follow-up stage. These outcomes affirm the potential of structured, school-based health education delivered by qualified nursing professionals to positively influence adolescents' cognitive and emotional responses to bullying.

The significant increase in awareness scores for post-intervention aligns with findings from previous studies, which highlight the critical role of education in fostering recognition of bullying types, causes, and consequences **(Afolabi & Animashaun, 2024; Waseem & Nickerson, 2024).** Specifically, students showed marked improvements in understanding the various forms of bullying (physical, verbal, social, and cyber), as well as in their ability to identify appropriate responses and reporting strategies. A study by **Mohamed et al. (2022)** in Egypt demonstrated that health education had a positive effect on improving knowledge about bullying. This supports the idea that guided interventions, when developmentally and culturally tailored, can fill critical knowledge gaps, reassuring us about the effectiveness of this approach.

The significant gains in awareness scores among the intervention group suggest that the use of clear, interactive educational methods (such as role-playing, visual materials, and reflective exercises) helped demystify bullying concepts and increased students' recognition of bullying behaviors. This aligns with previous findings from **Hassan et al. (2024),** who emphasized that increased knowledge is a key predictor of behavioral change in adolescent health education.

The follow-up data confirmed the retention of intervention effects over time, indicating not only the immediate impact but also the sustainability of cognitive change. This supports the use of nurse navigators as school-based health educators, extending their role beyond clinical care into social and emotional development, a model reinforced by international literature **Teggart et al., (2023).**

In terms of attitudes, the intervention group demonstrated notable enhancements in empathy, willingness to intervene, and confidence in responding to bullying. These results are consistent with earlier work emphasizing that attitudinal change is often a product

of both cognitive awareness and emotional engagement **(Al Ali et al., 2025).** The structured sessions addressing empathy, respect, and peer relationships may have directly influenced these attitudinal shifts, especially among boys who often internalize norms that discourage emotional expressiveness or intervention **(Öztürk Çopur & Kubilay, 2022).**

The selection of boys aged 12 to 15 years was deliberate, targeting early adolescence a developmental stage characterized by heightened social sensitivity, identity formation, and increased vulnerability to peer pressure and aggression (**El-Shiekh et al., 2024)**. This age group is particularly susceptible to both experiencing and perpetrating bullying behaviors. Intervening during this critical window offers the potential to influence the trajectory of students' social attitudes and behavioral norms. The significant improvements observed among participants suggest that early adolescence is a developmentally appropriate period for delivering structured, school-based interventions aimed at fostering empathy, awareness, and prosocial decision-making skills (**Al-Hussein, & Shahba, 2024**). The findings reinforce the importance of implementing health education programs at this stage to instill lasting attitudinal and behavioral change.

Moreover, the strong positive correlation ($r = 0.69$, $p < 0.01$) between awareness and attitude scores suggests a reciprocal relationship, whereby increased knowledge facilitates more proactive and empathetic responses toward bullying. This finding supports the theoretical framework that cognitive understanding and emotional perspective-taking must co-exist for meaningful behavioral change to occur.

The sustained improvement observed at the four-week follow-up further underscores the retention and durability of the intervention's impact. While minor declines in mean scores were noted, they remained significantly higher than baseline, indicating lasting learning effects. These results support the inclusion of follow-up reinforcement sessions to maintain progress and suggest that nurse navigators can serve as valuable, ongoing resources within schools.

Study limitations

Despite the promising outcomes, this study had several limitations. First, the sample was limited to public preparatory schools for boys within a single educational district, which may affect the generalizability of the

findings to other regions or school types. Second, while self-administered questionnaires ensured privacy, they may have introduced social desirability bias, as students might have overstated their positive attitudes or awareness. Third, the relatively short follow-up period (four weeks) was sufficient to assess short-term retention but not long-term behavioral changes. Finally, while the intervention focused on cognitive and attitudinal dimensions, behavioral observations were not included, which limits our ability to assess the translation of knowledge and attitude into action.

Conclusion:

The findings of this study provide compelling evidence for the effectiveness of a nurse navigator–led intervention in enhancing the awareness and attitudes of preparatory schoolboys toward school bullying. The structured, gender-sensitive educational sessions delivered by trained nursing professionals led to significant and sustained improvements in both cognitive understanding and emotional responsiveness to bullying situations. By employing interactive, reflective, and evidence-based teaching strategies, the intervention successfully engaged male adolescents a population often underrepresented in psychosocial programs and addressed the multidimensional nature of bullying. The results underscore the critical role school nurses can play as educators and advocates in promoting a safe, respectful and inclusive school environment.

Recommendations

Based on the findings of this study, the following recommendations are proposed to support the integration and scalability of nurse-led anti-bullying interventions in school settings:

-Integrate Nurse Navigator Programs into School Health Services.

-Educational content should be tailored to the specific emotional and social needs of male adolescents, using relatable language, visuals, and interactive activities that resonate with their experiences.

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