(RESEARCH ARTICLE)

Effect of an educational intervention to prevent gender violence among university nursing students

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Abstract

Introduction: This study presents the effects of PREVIOGEN, an educational intervention designed and developed in collaboration with seven Mexican educational institutions and one health institution, whose purpose is to help prevent gender violence among nursing students.

Objective: To evaluate the effect of PREVIOGEN in preventing gender violence among nursing students.

Methodology: Quantitative study with a quasi-experimental test-retest design with a single group. Sample of 42 nursing students selected by non-probabilistic convenience sampling. An educational intervention was implemented through the Moodle platform. The topics are based on a combination of pedagogical approaches that include social, cultural and learning theories. These address gender perspectives in relation to equality, social justice, respect for diversity and the promotion of human rights, for 20 hours. Pre- and post-intervention questionnaires were applied to assess perceptions, attitudes and knowledge about gender violence. Data were analyzed with SPSS-26, using descriptive statistics and nonparametric tests. Cohen's d was used to analyze the effect size.

Results: The findings show notable improvements in perceptions, attitudes, and knowledge after the educational intervention, indicating a large-scale positive effect in the fight against gender violence.

Conclusions: The PREVIOGEN educational intervention was highly effective in improving perceptions, attitudes, and knowledge about the prevention of gender violence among nursing university students.

Keywords: Nursing Education; Nursing Students; Gender-Based Violence; Knowledge; Attitudes and Practice in Health; Perception

1. Introduction

Gender violence (GBV) emerges as a challenge of vast magnitude, intertwining aspects of public health and fundamental rights. Its pervasiveness, with a prevalence that ranges between 12% and 51%, its repetitive nature and the deep consequences it leaves on health, configure a scenario of considerably high health and social costs [1]. Vázquez Ramos [2]

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highlights how in Mexico, a country rooted in a patriarchal cultural framework, disparities between men and women persist markedly, nurturing an environment where gender violence is intertwined with deep-rooted sexist practices, fueling a cycle of discrimination and unequal power relations, whose pillars are erected from an early age. This analysis is expanded, pointing out how these dynamics reverberate in the university nursing student community, impregnating their conceptions and beliefs with deep-rooted sociocultural precepts, and thus shaping their training path and professional perception.

Although educational health institutions present themselves as bastions of care and well-being, they cannot escape the sociocultural dynamics that perpetuate gender-based violence. A literature review, based on research studies conducted in 14 countries, highlights the worrying magnitude of this phenomenon among university nursing students, with a variable prevalence ranging from 22% to 91%, unfolding in all learning environments, from classrooms to clinical spaces. The multiple forms of violence, ranging from stereotypical language to sexual harassment, go hand in hand with a plethora of adverse physical, psychological and social effects, which deeply affect academic performance and overall well-being. It is crucial to recognize that the main perpetrator is often the student themselves, and that despite institutional efforts, the results have not been optimal, perhaps due to inadequate management and a lack of institutional support, leading students to seek their own coping strategies. Torres Lagunas [3] delves deeper into this aspect, highlighting the need for effective conciliation.

In response to this issue, various interventions have emerged as catalysts for resilience against gender-based violence. Therapeutic theatre, for example, has transformed private experiences into public dialogues, raising awareness among both participants and audiences [4]. Magudulela N [5], advocates for the power of collective action, evidenced in initiatives such as Girls Against Violence and Sexual Abuse (GASVA), which use formal and informal platforms to educate and raise awareness about gender-based violence, using participatory visual methods to give voice to silenced experiences.

However, despite these efforts, gender violence persists in higher education institutions, highlighting the urgent need for concrete actions [4,6]. Mutinta G. [7], supported by studies in diverse contexts, underlines the urgency of interventions and policies designed to protect students and raise awareness about the magnitude and roots of gender violence.

In this context, the PREVIOGEN study emerges as an innovative educational intervention, developed in collaboration between seven Mexican educational institutions and a health institution. Its purpose is to raise awareness among students, promoting critical reflection on the manifestations of gender violence in the university environment, with a view to fostering coping skills, autonomy and professional development, essential for the practice of empathetic nursing committed to the comprehensive well-being of people.

1.1. Conceptual, theoretical and empirical bases for educational intervention

Educational intervention in the 21st century school context requires that teachers engage in training processes that provide them with theoretical-methodological tools to enrich their pedagogical practices. This involves actively participating in decision-making and in the formulation of educational proposals adapted to the specific needs of their classrooms, through an exhaustive analysis of their educational environment and the creation of specific interventions. Educational intervention is conceived as a research process in which teachers critically examine their pedagogical work in order to address everyday challenges in the classroom. To do so, teachers must use theory as a reflective tool to consider teaching alternatives that fit both their needs and those of their students.

According to Carballeda (2012), educational intervention is configured as a device that intervenes in identified problematic situations, based on a prior understanding of them. Remedi (2004) conceptualizes it as the modification of established educational practices and institutions, through a process that involves reflection, negotiation of meanings and construction of new knowledge.

Educational intervention in schools is a process in which teachers investigate, reflect and design strategies to improve their teaching practice, thus contributing to the transformation of the educational process [8]. Moreno Macias [9] emphasizes that an educational intervention must be constructivist, reflexive, dialectical and oriented towards an existential and social praxis, encouraging dialogue, the confrontation of ideas and critical reflection, and promoting the active construction of knowledge by students. From this perspective, the importance lies in the fact that the intervention educates in reflection and in the transformation of reality.

Gender-based violence (GBV) refers to any act that may cause physical, sexual or psychological harm or suffering, including threats, coercion or deprivation of liberty, whether in the public or private sphere [10]. Gender-based violence against women or men encompasses actions or omissions that result in threats, grievances, mistreatment, injury, and

harm associated with the exclusion, subordination, discrimination, and exploitation of women, including girls, young women, adults, and older women [11].

In this sense, it is essential to understand the terms Perception, Knowledge, Attitudes and Health Practices, which refer to the interpretation of sensory stimuli and the knowledge, attitudes and behaviors related to health, pathological processes, their prevention and treatment [10].

1.2. Theories

Gender theory focuses on the social and cultural constructions that define the roles and behaviors of men and women, including stereotypes, power inequalities and cultural norms that perpetuate gender violence [12,13]. In the health field, these constructions can lead to the undervaluation of the work of nurses and contribute to work environments where they face a greater risk of violence. Addressing violence from a gender perspective involves challenging stereotypes, promoting equal power and advocating for structural change towards a safe and equitable environment.

Feminism is defined as the defense of women's human rights based on the principle of equal rights for women and men [14]. As a political and social movement, Gloria Bonilla [15] seeks to eliminate discrimination and gender oppression by defending women's human rights and promoting equality [11,16,17] . Harriet Dyer [14] has made significant progress in various fields, including education and health, where she has contributed to the recognition of the contributions of nurses, diversified the workforce and promoted participation in leadership roles [17]. In addition, it provides tools to identify and combat inequality, exclusion and discrimination in university environments, empowering students to denounce gender violence and promote social justice.

Pierre Bourdieu's contributions offer a deep understanding of social relations and the perpetuation of inequality in complex societies. His concepts, such as habitus, field, social reproduction, cultural capital and symbolic violence, help to analyze how power structures are formed and sustained. Habitus reflects the dispositions incorporated through socialization, including gender roles. Fields represent the social spaces where power struggles are waged, such as the health field. Social reproduction argues that structures tend to replicate themselves, as in the case of gender violence. The concept of cultural capital encompasses accumulated knowledge, skills and education, which relates to educational intervention. Symbolic violence, on the other hand, describes domination in class societies, such as gender supremacy, exercised through mental structures and ways of thinking that perpetuate inequalities [18,19].

In health and educational contexts, Bourdieu helps to understand and address the problem by increasing the cultural capital of nursing students, strengthening their ability to transform social structures and challenge entrenched stereotypes, confronting symbolic violence and promoting a culture of non-tolerance towards gender violence.

David Ausubel's Meaningful Learning Theory emphasizes the importance of integrating new knowledge into the existing cognitive structure for deep and lasting learning [20]. With this theory, the prevention of gender violence is sought to be connected with previous experiences, making learning meaningful and relevant. This implies a substantive relationship between new knowledge and what is already known, encouraging reflection and critical decision-making. On the other hand, Albert Bandura's Social Cognitive Learning Theory highlights the influence of social interactions, observation and modeling in learning. It focuses on the importance of reinforcement and consequences in the formation of behaviors, as well as self-efficacy and belief in personal capacity [21].

Both theories offer valuable tools to combat gender violence and promote equity through education, supporting the design of educational interventions aimed at nursing students.

1.3. Empirical framework

Several studies have highlighted the influence of knowledge and attitudes in the response to gender violence in nursing students. Lack of training and knowledge is identified as an initial obstacle, limiting the ability to address violence. Other factors include workload, lack of time, uncertainty about how to interact with victims, and the perception of violence as a private matter. In addition, some professionals may feel reluctant to get involved in judicial processes or may believe that health care centers are not the appropriate place to deal with this problem [22,23].

In terms of knowledge, several studies have found that nursing staff have a medium or poor level of knowledge about gender violence. For example, a Spanish study showed a medium level of knowledge among nursing staff (62.2%) [23], while research in Mexico revealed poor knowledge among nursing students (80.6%) [24].

Regarding attitudes, favorable predispositions toward detecting cases of violence have been observed in some Mexican students [24], while Peruvian students show misogynistic (86.5%), micromachist (91.9%) and sexist (56.8%) attitudes [25]. Regarding the perception of gender violence, a variety of responses have been found among nursing students. Some Peruvian nurses show rejection (90%), acceptance or indifference to violence [26], while others have misogynistic (93.9%) micromachist, 81.8% and sexist (63.5%) beliefs [25].

These findings highlight the importance of addressing both knowledge and attitudes and perceptions in the training of nursing students for an adequate response to gender-based violence.

Numerous studies have evaluated the effectiveness of educational programs to address gender-based violence among students, obtaining diverse results. Below are some relevant research studies that highlight how these interventions have improved students' perceptions, knowledge and attitudes regarding this issue:

A study in Peru with high school students, conducted by Purizaga Araya [27], found that an educational program managed to significantly increase knowledge about gender violence in the intervention group, compared to the control group that maintained a poor level of knowledge. In Mexico City, an online intervention with health professionals, according to research by Ramos Lira [28], increased knowledge about the elements that allow recognizing a violent act, although attitudes remained stable with less intolerance to violence. Gómez Carrillo [29] carried out an educational intervention in Spain for vocational training students, resulting in moderate changes (65%), including increased detection of gender-based abuse and increased awareness of stereotypes and zero tolerance towards gender violence. In Turkey, Kesgin Makbule [30] found that both creative drama and classroom education were significantly effective in positively increasing nursing students' attitudes towards violence against women. In Catalonia, according to Brigidi Serena [31], educational training on gender and violence issues demonstrated an increase in awareness and a decrease in tolerance towards situations of violence. Soy-Andradea [32], carried out an educational program based on stories about child abuse in Spain that was significantly effective in developing skills in nursing students, favoring the prevention of this phenomenon. Fatma Dilek [33], carried out an online program on women's and children's rights in Turkey, which increased students' knowledge and positive attitudes towards gender-based violence and reporting it. Ruşen Öztürk [34], carried out a study in Turkey that found that the inclusion of gender-based violence in nursing education improved attitudes by 86% and awareness by 84% towards victims, with the majority of students showing negative attitudes towards violence and a greater understanding of the role of health professions in supporting victims of violence.

Objective

To evaluate the effect of PREVIOGEN in preventing gender violence among nursing students.

1.4. Hypothesis

- Ho PREVIOGEN will not prove effective in preventing gender violence among nursing students, as reflected in the absence of significant changes in their perceptions, attitudes and knowledge on the subject.
- Ha PREVIOGEN will be effective in preventing gender violence among nursing students, which will be reflected in significant changes in their perceptions, attitudes and knowledge on the subject.

2. Material and methods

A quantitative design study was conducted with a quasi-experimental approach and a test-retest design using a single group. The target population was determined by the number of students who registered to participate N=52.

The sample was calculated with the statistical program G*Power version 3.1.9.7, it was determined with the Wlicoxon signed rank test statistic (one sample case) with a large effect size of 0.8, error of 0.05 and a statistical power of 0.95, leaving the total sample of at least 20 participants. Non-probabilistic convenience sampling was used as a technique. For the selection, each institution invited students who met the following criteria to participate being enrolled and studying between the 5th and 12th academic semester.

The participants were required to have access to a computer, an Internet connection, basic knowledge of uploading and downloading files, and familiarity with the educational platform. Those interested contacted the person responsible for the intervention by phone or email. Those who did not register on the platform within 8 days were excluded, as well as 4 participants who did not complete the process due to technical problems with the computer or the Internet connection. Finally, the sample consisted of a total of 42 participants.

2.1. The process was carried out in 3 stages

The process began by providing access to the Moodle platform through a link sent to each participant's email. In this step, they were presented with the informed consent form, through which their participation was validated, emphasizing the importance of their free and voluntary collaboration. The objectives of the project were detailed, as well as the aspects related to their participation, including the associated risks, the privacy and confidentiality of the data provided, and the right to withdraw at any time without consequences for their status or institutional rights. Subsequently, they were given an initial pre-intervention questionnaire designed to obtain diagnostic information on perceptions, attitudes and knowledge related to gender violence [35].

The instrument used is multidimensional in content and was adapted from two instruments previously validated by researchers in Mexican nursing students. It consists of a section for characterizing the sample, as well as a total of 40 items distributed in three dimensions: perception (15 items), attitudes (15 items) and knowledge (10 items). The perception and attitude items use a Likert-type scale with 5 response options, while the knowledge items are answered with dichotomous options of true or false. The estimated time to complete the instrument is approximately 15 minutes [36,37].

After the first application of the instrument in the first stage, an educational intervention was carried out. This intervention was previously designed and piloted in collaboration with seven Mexican educational institutions and one health institution (FENO, FESI, FESZ, FEUADY, FEUV, ESEO-IPN, DCBS-UAM-X and SSY), with the aim of standardizing the application method. The intervention was self-administered through the Moodle platform. It consists of 5 units that offer 18 independent and asynchronous learning topics, allowing participants to take it at flexible times, according to their time availability. The time limit granted by the researchers was 20 hours from the time of entering the Moodle platform. The topics are based on a combination of pedagogical approaches that include social, cultural and learning theories. These address gender perspectives in relation to equality, social justice, respect for diversity and the promotion of human rights. Directed readings, interactive videos and downloadable learning activities are included. In this second stage, monitoring was carried out through the platform to verify the participants' completion of the learning tasks and the established time.

In the last stage, all participants were again provided with the initial post-intervention questionnaire.

Data were captured in Excel and subsequently imported into SPSS version 26 for analysis. A thorough check of the structure and organization of the data was performed in order to identify and correct possible errors that could affect the quality of the analysis. Then, the frequency distribution was examined to understand how the data was distributed among the participants. The initial analysis focused on the sociodemographic data using descriptive statistics, which included the calculation of measures of central tendency (such as mean, median and mode) and measures of dispersion (such as standard deviation).

The normality of the data was assessed using the Shapiro-Wilk test, given the small sample. Subsequently, the analysis was carried out with non-parametric statistics, using the Wilcoxon test to compare the related samples. Finally, the levels of perception, attitude and knowledge were analyzed before and after the educational intervention. To define the level ranges, the total scores were divided into three equal parts, subsequently adjusted to suit the context of the study, the data distribution and the specific objectives of the research, resulting in five ranges for each dimension evaluated:

2.1.1. Perception

- Level 1: Unawareness. No perception of gender-based violence (15-30 points): They lack awareness of gender-based violence, minimizing or not recognizing violent behaviors.
- Level 2: Emerging awareness or low perception (31-45 points): They recognize some problematic behaviors but do not fully understand their severity.
- Level 3: Moderate awareness or perception (46-60 points): Understanding of the severity but not considering it very prevalent. They show a willingness to intervene or support victims. Level 4: Advanced awareness (61-70 points): Well informed and actively involved in prevention and victim support initiatives.
- Level 5: Expert awareness (71-75 points): Leading and prominent advocates in the fight against gender-based violence.

2.1.2. Attitude

- Level 1. Inaction (15-27 points): Lack of willingness or action to address gender-based violence, showing a passive or indifferent attitude.

- Level 2. Emerging participation (28-39 points): Some awareness of the importance of addressing gender-based violence, but lack of active commitment.
- Level 3. Developing participation (40-51 points): Developing commitment to take active action in preventing gender-based violence.
- Level 4. Committed participation (52-63 points): Significant commitment and an active willingness to prevent.
- Level 5. Decisive participation (64-75 points): maximum willingness and decisive action in preventing gender-based violence.

2.1.3. Knowledge

- Level 1: No knowledge (0-2 points). There is no awareness of gender-based violence or its impact on people and society.
- Level 2: Minimum knowledge (3-4 points). The existence and seriousness of gender-based violence is recognized, but understanding is limited.
- Level 3: Intermediate knowledge (5-6 points). There is a more solid understanding of gender-based violence and its manifestations, although with limitations in practical application. Level 4: Advanced knowledge (7-8 points). There is a deep understanding of gender-based violence, including its causes, prevention and intervention strategies, and critical analysis of policies and practices.
- Level 5: Expert knowledge (9-10 points). There is extensive experience and deep knowledge in preventing and responding to gender-based violence, with the ability to apply effective approaches in various areas of work and personal life.

Cohen's d was used to measure the effect size. It should be noted that this project was approved by the research and ethics committees of the various universities.

3. Results

3.1. Sociodemographic data

The multicenter study involved seven institutions, all educational except one health institution (FENO, SSY, FESZ, FEUADY, FESI, FEUV, UAM), and 42 cases were examined. A marked gender disparity was observed, with 37 women and 5 men, with an average age of 23 years. It is relevant to highlight that the gender of the participants coincided with their biological sex in all cases. The majority (78.5%) identified themselves as heterosexual, while 14.2% considered themselves bisexual, and the rest mostly homosexual. Regarding academic training, 66.6% were nursing interns, with 16.6% in the eighth semester and the rest distributed between the fifth and sixth semester. Regarding their romantic status, 45.2% did not have a partner. It is relevant to note that 50% of the participants indicated that their schools did not have or were unaware of the existence of a department that offered services for gender equality. Likewise, a high percentage (47.6%) did not have knowledge of or access to a protocol for action in the event of gender violence. In relation to the NOM-046-SSA2-2016 regulation on Domestic, Sexual and Violence Against Women, 40.4% expressed ignorance, which implies a lack of application during clinical practice (42.85%).

3.2. Descriptive and inferential statistics

Table 1 Descriptive statistics

		PRETEST PERCEPTION	POSTEST PERCEPTION	PRETEST ATTITUDES	POSTEST ATTITUDES	PRETEST KNOWLEDGE	POSTEST KNOWLEDGE
N	Valid	42	42	42	42	42	42
	Missing	0	0	0	0	0	0
Mean		64.88	73.36	59.50	71.60	5.74	8.33
Median		66.50	74.00	63.00	73.00	6.50	8.00
Mode		68	75	43[a]	75	7	8
Std. Deviation		5.940	1.872	9.706	4.237	2.460	.650

a. Multiple modes exist. The smallest value is shown Source: Data obtained from the application of the PREVIOGEN instrument, January- March 2024

The analysis of descriptive statistics reveals a consistent and sufficient sample frequency to perform meaningful analyses. In addition to showing the different distributions of the data, the results suggest a general increase in the average perception, attitude and knowledge after the test, evidenced by an increase in the mean and median, as well as a change in the mode. The lower standard deviation after the test also indicates greater consistency in the participants' responses. These findings support the notion that the test has had an effect on the perception, attitudes and knowledge of the subjects evaluated, leading them to converge on a more homogeneous view or at least more similar between their responses (Table 1).

Table 2 Shapiro-Wilk Normality Test

	Shapiro-Wilk		
	Statistic	df	Sig.
PRETEST PERCEPTION	0.904	42	0.002
POSTEST PERCEPTION	0.827	42	0.000
PRETEST ATTITUDES	0.908	42	0.003
POSTEST ATTITUDES	0.785	42	0.000
PRETEST KNOWLEDGE	0.928	42	0.011
POSTEST KNOWLEDGE	0.767	42	0.000

Source: Data obtained from the application of the PREVIOGEN instrument, January- March 2024

The results of the normality tests using the Shapiro-Wilk test (Table 2) indicate that none of the data sets for perception, attitude and knowledge events follow a normal distribution. This is seen by the significant value ($p < 0.05$) obtained in the test, which leads to the conclusion that the use of non-parametric tests is required to confirm the alternative hypothesis. Therefore, an analysis was carried out using the Wilcoxon test of related samples to compare the perceptions, attitudes and knowledge of students regarding gender violence before and after receiving an educational intervention on the subject.

Table 3 Comparison of Pre and Posttest Ranges

		N	Mean Rank	Sum of Ranks
POSTEST-PERCEPTION PRETEST-PERCEPTION	Negative Ranks	9[a]	11.22	101.00
	Positive Ranks	29[b]	22.07	640.00
	Ties	4[c]		
	Total	42		
POSTEST-ATTITUDES PRETEST-ATTITUDES	Negative Ranks	4[a]	16.13	64.50
	Positive Ranks	31[b]	18.24	565.50
	Ties	7[c]		
	Total	42		
POSTEST –KNOWLEDGE PRETEST-KNOWLEDGE	Negative Ranks	1[a]	5.00	5.00
	Positive Ranks	31[b]	16.87	523.00
	Ties	10[c]		
	Total	42		

a. Postest < Pretest, b. Postest > Pretest c. Postest = Pretest Source: Data obtained from the application of the PREVIOGEN instrument, January- March 2024

Table 4 Wilcoxon Statistical Test and Effect Size

statistical test	PERCEPCIÓN POSTEST - PERCEPCIÓN PRETEST	ACTITUDES POSTEST - ACTITUDES PRETEST	CONOCIMIENTOS POSTEST - CONOCIMIENTOS PRETEST
Z	-3.923[b]	-4.116[b]	-4.863[b]
Asymp. Sig. (2-tailed)	0.000	0.000	0.000
Cohen's d	1.96	1.62	1.44

a. Wilcoxon Signed Ranks, Test b. Based on negative ranks.Source: Data obtained from the application of the PREVIOGEN instrument, January-March 2024

In Table 3, ranges are presented that indicate the variation in perceptions, attitudes, and knowledge between the pretest and posttest. "Negative Ranges" show how many times the pretest scores exceeded the posttest, while "Positive Ranges" indicate the times the posttest scores exceeded the pretest. "Ties" reflect when scores were equal on both tests. The majority of responses fall into the positive rating category, suggesting that overall, perceptions, attitudes, and knowledge improved after the educational event.

This finding of positive ranks is supported by the Wilcoxon statistical test (Table 4), which shows a significant difference before and after the educational intervention event, based on the Z values and the low p values obtained. Both analyses suggest a positive effect of the intervention on the group's perceptions, attitudes and knowledge. Furthermore, Cohen's d values were significantly high (greater than 0.8), indicating a large effect size and a clearly practically relevant difference after the educational intervention.

Furthermore, the analysis of perception levels shows significant changes. In Table 5, it is observed that there were changes in perception levels before and after education. Before education, a large percentage of students (28.6%) had a perception level between moderate (the seriousness of violence is recognized, but not necessarily as prevalent. They may show willingness to intervene or support victims) and advanced (they are well informed about the issue and may be actively involved in prevention initiatives, supporting victims or promoting social changes to address the problem, considering high prevalence). After education, this group increased their perception to very high, indicating a prominent commitment to combating gender violence and promoting gender equality.

A change is also observed in the level of willingness of students to take active measures in preventing gender violence. Initially, the group was at a developing-committed-decisive attitude level, showing a willingness to participate but may need more information or resources to fully engage, others are willing to get involved and take concrete steps to address the problem. After the educational intervention, most of them reflect decisive participation, showing full commitment and taking effective and sustained measures to address and prevent gender-based violence in their communities and environments.

Similarly, the learning of knowledge occurred. The baseline measurement revealed a wide range of levels from lack of awareness to deep and detailed knowledge of gender-based violence. After the intervention, most participants reached advanced-expert knowledge, which implies a deep and detailed understanding with the ability to apply effective approaches to address gender-based violence in all its dimensions.

Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted, which states that the PREVIOGEN educational intervention is effective in preventing gender-based violence in nursing university students in terms of perceptions, attitudes and knowledge. This is reflected in significant changes in all three dimensions, implying greater awareness and ability to identify and address gender-based violence.

Table 5 Levels of Perception, Attitude and Knowledge Pre-Post Intervention

	Perception level	Score	Frequency	Percent
PRETEST	Moderate Awareness or perception	40-51	1	2.4
	Advanced consciousness or high perception	52-63	11	26.2
	Expert consciousness or very high perception	64-75	30	71.4
POSTEST	Expert consciousness or very high perception	64-75	42	100.0

PRETEST	Attitude level			
	In development participation	40-51	9	21.4
	Committed participation	52-63	11	26.2
	Decisive participation	64-75	22	52.4
POSTEST	Committed participation	52-63	2	4.8
	Decisive participation	64-75	40	95.2
PRETEST	Level of knowledge			
	Without knowledge	0-2	4	9.5
	Minimum knowledge	3-4	11	26.2
	Intermediate knowledge	5-6	6	14.3
	Advanced knowledge	7-8	16	38.1
	Expert knowledge	9-10	5	11.9
POSTEST	Advanced knowledge	7-8	24	57.1
	Expert knowledge	9-10	18	42.9

Source: Data obtained from the application of the PREVIOGEN instrument, January- March 2024

4. Discussion

By comparing the findings of the previous studies with the results of our own study, we can highlight several significant similarities and differences that shed light on the effectiveness of educational interventions to address gender-based violence among nursing students.

By analyzing the levels of knowledge before and after the educational intervention, we found results consistent with other studies showing a significant increase in understanding and awareness about gender-based violence. This suggests that our intervention was effective in improving students' knowledge and understanding of this crucial issue.

Furthermore, when looking at changes in attitudes and perceptions before and after the intervention, we noticed a similar trend to other studies, where many participants showed a greater willingness to take active steps in preventing gender-based violence after the intervention, reflecting an increasing commitment to combating this issue. It is also important to highlight some significant differences in our findings compared to other studies that found that students' attitudes towards gender-based violence improved only marginally after the intervention, our study showed more substantial changes in attitudes, with a significant increase in students' willingness to take decisive and effective steps to address and prevent gender-based violence. Furthermore, our results not only demonstrated that the intervention was effective in statistically significant terms, but also revealed that the magnitude of change was large enough to be considered practically important. The findings provide us with a more complete understanding of the relevance and impact of the intervention relative to the other studies that did not reveal the effect.

Limitations.

Including a larger, more diverse sample could help generalize the findings to a broader population.

5. Conclusion

The results indicate that the PREVIOGEN educational intervention was highly effective in improving perceptions, attitudes, and knowledge about gender violence prevention among nursing students. The increase in the mean and the large size of the post-intervention effect suggest that students achieved a positive and significant change in beliefs, behaviors, understanding, and awareness toward gender violence prevention. Given the demonstrated effectiveness, it is recommended to consider implementing the PREVIOGEN intervention in academic programs and universities. Future studies could incorporate additional variables, such as long-term monitoring of changes in behaviors and attitudes.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that they have no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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