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Original Article

Theoretically planned intervention for head lice infestation prevention among students: an integrated health belief model approach

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Abstract

Background: This study aimed to evaluate the effectiveness of an educational intervention grounded in the Integrated Health Belief Model (IHBM) in promoting preventive behaviors among female primary school students.

Methods: In the present interventional research, primary school students were randomly assigned to intervention (n = 69) and control (n = 69) groups. Data collection was carried out using a questionnaire that included demographic information and IHBM constructs. The intervention consisted of six educational sessions conducted for students in the intervention group using lectures, video presentations, group discussions, and role-playing techniques. Both groups were assessed at three stages: pre-test, immediate post-test, and two months after the intervention. The data were analyzed using chi-square, Mann-Whitney, and Wilcoxon tests via SPSS software Version 16.

Results: In both the immediate post-intervention assessment and the two-month follow-up, the intervention group showed a significant increase in mean scores for knowledge, perceived susceptibility, perceived severity, perceived benefits, perceived self-efficacy, preventive behaviors, and social support compared to the control group ($P < 0.05$). However, the mean score for reinforcement did not show a statistically significant change after the intervention ($P > 0.05$).

Conclusion: The results of the present study highlight the effectiveness of educational interventions in enhancing knowledge, perceived susceptibility, severity, benefits, barriers, self-efficacy, social support, and preventive measures against head lice infestations. The findings suggest the need for designing and implementing theory-based programs to prevent and control school pediculosis.

Keywords: Intervention, Head lice infestation, Student, Integrated health belief model

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Introduction

Pediculosis, commonly known as head lice infestation, is a significant global public health issue that affects millions of individuals worldwide and represents a common parasitic infestation (1). Managing and treating pediculosis imposes a considerable financial burden on public health resources, particularly in underdeveloped and developing countries where healthcare funding is often limited and constrained (2).

Approximately 19% of school-aged children are affected by pediculosis capitis, with girls being 2.5 times more susceptible than boys (3). Aligns with global patterns; a systematic review in Iran found that the incidence of head lice among girls is 4.5 times greater than in boys (4), with regional prevalence ranging from 2.3% to 17.5% (5-8). Similar findings have been reported in studies conducted in several countries, including Argentina (9), Syria (10), Thailand (11), and Turkey (12).

Gender-related behavioral differences, such as maintaining closer contact in small gatherings (3), longer hair length, and direct contact with an infected person, contribute to the increased prevalence of pediculosis among girls. However, lice can also spread through contaminated personal objects such as bedding, pillows, and hair accessories (13). Additional factors, including the frequency of hair washing, awareness of lice, and high environmental density, can further facilitate the transmission of head lice (14). Therefore, disrupting the transmission cycle is essential to effectively prevent and control school-based pediculosis.

Head lice prevention can be achieved through well-structured health education programs, in which the selection of a suitable theoretical framework plays a critical role. The Health Belief Model (HBM) is a widely recognized psychosocial approach that effectively predicts an individual's likelihood of adopting preventive measures (15). According to the HBM, the adoption of pediculosis-preventive behaviors among students depends on perceived susceptibility (students perceive themselves to be infested), perceive severity (understanding the seriousness of the condition), perceived benefits (belief in the efficacy of preventive behaviors), perceived barriers (believing that preventive behaviors are manageable), and perceived self-efficacy (belief in one's ability to perform the preventive actions) (16).

This study employs the HBM to address pediculosis prevention, focusing on key determinants such as awareness, family support, and encouragement (17). Previous research has shown that this model effectively promotes preventive behaviors, with social support playing a vital role in shaping health-related outcomes (18,19). Moreover, reinforcement mechanisms can increase the likelihood of repeating positive health behaviors (20). Given the greater vulnerability of young girls to pediculosis and the urgent need to design, implement, and evaluate effective preventive educational programs in school-aged populations, this study was carried out to examine the influence of health education intervention on head lice-related preventive behaviors among primary school students. Accordingly, an intervention grounded in the Integrated Health Belief Model (IHBM) was designed (See Figure 1) to evaluate its efficacy in promoting preventive behaviors against pediculosis in this population.

Materials and Methods

Research Population and Design

The present study employed a theory-based, experimental two-arm design using a pretest-posttest approach with follow-up evaluation. The study was conducted on 138 female primary school students in Eslamshar , a city in Tehran province known for its relatively poor health indicators. Due to the socio-economic conditions of Eslamshahr county, including its proximity to Tehran, its suitability for housing internal and external migrants (mainly Afghan immigrants), and the relatively low standard of living, pediculosis has emerged as a significant public health concern. According to the latest statistics on pediculosis at the time of the study, among 32 314 examined female primary school students in urban areas of Eslamshahr county, 914 were diagnosed with pediculosis, showing the highest infection rate compared to middle and high school students (21).

The initial recruitment process involved a multistage cluster sampling method, where 51 primary schools were initially identified, from which two were randomly selected. Subsequently, one primary school was randomly assigned to the intervention group and the other to the control group. The methodology for selecting schools and students and the random allocation into intervention and control groups is illustrated in Figure 2. Students in the intervention group underwent the intervention, whereas those in the control group received no intervention.

The sample size was determined according to the results of a previous study (22), using the formula:

$$n_1 = n_2 = \frac{[Z_{(1-\frac{\alpha}{2})} + Z_{(1-\beta)}]^2 (\sigma_1^2 + \sigma_2^2)}{\Delta^2}$$

where ($Z_{1-\alpha½} = 1.96$, $Z_{1-\beta} = 1.28$)

Assuming an expected 10% attrition rate, the required sample size was calculated to be 69 students per group ($\alpha = 1.96$, $\beta = 1.28$).

Before the intervention, both groups were evaluated for potential confounding variables, including age, parental education, parental employment, family size, and history of head lice infections. No significant differences were identified between the groups ($P > 0.05$), indicating their comparability for matching purposes.

Inclusion and Exclusion Criteria

The inclusion criteria included female students in grade

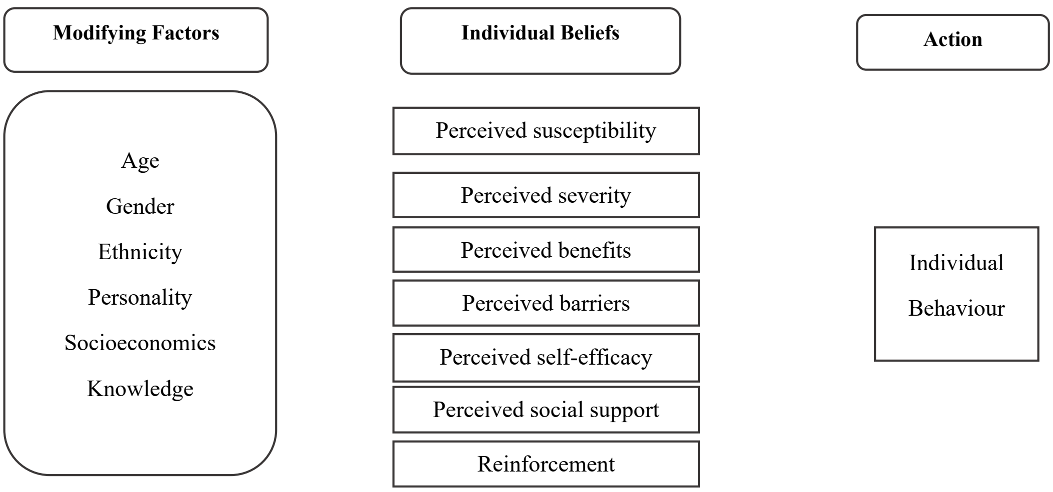

Figure 1. The Integrated Health Belief Model as the Theoretical Framework of the Study

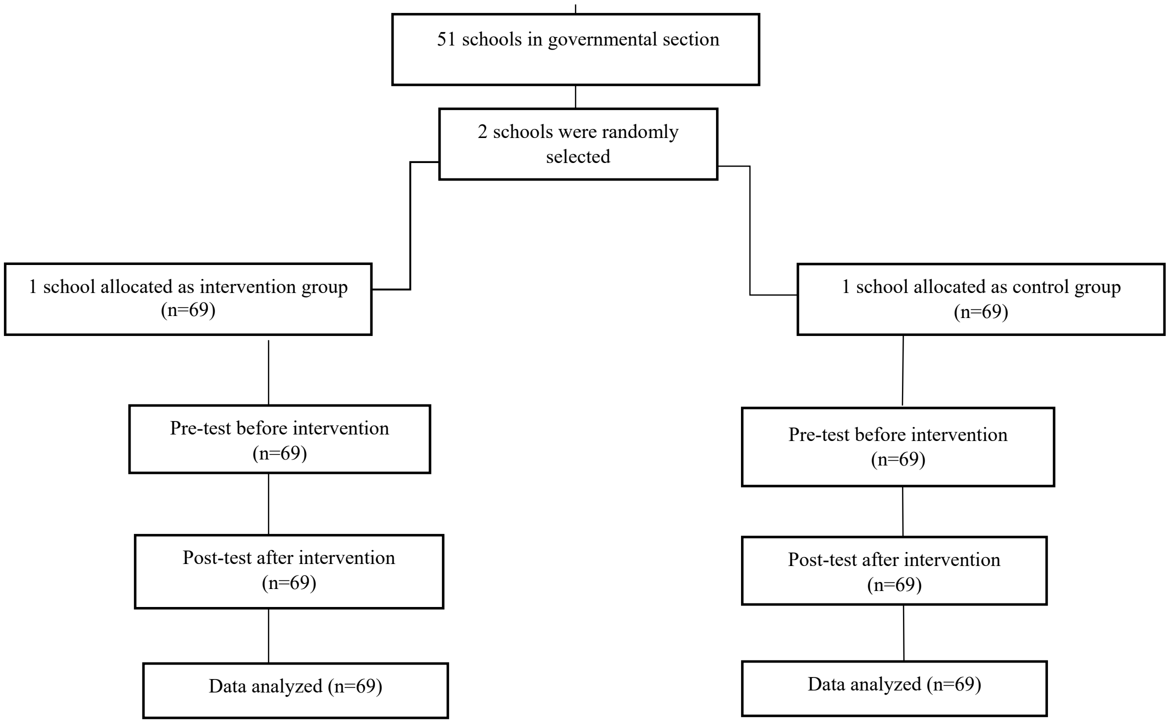

Figure 2. CONSORT Diagram of the Study

5 at primary schools in Eslamshar , absence of head lice infestation, willingness to participate, and provision of informed parental consent. Participants were excluded if they withdrew at any stage of the research or relocated during the study.

Measures

A questionnaire was developed based on IHBM constructs to evaluate participants' knowledge, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, social support, self-efficacy, reinforcement, and preventive behaviors related to head lice infection. The questionnaire was developed using various sources, including literature reviews, peer-reviewed credible Iranian and international journals, and articles on head lice infestation. It also drew upon previously validated questionnaires from Persian and foreign studies, such as those by Moshki et al (23), Gholamnia Shirvani (17), and the national guidelines for head lice infestation (24). Additionally, discussions among the research team members contributed to the development of the questionnaire.

The questionnaire comprises 54 items covering various aspects of IHBM as follows: 13 items related to knowledge, 6 items measuring perceived susceptibility and perceived severity, 7 items related to perceived benefits, 9 items focusing on perceived barriers, 6 items assessing self-efficacy, 4 items addressing preventive behaviors, 5 items concerning social supports, and 4 items examining reinforcement (see Table 1).

Additionally, a separate questionnaire was used to collect demographic data from participants, including age, parental education level, family size, personal history of head lice infection, and family members' history of head lice infestations.

Validity and Reliability Assessment

Face and content validity were evaluated to ensure the questionnaire's accuracy and comprehensiveness. Reliability was assessed through test-retest analysis and by calculating internal consistency using Cronbach's alpha coefficients.

Content and Face Validities

The evaluation of face validity involves ensuring that the test is understood and perceived in the same way by both the target group and the researchers. This includes verifying that the language and design of the instruments are appropriate and agreeable to the target group. The items must be clear, easily comprehensible, well-structured, and visually appealing to instill confidence and comfort in the target group while completing the questionnaire. Face validity was assessed through qualitative and quantitative methods, including feedback from experts and target group members.

Content validity was assessed using qualitative methods, such as expert committee review, and quantitative measures, including content validity ratio (CVR) and content validity index (CVI). The items were formatted into a content validity assessment tool for evaluation. In the qualitative phase, a panel of 10 experts specializing in health education and promotion, epidemiology, and psychology assessed the scale. They provided feedback on various aspects, including content, grammar, sentence length, word count, item order, potential additions, and cultural relevance. Based on their input, adjustments were made to the questionnaire. Subsequently, CVR and CVI

Table 1. Description of the Study Instrument

Construct	No. of Items (Format)	Scoring (Range)	Reliability Coefficient
1) Knowledge: Refers to theoretical or practical understanding of head lice infestation-related information.	13 items (True-False-I don't know)	Correct response = 2, I don't know response = 1, Incorrect response = 0 (0-26)	ICC = 0.75
2) Perceived Susceptibility: Refers to the subjective assessment of the risk of developing head lice infestation.	6 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (6-18)	Cronbach's Alpha = 0.75
3) Perceived Severity: Refers to one's perception of the seriousness of head lice infestation and its potential consequences.	6 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (6-18)	Cronbach's Alpha = 0.76
4) Perceived Benefits: Refers to perceived advantages from head lice infestation-related preventive behaviors	7 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (7-21)	Cronbach's Alpha = 0.87
5) Perceived Barriers: Refers to perceived obstacles to adopting head lice infestation-related preventive behaviors.	9 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (9-27)	Cronbach's Alpha = 0.75
6) Self-efficacy: Refers to an individual's belief in their ability to perform head lice-related preventive behaviors successfully.	6 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (6-18)	Cronbach's Alpha = 0.84
7) Preventive Behaviors: Refers to actions taken to prevent head lice infestation.	4 items (4-point Likert scale)	always = 1, sometimes = 2, seldom = 3, never = 4 (4-16)	Cronbach's Alpha = 0.75
8) Social Support: Refers to perceived support from others, particularly family and friends, for adopting preventive behaviors.	5 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (5-15)	Cronbach's Alpha = 0.75
9) Reinforcement: Refers to responses from others that affect whether or not the behavior will be repeated.	4 items (3-point Likert scale)	agree = 1, no idea = 2, disagree = 3 (4-12)	Cronbach's Alpha = 0.75

were employed to validate the relevance and suitability of each item.

To this end, the experts received a questionnaire divided into two main sections. Following the Waltz and Basel method, the first section evaluated CVI using a 4-point Likert scale, rating each item's pertinence, clarity, and simplicity. For instance, experts could rate items as "not relevant", "somewhat relevant", "quite relevant", or "highly relevant". The CVI for each item was determined by dividing the total number of experts who rated the item as 3 or 4 by the total number of experts involved in the evaluation. Items with a CVI exceeding 0.79 were deemed acceptable. To compute CVR, experts assessed the necessity of each item using a 3-point Likert scale, which included options such as "necessary", "useful but not necessary", or "not necessary". According to Lawshe's table, for a panel of 10 experts, an item was considered necessary if CVR exceeded 0.62.

Reliability

The reliability of the questionnaire sub-scales was assessed by analyzing internal consistency using Cronbach's alpha coefficient. To evaluate the test-retest stability of the knowledge construct, 15 students who had initially completed the questionnaire were randomly selected and instructed to retake it after a 10-day interval.

Intervention

The study employed a pretest-posttest intervention design. In the pretest phase, both groups completed self-administered, paper-based questionnaires that assessed their knowledge, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived self-efficacy, social support, and reinforcement related to head lice prevention. The educational approaches and frequency of educational sessions were tailored based on the students' pretest scores. Following a comprehensive data analysis and evaluation of educational needs, decisions were made regarding the required number of sessions, critical topics, key content areas, and syllabi relevant to the training.

To ensure the readability, comprehensibility, and simplicity of the educational materials, a pilot test was conducted with a sample of 10 individuals who were not included in the primary study before the main research commenced. The educational content was developed based on the constructs of the IHBM and adapted from resources authorized by the Ministry of Health, including two pamphlets (for students and their parents) and a guide for health educators on head lice treatment and prevention. A total of 6 educational sessions were conducted for students, each lasting 35-45 minutes. These sessions were held in educational settings, specifically in classrooms and school meeting rooms. Lecture presentations, video screenings, question-and-answer segments, group discussions, and role-playing activities were employed during these sessions. The first session focused on increasing participants' knowledge and perceived susceptibility to head lice infestation. The second session aimed to enhance participants' understanding of the severity of infestation and the benefits of preventive behaviors through lectures and video demonstrations illustrating the consequences of pediculosis. The third session involved group discussions to identify and address perceived barriers to head lice prevention from the students' perspective. The fourth session included role-playing activities and additional video demonstrations to promote self-efficacy in adopting preventive behaviors. Additionally, one session was dedicated to mothers who received lecture presentations and pamphlets to address the constructs of knowledge, social support, and reinforcement (see Supplementary file 1).

Data Analysis

The collected data were analyzed using SPSS version 16. To facilitate comparison, the scores of all variables were converted to a scale of 100. The Kolmogorov-Smirnov test showed that IHBM variables do not have a normal distribution. Therefore, non-parametric statistical tests were used for data analysis. The analysis involved two phases:

1) Descriptive statistics: Frequencies, means, standard deviations, and chi-square (X^2) tests were employed to describe the participants' demographic characteristics and the baseline characteristics of the participants.
2) Inferential statistics: The Wilcoxon signed-rank test was used to compare mean scores for each IHBM construct across three time points (pre-test, immediate post-test, and two-month follow-up) within each group. Mann-Whitney U test was employed to compare differences in mean scores for each IHBM construct across the intervention and control groups at each time point.

Results

Demographic Characteristics

A total of 138 female primary school students participated in this study. Randomization was achieved between the two groups by controlling for relevant variables such as age, gender, education level, family size, parental employment status, personal history of head lice infection, and family history of head lice infection. The findings showed no significant difference between the intervention and control group for any of these variables ($P < 0.05$), as illustrated in Table 2.

Content and Face Validities for the Instrument

During the quantitative evaluation of face validity, all items achieved impact scores above 1.5 (ranging from 2.3 to 4.7) and were consequently retained in the final assessment tool. Expert feedback obtained during the qualitative content validity assessment phase was reviewed and incorporated. The Lawshe method was used to quantitatively assess the content validity of the tool, showing good content validity in this study. CVR ranged from 0.6 to 1.00, while CVI varied between 0.7 and 1.00.

Reliability of the Instrument

As seen in Table 1, all constructs had Cronbach's alpha values above 0.70, suggesting strong internal consistency and reliability of the items. Additionally, the knowledge construct demonstrated an intra-class correlation coefficient (ICC) of 0.75, indicating satisfactory test-retest reliability.

Evaluation of Program Effectiveness

Evaluating the effectiveness of the educational intervention involved comparing changes in the IHBM constructs between the intervention and control groups. Data analysis revealed notable improvements in the intervention group in terms of knowledge, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and preventive behaviors (Table 3). However, no significant difference was observed in the reinforcement construct between the two groups.

Table 2. Demographic Characteristics of Participants in Intervention and Control Groups

Variables		Control Group	Intervention Group	*P*-value*
Age	11 years	38	32	0.27
	12 years	31	38	
Father's education	Primary school	12	18	0.75
	Diploma	32	34	
	Bachelor's and higher	20	18	
Mother's education	Illiterate	16	22	0.45
	Primary school	37	38	
	Diploma	14	10	
Father's employment	Laborer	6	14	0.125
	Self-employed	24	23	
	Employee	38	30	
Mother's employment	Employee	18	18	0.96
	Housewife	51	52	
Family size	3 people	10	10	0.91
	4 people	45	43	
	5 people and more	14	16	
History of head lice infection	Yes	17	12	0.26
	No	52	57	
Contamination of family members	Yes	4	2	0.39
	No	65	68	

Table 3. Comparison of Intervention and Control Groups Regarding IHBM Constructs' Scores Before and After the Intervention

Constructs	Groups	Before Intervention (M±SD)	Immediately After (M±SD)	*P* Value*	2 Months After (M±SD)	*P* Value**
Knowledge	Intervention	70.23±8.28	86.28±6.2	0.001	88.38±6.58	0.001
	Control	72.53±7.86	73.06±7.24	0.75	74.65±7.58	0.03
	P value		0.001***		0.001****	
Perceived susceptibility	Intervention	56.76±16.94	64.75±14.19	0.002	70.71±11.93	0.001
	Control	63.52±13.33	63.28±14.24	0.55	60.14±14.91	0.105
	P value		0.007		0.001	
Perceived severity	Intervention	51.18±25.54	62.30±24.01	0.001	62.58±25.08	0.001
	Control	54.70±58.23	58.23±23.89	0.75	61.83±25.93	0.06
	P value		0.27		0.59	
Perceived benefits	Intervention	73.56±16.14	84.99±12.04	0.001	84.36±16.76	0.038
	Control	82.18±14.73	85.60±12.76	0.176	79.17±13.36	0.26
	P value		0.011		0.42	
Perceived barriers	Intervention	25.15±17.14	19.44±13.95	0.001	16.18±17.30	0.001
	Control	19.78±15.19	19.96±13.28	0.176	19.90±18.63	0.017
	P value		0.02		0.127	
Perceived self-efficacy	Intervention	64.16±31.08	87.64±21.95	0.001	91.78±14.11	0.001
	Control	80.95±31.90	89.76±20.60	0.08	83.68±19.93	0.042
	P value		0.02		0.042	
Social support	Intervention	61.42±22.73	72.28±29.20	0.001	81.25±25.65	0.001
	Control	67.82±23.56	68.98±30.97	0.07	75.79±27.62	0.08
	P value		0.13		0.02	
Reinforcement	Intervention	65.17±24.16	70.89±27.96	0.18	65.71±27.55	0.4
	Control	68.65±21.71	68.47±30.73	0.76	61.77±34.42	0.27
	P value		0.17		0.25	
Preventive behaviors	Intervention	73.52±9.65	78.79±6.39	0.001	77.59±8.29	0.001
	Control	77.95±6.65	79.22±5.09	0.13	79.24±5.62	0.03
	P value		0.01		0.04	

Note. IHBM: Integrated health belief model; SD: Standard deviation.
* Wilcoxon test for after intra-group comparison (before vs. immediately after the intervention), with a significance level of 0.05; ** Wilcoxon test for intra-group comparison (before vs. 2 months after the intervention), with a significance level of 0.05; *** Mann-Whitney U test for between-groups comparison (before vs. immediately after the intervention), with a significance level of 0.05; **** Mann-Whitney U test for between-groups comparison (before vs. 2 months after the intervention, with a significance level of 0.05.

Discussion

This study focused on head lice, a prevalent issue among school-aged children. It aimed to investigate the impact of educational interventions rooted in the IHBM on promoting head lice prevention behaviors. The findings confirm the effectiveness of such interventions and provide valuable insights for designing pediculosis prevention strategies.

Previous studies in Iran have demonstrated that the frequency of pediculosis among female primary school students is six times greater than among male students (25). According to a systematic review, infection rates ranged from 1.25% to 56.15% in various studies focusing only on female students (26). After the intervention, a notable difference in preventive behavior scores was observed in the current study.

One important preventive behavior against head lice is regular bathing, which plays a critical role in preventing head lice infestation. Several studies have reported a significant relationship between head lice infestation and the availability of bathing facilities at home (27,28). Another study showed a significant relationship between using shared combs among students and head lice (29-31).

Maleki et al found a strong association between head lice infection and poor hygiene practices such as using shared personal items, inadequate handwashing, and infrequent changing of clothes (32). The results of this study are consistent with those of Nezhadali et al (33) and Moshki et al (23). Among the constructs of the HBM, perceived susceptibility emerged as one of the strongest predictors of preventive behavior in a previous study (34). This suggests that students are more likely to adopt preventive behaviors if they believe they are at risk of contracting head lice infection. The mental belief is that a person may suffer from a disease or a harmful state due to a particular behavior. In line with our study, Moshki et al reported increased perceived susceptibility among students following the intervention (23). Similarly, Motamedi and colleagues' study on leishmaniasis among students demonstrated a post-intervention increase in perceived susceptibility (35), confirming that perceived susceptibility is one of the influential factors in adopting preventive behavior. Effective natural prevention depends largely on an individual's accurate understanding of their vulnerability and the related health risks.

Another key construct of the theoretical framework of the present research was perceived severity, which refers to a person's perception of the seriousness of a disease or its consequences. Our findings showed that educational intervention successfully increased the perceived severity of head-lice infection in the intervention group. However, the mean score of perceived severity did not significantly differ between the groups after the intervention. This finding is inconsistent with the results of previous studies, such as that of Moshki et al, who reported significantly higher post-intervention severity scores in the intervention group compared with the control group (23). A possible explanation for this discrepancy may be that students do not perceive head lice as a serious health threat. Notably, the severity variable acts as a double-edged sword; that is, when perceived as excessively high, it may lead to denial or failure to adopt preventive behaviors (36). Therefore, it is important to highlight the perceived severity of the symptoms of pediculosis in order to enhance individuals' readiness to engage in preventive behaviors. Although perceived severity and sensitivity can create a force for behavior change, they cannot alone determine the individual's actions. The likelihood of action also depends on individuals' beliefs in the usefulness of behavior to reduce the risk of illness or to perceive the benefits of health action.

Another key finding of the present research was a significant change in the perceived benefits score in the experimental group immediately after the intervention, compared to the control group. Perceived benefits are a critical factor in encouraging individuals to adopt preventive health behaviors (37). These results align with Moshki and colleagues' finding about preventive behaviors against head lice infestation (23) and Lotfi Mainbolagh and colleagues' findings about eating habits in elementary school students (38).

One pivotal objective of this study was to compare the mean changes of perceived barriers to practicing preventive behaviors against head lice. Perceived barriers, often conceptualized as the obstacles or costs of adopting a new behavior, have been identified in some studies as the strongest predictors of preventive health behaviors (33). Our findings showed a significant decrease in the mean score of perceived barriers following the intervention in the experimental group. This finding is consistent with previous results reported by Moshki (23) and Jadgal et al (39).

Perceived self-efficacy, a person's judgment of their ability to organize and perform a health-promoting behavior, plays a crucial role in overcoming obstacles to engaging in health behaviors. (40). It is also a key construct in the HBM and has been widely used in many intervention studies (41,42). People with a high perceived self-efficacy are more committed to challenging activities and tend to devote more time and effort to these activities. Moreover, they are more likely to contribute to maintaining and regaining healthy behaviors, even after a failure (43). This finding has also been reported by Nezhadali and Motamedi et al (33,35). Our study's findings, which revealed a significant increase in students' knowledge of head lice following the intervention, underscore the importance of education in preventing head lice infestations. This acknowledgment of education's role in health promotion is a key takeaway from our research.

However, the findings were expected. Previous studies have reported low levels of knowledge about pediculosis among students (17,44-46), and educational interventions have increased the knowledge of preventing head lice in the intervention groups (17,23,47). Knowledge about symptoms, transmission routes, preventive behaviors, and treatment options can enhance awareness of this infection and help prevent head lice infestations in schoolchildren.

Perceived social support, which encompasses social relationships and interpersonal interactions, has been shown to benefit an individual's health and well-being (48,49). In the present study, perceived social support refers to students' perception of the support they receive from people around them, especially family members, in engaging in preventive behaviors. A survey by Ahmadi on the effect of peer education on students' health-promoting behaviors indicated a significant increase in perceived social support after the intervention, which aligns with the results of our study (50).

In the present study, reinforcement refers to students' perception of the encouragement, admiration, and rewards they receive from their family and relatives for engaging in preventative behaviors. Our findings revealed no significant difference between the intervention and control groups before and after the intervention. These results do not align with the findings of Soleiman Ekhtiari et al (51). This reinforcing process typically occurs when a person is encouraged (by themselves or others) to engage in health-promoting behaviors or otherwise punished for failing to do so (52). The limited time allocated to this construct within the educational intervention (only 10 minutes in a single session) may have been insufficient to produce a meaningful change. A more family-centered approach, involving additional sessions and diverse educational strategies (e.g., group discussions), is likely needed to enhance social support and empowerment in addition to those employed in the current study.

Ultimately, theory-based interventions, particularly those rooted in theory, should be considered crucial strategies for promoting preventive behaviors against pediculosis infestation among students by addressing both facilitating factors and enabling determinants.

Limitations

This study has some limitations. First, the use of self-report questionnaires to collect student responses may lead to social desirability bias, as students may provide responses they believe align with the research team's expectations. The second constraint pertains to the sample size and composition, as only female students were included due to institutional restrictions, thereby excluding the male primary school student population. A third limitation concerns the participants' socio-economic background, as the study did not explore how students' social and economic status may have impacted the results.

Conclusion

Our study highlights the importance of implementing theory-based interventions that address facilitating factors and enabling determinants as a practical approach to promote preventive behaviors against pediculosis among students. Health specialists should be equipped with the knowledge and skills necessary to design and implement such interventions for at-risk students in school settings.

Overall, based on the findings of our study, the use of theoretical frameworks, particularly the IHBM, is recommended for the design, implementation, and evaluation of school-based interventions targeting pediculosis. Furthermore, it is suggested that future studies implement interventional programs in male students as well. When feasible, alternative and more objective evaluation methods should be employed alongside self-report questionnaires (e.g., family-reported data and observational methods). Moreover, it is recommended that future interventions place greater emphasis on students' families.

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Authors' Contribution

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Competing Interests

The authors declare no conflict of interests in this study.

Data Availability Statement

The data from this study will be available upon request.

Ethical Approval

All participants were assured of the confidentiality of their data and provided written consent prior to participation. Participants had the freedom to withdraw from the study at any time. The study environment was conducive to providing accurate and reliable responses. Ethical approval for the study was obtained from the Ethics Committee of Shahid Beheshti University of Medical Sciences (Ethical Code: 6727). After the intervention, the control group was granted access to the same educational materials (slides) used by the experimental group.

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Supplementary Files

Supplementary file 1. Educational Content

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