Original Article

Evaluation of a Health Education Program for Head Lice Infestation in Female Primary School Students in Chabahar City, Iran

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Abstract

Background: An important health problem in students is pediculosis capitis (head lice infestation) which causes physical, mental, and social complications. Social stigma induces feeling of shame, anger, and embarrassment for families and may prevent people from coming forward.

Methods: This study was a quasi-experimental (case – control) study which was done during periods of 2008 – 2009. Data collection tools were questionnaire, checklist, and head examination. Two schools were randomly selected among female primary schools in Chabahar, where 153 students were divided into case and control groups. After collecting the data, an educational program was designed and performed in the experimental group and was evaluated after two months.

Results: The results showed a significant difference in knowledge, attitude, and practice of the students in the case group, before and after the intervention ($P < 0.0001$), but in the control group it was not significant ($P > 0.05$) .The infestation rate was 69.3% in the case group before the intervention, and 82.1 % in the control group, which decreased to 26.7% in the case group after the education ($P < 0.0001$), but there was no significant difference in the control group ($P < 0.05$).

Conclusion: The health education program had a positive effect on the reduction of pediculosis capitis among students; thus, it is suggested to perform and evaluate educational programs in students and their parents.

Keywords: Head lice, health education, Iran, primary schools

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Introduction

Head lice infestation is a worldwide public health concern that affects mostly primary school- aged children.[1–4] Head lice infestation is an emerging social problem and is found in all areas of the world and in every race, socioeconomic status, family background, or personal habits.[5–7]

Head lice infestation is a major community health problem with an estimated six to twelve million cases annually resulting in $367 million a year in consumer costs, lost parental wages, and school system expenses.[8,9]

People get head lice from direct hair to hair contact with another person who has head lice. This can happen when people play, cuddle, or work closely together.[10]

Pediculosis capitis, also known as head lice infestation, is caused by Pediculus humanus capitis, an ectoparasite of man found on the hair and scalp. The exact definition of an infestation is that living lice of any or all stages of development are present together with their eggs, which they cement to hairs close enough to the scalp that the warmth from the skin acts as an incubator for the developing embryos.[11–13]

The first major symptom of a louse infestation can be intense itching caused by the louse feeding.[14] The infection can lead to enormous pruritus, skin inflammation, urticaria, exudations, lymph node swellings, eczema, scars, hair glue-up to "plica polonica", ending in pain and restlessness especially in children.[6]

Head louse is not known to be a vector of any disease, but it causes irritation, annoyance, and insomnia apart from psychological and social distress. It was observed that secondary bacterial infection could occur at the scratch sites.[15] The secondary impact is on self-esteem of patients, anxiety, parents, and health- care personnel involvement.[7, 16] Social stigma induces feeling of shame, anger, and embarrassment for families and may prevent people from coming forward.[17]

The highest incidence is seen in children aged five to twelve years; however, the incidence in the 24 – 36 year-old group is increasing due to their exposure to infested children. Pediculosis is more common in younger girls and those in crowded families.[5,8]

Schools, especially primary schools, are places which have the main role for starting an epidemic of pediculosis.[18]

It is widely accepted that the school environment helps in the spread of the infestation, simply[19] because close physical contact among students provides favorable conditions for transmission of parasite to other students.[20] The major focus of control activities should be to reduce the number of lice on the head and to lessen the risks of head-to-head contact. Children should be taught not to share shared bedding (e.g., pillow cases), personal items (e.g., combs, headgear), and to hang coats separately. In environments where children are together, adults should be aware of the signs and symptoms of head lice infestation, to check their children regularly for head lice, and affected children should be treated promptly to minimize spread to others. Accurate information on diagnosis, treatment, and prevention of head lice to the entire school community can be most helpful.[9,16] Nevertheless, each year

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numerous cases of pediculosis occur worldwide, and little work has been performed to evaluate the understanding, opinions, and actions of populations regarding head lice.[21]

According to report of health and treatment centers of Chabahar, the prevalence of head lice infestation is 50% in female schools in this city.[22]

Therefore, it is necessary to find the risk factors of the infection in order to understand how to control or decrease infection in students, considering the important role of health education in reduction of parasitic infections. The aim of this study was to evaluate the effect of a designed health education program on knowledge, attitude, and practice about head lice infestation and estimation of pediculosis capitis rate among female elementary students in Chabahar during periods of 2008 – 2009.

Materials and Methods

This study was a quasi- experimental (case – control) study. Two schools were randomly selected among female primary schools in Chabahar, where 153 students were divided into case and control groups (75 and 78 in the case and control groups, respectively). The children and their families were living under similar cultural and social conditions; the two groups had no significant differences in demographic, social, and cultural variables ($P < 0.05$).

Data were collected at baseline via questionnaire, checklist, and head examination. Validity and reliability of the questionnaire was confirmed through content validity and test-retest reliability. Cronbach's alpha was obtained 0.83. The best way for diagnosis of pediculosis capitis is finding alive louse or nymph or viable egg in the scalp hair.[23]

Pediculosis capitis was diagnosed by visual inspection of the scalp. Inspection was carried out by dividing the scalp into four sections with rat-tail comb in a well- lighted area for about three to five minutes by trained experts.

After determining the knowledge, attitude, and practice scores about head lice infestation and estimating head lice infestation rate in students, an educational intervention was implemented in the case group and their mothers separately. Nine educational sessions were conducted by cooperation of health educator, school nurse, and the teacher. Health education outlines generally included louse characteristics, transmission ways, symptoms, signs, complications, preventing methods, and treating of head louse infestation. The educational materials and methods consisted of poster, pamphlet and written educational material, lectures, role playing, demonstration, and face to face interviews. In the control group no intervention was performed. Data were collected again two months later through the same tools that were applied at baseline. Data analysis was conducted by using chi-square, Mann – Whitney, Wilcoxon, and McNemar tests ($P \leq 0.05$).

Results

The results showed that there were significant differences between the knowledge, attitude, and practice scores concerning head lice infestation in pre- and post- educational intervention in the case group, but there were no significant differences in the control group.

Only 1.3% in the case group had good knowledge of head lice before the intervention; however, this rate was increased to 85.3% after the intervention ($P < 0.0001$, Wilcoxon = -7.77, Table 1).

Table1. Percentage of knowledge scores of head lice in both groups before and after the implementation of the health education program.

	Before			After		
Groups	Little	Medium	Good	Little	Medium	Good
Case	50.7	48	1.3	0.0	14.7	85.3
Control	51.3	44.9	3.8	43.6	51.3	5.1

In the control group, 3.8% had good knowledge of head louse before the intervention, which did not change significantly after the intervention ($P = 0.09$, Wilcoxon = -1.698, Table 1).

Out of all the students only 5.3% in the case group agreed with prevention and treatment of infestation before the educational intervention while the rate was increased to 78.8% after the intervention ($P < 0.0001$, Wilcoxon = -7.473, Table 2) .

In the control group, 5.1% had favorable attitude to head lice control before the educational intervention; however, there was no significant difference after the intervention ($P = 0.83$, Wilcoxon = -1.732 Table 2).

Table 2. Percentage of attitude scores of head lice in both groups before and after the implementation of the health education program

	Before			After		
Groups	Disagree	No Idea	Agree	Disagree	No Idea	Agree
Case	40	54.7	5.3	8	13.3	78.8
Control	38.5	56.4	5.1	35.9	57.7	6.4

In the experimental group, only 6.7% had good practice about the control of head louse and performed personal hygiene (bathing, combing and so on) before the intervention, while 93.3% after the educational intervention practiced well ($P < 0.0001$, Wilcoxon = -7.379, Table 3).

Table 3. Percentage of practice scores of head lice in both groups before and after the implementation of the health education program

Groups	Before			After		
	Little	Medium	Good	Little	Medium	Good
Case	57.3	36	6.7	0.0	6.7	93.3
Control	56.4	38.5	5.1	53.9	41	5.1

In the control group, only 5.1% had good practice about the control of head louse before the intervention; there was no significant change after the intervention ($P = 0.157$, Wilcoxon = -1.414, Table 3).

Pediculosis capitis was estimated 69.3% and 82.1% in the case and control groups, respectively before performing health education program. Rate of head lice infestation decreased to 26.7% in the experimental group after the intervention ($P < 0.0001$, Table 4), but McNemar test showed no remarkable difference in the control group ($P = 0.146$, Table 4).

Table 4. Frequency and percentage of infected students in both groups before and after the implementation of the health education program

Groups	Before		After	
	Number	Percent	Number	Percent
Case	52	69.3	20	26.7
Control	64	82.1	58	74.4

Discussion

Pediculosis capitis is a common and growing problem for el-

ementary school- age students and their care taker.[23] Head lice infestation was observed to be a common condition among primary school children and, as has also been documented by others,[4,7] students miss many days from school and nurses spend many hours screening for lice.[9]

Despite the use of powerful insecticides and the prodigious efforts of parents and health providers, successful control of head louse infestations remains unattainable in most countries. The main reasons for ineffective control of head lice are lack of knowledge and negative attitude about control and prevention of head lice, incorrect use of pediculicides, use of alternative remedies and methods for which efficacy has not been clinically proven, development of resistance to insecticides, improper attention to possible fomite transmission, difficulty in diagnosing head lice infestations, and embarrassment and social stigma that prevent reporting. In fact these problems mostly refer to inadequate health education and cultural poverty.[24,25]

Considering the high prevalence of pediculosis capitis (50%) among girl students in Chabahar City in Iran, [22] the present study was designed to reduce the infection. Prevention and control of head louse is an important health issue. Moreover, this title was distinguished as a research priority in this city with the high rate of head lice infestation.

The compiled health education intervention had a positive effect on the knowledge, attitude, and practice in the students concerning head lice which finally led to reduction of the infection in children.

Promotion of knowledge about pediculosis capitis was attributed to applying simple and understandable instructional material and relevant educational methods. Also, repetition and reinforcement of health education sessions through teachers was helpful. This finding was compatible with other investigations.[26]

Using informed and native instructor and conformity of health education program with culture and traits of students influenced positively on attitude about prevention and control of infection. Similar results were found in other studies.[27–29]

Health education program improved behavior concerning prevention and treatment of head lice due to using practical educational methods (e.g., Role Playing, and demonstration) and engaging mothers in educational process. Good practice led to decrease of infestation. The infestation rate was 69.3% and 82.1% in the case and control groups, respectively in pre- educational program which decreased to 26.7% and 74.4% in the case and control groups, respectively after the intervention. Meanwhile, the reduction in the case group was statistically significant ($P < 0.0001$), but there was no significant difference in the control group ($P > 0.05$). Likewise, other studies indicated the same results.[30,31]

Therefore, health education about ways of transmission, methods of prevention, personal hygiene, and providing suitable healthy living place for them is important to decrease head louse infection in pupils. Also, it is useful to apply an effective educational strategy (engaging students, their mothers, and teachers in health education program coupled with simple and suitable materials and methods) in order to effect on knowledge, attitude, and practice concerning head lice infestation.

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