

The Effects of Model-Based Educational Intervention on Self-medication Behavior in Mothers with Children less than 2- year

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Abstract

Background: Self-medication by people is one of the major issues in the world that can lead to numerous medical and economic problems, this especially issue in children under 2 years who are at the age of growth and development have great importance. The aim of this study was investigate the effects of model-based educational interventions on self-medication behavior in mothers with children under 2 years of age who referred to the health centers of Firoozkooh city (Iran).

Materials and Methods: This study was quasi - experimental interventional study. The study population consisted of mothers with children under 2 years old referring to health centers of the Firoozkooh city, Iran. The data collection tool was researcher made questionnaire which its validity and reliability was assessed than was used. The required information was collected before and after the educational intervention. Then 4 months after the educational intervention, evaluation was done and data analysis was using SPSS-20.

Results: Significant difference was not found between mean scores of knowledge, perceived sensitivity, severity, benefits, barriers, self-efficacy with performance (self-medication) before the educational intervention ($P>0.05$). But after the educational intervention, statistically significant difference was found between mean scores of knowledge, perceived sensitivity, severity, benefits, barriers, and self-efficacy with performance ($P<0.05$).

Conclusion

It seems that Model-Based Educational Intervention may be promoted the knowledge and performance of mothers about self-medication in children. Notifying mothers in this filed through the mass media such as radio and television and health care personnel can be used to reduce the self-medication.

Key Words: Children, Model-Based Educational Intervention, Mothers, Self-medication.

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1- INTRODUCTION

Studies conducted in different parts of the world show that self-medication is highly prevalent among general populations (1). In fact, it is often the first choice for the treatment of early symptoms of diseases and is one of the most important tools used by patients in the face of common health problems (2). Self-medication refers to taking one or more medicines without asking for comments and diagnoses by doctors and without medical supervision. The medicines may include herbs and chemical drugs. Although the drugs are widely used to cope with diseases, the indiscriminate and arbitrary use of them can cause serious complications and problems (2- 4).

Nowadays, the indiscriminate and unnecessary use of medications by people is one of the major problems in all countries that cause numerous medical and economic problems (5). Self-medication is currently common all over the world and the situation is terrible in developing countries (1, 6-8). The prevalence of self-medication in European countries, America, India, Malaysia, Saudi Arabia, Ghana, China, Brazil and Serbia has been reported as 68%, 77%, 88.18%, 80.9%, 75.2%, 70%, 40.2% 86.4% and 79.9%, respectively (9-16).

Studies in Iran indicate that the prevalence of self-medication in hospitals of Isfahan, women in Ahvaz and Abbasabad (in Mazandaran province) , among the elderly of Gonabad , students of Bojnurd , and pregnant women in Saqez city, has been reported as 82.1%, 70.1%, 41.3%, 72.1%, 43.6% and 27.6%, respectively. In Iran, according to the drug culture of the society, the situation of irrational use of drugs is more critical (17-23). The rate of self-medication in Iran is almost 3 times more than the global average rate. For this reason, in terms of drug use, Iran is one of the first 20 countries worldwide, and after China this country is the second in Asia.

This is while the country's population is less than that of some Asian countries such as India, Bangladesh and Pakistan (24). The indiscriminate use of drugs will cause bacterial resistance, lack of optimum treatment due to lack of correct and scheduled use of medications and thus the probability of low productivity, lack of monitoring of the patient's health condition and their improvement (due to the removal of the treating physicians), additional costs for the treatment of side effects of the taken medications (such as liver, kidneys and gastrointestinal system problems and internal bleeding), unwanted and even deliberate poisoning, pharmaceutical market disruption, financial loss, and cost increase per capita for the consumption of drugs in societies (22, 25, 26).

In the meantime, taking into consideration the population of mothers who are responsible for the care of children is of great importance because today's children are tomorrow's investment and the management of future societies depends on today's physical and mental health of the children. Proper nutrition in the first two years of life is the most important factor for future health and development of children and it plays a significant role in empowering them physically, emotionally and intellectually. The first two years of life are the most important period of brain development of children and have significant impacts on their mental, physical, and spiritual performance as well as their learning in school (27, 28).

In this regard, an important factor in maintaining the health of children is to increase the awareness of mothers and families of the importance of prenatal care, especially when the children are getting sick. Studies show that self-medication, particularly giving antibiotics to children indiscriminately by mothers is increasing (29) and in this regard, knowing the factors affecting self-medication by mothers is of

utmost importance, because educational interventions can be programmed according to that. The model used in this study is the health belief model which is a behavioral model that can be used to describe the issue. This model emerged in the late 1950s and was successfully applied for various issues due to its structure. It is a function of the knowledge and attitudes of individuals, and regarding its structures (perceived sensitivity, severity, benefits, barriers and self-efficacy), is based on the scientific thinking that it would cause the perception of a threat to the health and lead the people's behaviors towards health. According to this model, when people adopt a healthy behavior or quit an unhealthy one and feel themselves vulnerable and consider the injury serious, and also have a proper understanding of the benefits and drawbacks doing or do or not doing the behaviors, and ultimately have self-efficacy for doing the behaviors, the health belief model (HBM) can measure the individuals' perceived sensitivity and severity in terms of self-medication along with perceived benefits and barriers to self-medication as well as the self-efficacy of mothers with children under two years of age. Based on the results of these factors, educational planning might be done (24).

In a study by Shamsi et al. about the effect of HBM-based education on self-medication by mothers referring to the health centers in Arak, the findings showed that before the education, the levels of knowledge, perceived sensitivity, severity and benefits of self-medication were moderate, and the mothers' performance in terms of self-medication was more than average. However, after the educational intervention, a statistically significant difference was found between the case and control groups and the mothers' performance in terms of self-medication reduced (25). A study by

Kharghani Moghaddam et al. with the aim of evaluating the effect of HBM-based education on the prevention of self-medication in the women referring to the health centers of Sabzevar city indicated that before the educational intervention, the women's knowledge and attitudes about self-medication were moderate and their performance in terms of self-medication was poor. There was no significant relationship between the case and control groups; but after the educational intervention, a significant relationship was found between the case and control groups and the women's performance in terms of self-medication reduced (24).

Considering the importance of self-medication in terms of self-care, and since few studies have been done on this issue, the results of the present study could provide the appropriate context for educational interventions to improve child health. This study aimed to investigate the effect of model-based educational interventions on self-medication in mothers of the children under two years of age who referred to the health centers of Firoozkooh city, Iran.

2- MATERIALS AND METHODS

2-1. Study Design and Population

The present study was a pre- and post-quasi-experimental type of intervention (with the control group). The target population consisted of mothers with children less than 2 years referring to health centers of Firoozkooh city, the capital of Firuzkuh County, Tehran Province, Iran. The simple random sampling was done among the mothers who were referring to the health centers to receive health care. Given the sample size and the results of a study by Seyedeh Melika Kharqany (24) with 99 % reliability and 95 % statistical power, the required sample size for each group was determined carefully to be 36.6 based on

the scores of self- efficacy according to the following formula. Therefore, it was decided to select 37 people for each group. But since the study was longitudinal and continued for 4 months, the possibility of loss and exclusion of the individuals was considered; hence, taking into account the 20 % loss, 45 people were selected to be in each group and the total sample size was determined to be 90.

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2 (s_1^2 + s_2^2)}{(\bar{X}_1 - \bar{X}_2)^2}$$

$$n = \frac{(2.57 + 1.64)^2 (1.11^2 + 2.643^2)}{(2)^2} = 36.6 \cong 37$$

In each group:

$$37 \times 0.2 = 7.4 \rightarrow 73 + 7.4 \cong 45$$

2-2. Measuring tools

The data collection instrument in this study was a researcher-made questionnaire consisted of three parts, including: 10 demographic questions, 10 questions regarding the knowledge of the correct use of medicines (scores range from zero to 10) and some questions related to the structures of HBM [perceived sensitivity (3 questions with a score range of 3 to 15), perceived severity (3 questions with a score range of 3 to 15), perceived benefits (3 questions with a score range of 3 to 15), and 3 questions about self-efficacy (3 questions with a score range of 3 to 15) as well as perceived barriers (4 questions with a score range of 4 to 20) and also, a question to measure the self-medication behavior]. The rating scale of the questionnaire was as follows: for the questions on knowledge, a two-option scale was used (the score zero was given to "I do not know" and each wrong answer, while the score 1 was given to each correct answer). Besides, the five-option Likert scale (ranging from 5 for "fully agree" to 1 for "strongly disagree") was used to rate the questions about the health belief model structures. After the questionnaire was

designed, its validity and reliability were determined. To determine the validity, the content validity was applied. To evaluate the content validity of the questionnaire qualitatively, it was given to a panel of relevant experts so that they would examine the grammar and the proper use of rhythmic and appropriate words, and they would modify it if necessary. To ensure that the selected content was the most important and the most correct, the content validity ratio (CVR) was used. For this reason, the intended tool along with a checklist was given to 10 experts so that they would determine if each item was essential and useful or not essential and not useful.

2-3. Inclusion criteria

The inclusion criteria consisted of mothers with children under- two year of age referring to the designated centers of Firoozkooh city for sampling who had health records at the centers. Moreover, their interest and willingness to participate in the educational intervention as well as attending all training sessions was necessary.

2-4. Exclusion criteria

The exclusion criteria included the reluctance of the mothers to continue to participate in the study, their absence in more than one training session, and the change of their dwelling places during the study.

2-2. Methods

Before the educational intervention, the required information was gathered from both case and control groups through the questionnaire and the intervention was then planned and implemented for the case group in the form of two 60-minute training sessions (20 minutes lecture with questions and answers, and 40 minutes group discussion). The control group was only given a pamphlet related to self-medication and its complications designed

by the research team. Four months after the educational intervention, the questionnaire was completed again by both groups.

2-5. Ethical considerations

To avoid any ethical problem, the individuals were assured that the information would be analyzed generally along with the information about other people and the researcher would keep it confidential. Also, in terms of holding the educational intervention, the times and dates the classes were determined based on the comments by the subjects so that they would all have the opportunity to attend the classes.

2-6. Data analyses

To analyze the data with respect to achieving the research objectives as well as the qualitative and quantitative variables, after presenting the information in the form of frequency tables and appropriate graphs, the SPSS statistical software version 20, the Chi-square and Mann-Whitney tests, the independent t-test and paired t-test, and also Kolmogorov - Smirnov test were used. The results were considered significant at $P < 0.05$ level.

3- RESULTS

In this study, 90 mothers with children less than 2- year were examined. The mean age of mothers in the case and control groups 29.44 ± 7.14 and 28.71 ± 6.34 year, respectively. According to the obtained results, all mothers in both groups were married and the majority of them were housewives. In the case and control groups, 84.4 % and 75.6 % of the mothers were covered by the health insurance, respectively. Moreover, in terms of education levels, 42.2% of the mothers in the case group had senior high school education while 31.1% of the mothers in the control group had junior high school education. According to the research data,

66.7% of the case group and 71.1% of the control group had the family income below ten million Rials per month. Regarding the number of children in the case and control groups, 57.8% and 35.4% of the mothers had only one child, respectively. In addition, 48.9% of the mothers in the case group and 35.6% in the control group had some knowledge of self-medication, most of which had been obtained through radio, television and the health care personnel. Findings of the present research showed that there was no significant difference between the two groups in terms of the demographic characteristics before the intervention (**Table-1**).

According to **Table-2**, the paired t-test showed a significant difference between the mean scores of knowledge, perceived sensitivity, severity, benefits, and barriers as well as self-efficacy in the case group before and after the educational intervention. However, the paired t-test showed no significant difference in the control group.

According to **Table-3**, the results of behavior evaluation using Chi-square test showed a significant difference between the behaviors self-medication and the lack of self- medication after the intervention. The results also, showed that the greatest sources of information about self-medication in the case group were radio and television (35.83%) and then the health care personnel (25.83%), but in the control group the health care personnel won 32.17% and the lowest percentage in the case group belonged to health magazines while in the control group it belonged to the neighbors and friends. The highest rates of self-medication by the mothers were seen when their children had a cold (35.6%) and a fever (26.7). These rates reduced to 6.7% and 4.4%, respectively, in the case group after the educational intervention.

Table-1: Distribution of absolute and relative frequencies of demographic variables

Demographic characteristics		Case Group		Control Group		P-value
		Number	%	Number	%	
Age	18 To 25 Years Old	14	31.1	15	33.3	0.871
	26 To 35 Years Old	25	55.6	24	53.3	
	36 To 49 Years Old	6	13.3	6	13.3	
Education Level	Illiterate	2	4.4	5	11.1	0.09
	Elementary	5	11.1	9	20	
	Junior High School	8	17.8	14	31.1	
	High School Diploma	19	42.2	12	26.7	
	High Education	11	24.4	5	11.1	
Having Insurance Coverage	Yes	38	84.4	34	75.6	0.295
	No	7	15.6	11	24.4	
Income (Dollar)	385	30	66.7	32	71.1	0.651
	385-438	15	33.3	13	28.9	
	438 >	0	0	0	0	
Job	Housewife	43	95.6	42	93.3	0.647
	Employee	2	4.4	3	6.7	
	Self-Employed	0	0	0	0	
Number Of Children	One Child	36	57.5	21	46.7	0.404
	Two Children	14	31.1	18	40	
	More Than Two Children	5	11.1	6	13.3	

Table-2: The comparison of mean scores of health belief model structures and the self-medication behavior before and after the intervention in two groups

Variables	Group	Intervention situation		Pair t-test	T-test	
		Before the intervention			After	Before
		Mean (SD)	Mean (SD)			
Knowledge	Case	6.85 (1.76)	8.34 (1.72)	<0.001	0.226	<0.001
	Control	6.38 (1.88)	6.56 (1.89)			
Perceived Sensitivity	Case	11.12 (2.08)	12.34 (2.49)	<0.001	0.392	0.002
	Control	10.75(2.32)	10.63 (1.62)			
Perceived Severity	Case	13.16 (1.92)	13.6 (1.66)	<0.001	0.052	0.195
	Control	12.29 (2.67)	12.63 (2.95)			
Perceived Benefits	Case	12.85(2.28)	13.52 (1.65)	<0.001	0.247	<0.001
	Control	12.29 (2.24)	11.74 (2.28)			
Perceived Barriers	Case	17.67 (2.25)	16.2 (3.04)	<0.001	1.000	<0.001
	Control	15.23(2.31)	16.15(2.35)			
Self-Efficacy	Case	11.89(2.97)	12.85 (2.69)	<0.001	0.969	0.016
	Control	11.88 (2.42)	11.36 (3.06)			

SD: Standard deviation.

Table 3: Comparison the categorical pain intensity during the intervention in control and interventional groups by fisher test

Group	Lack Of Self-Medication	Self- Medication	P-value
	Mean(SD)	Mean(SD)	
Case	11(24.45)	34(75.55)	0.011
Control	27 (60)	18(40)	

4- DISCUSSION

The present study aimed to investigate the effect of model-based educational intervention on self-medication behavior in mothers of the children under- two year of age who had referred to the health centers of Firoozkooch city. The mean scores of the mothers' knowledge about self-medication behavior in mothers of the children under- two year of age in the case group were 6.85 ± 1.76 and 8.34 ± 1.72 before and after the educational intervention, respectively. Statistically, the difference was significant ($P < 0.001$). On the other hand, the mean scores in the control group were 6.38 ± 1.88 and 6.56 ± 1.89 before and after the educational intervention, respectively and it indicated the impact of the educational program to promote the awareness of the mothers in the case group compared to those in the control group. This finding is consistent with those of some other studies including the ones conducted by Kharqany Moghadam et al and Shamsi et al. (24, 25).

In the present research, the percentages of doing and not doing self-medication after the intervention in the case group were respectively 24.45 and 75.55, but they were respectively 60% and 40% in the control group. This indicates a significant difference between the percentages of behavior change scores in the case and control groups after the educational intervention. Similar results were seen in the studies by Kharqany Moghadam et al in Sabzevar (24), Niksadat et al. in Tehran (30), Movahed et al. in Manoujan (31) and Shamsi et al. in Arak (25).

The results also, showed a significant difference in terms of perceived sensitivity between the two groups after the educational intervention and that could be good evidence of the impact of the educational intervention on promoting the perceived sensitivity of the group members, so that after the intervention, the majority of mothers in the case group believed that they would not expose their children to self-medication anymore. This finding is consistent with the results of the studies by other researchers (24, 25, 30 - 33). The average scores of perceived benefits of the mothers in terms of self-medication behavior in mothers of the children under two years of age in both groups were almost high before the intervention. This implies that the mothers with children under two years of age understood that the obtained interests of not having self-medication behavior were much more than having it. The mean perceived benefits of the mothers in the case group has increased after the educational intervention, and this result was also, observed in the studies by Kharqany Moghadam et al., Niksadat et al. and Shamsi et al. (24, 25, 30).

The independent t-test showed that there was a significant difference between the average score of the mothers' perceived barriers before the intervention (17.67 ± 2.25) and after that (16.16 ± 3.04) ($P < 0.001$), but the same result was not seen in the control group. Mothers with the children under two years of age were suffering from some obstacles such as lack of trust in doctors, not having enough time, and financial problems, and they

considered these problems as serious obstacles in controlling self-medication behaviors towards their children. In the educational intervention for mothers in the case group, efforts were done in order for mothers to have a proper understanding of the cost-benefit analysis with regard to preventive behaviors as well as the positive aspects of the lack of preventive behaviors. Hence, a significant difference between the mean scores of the perceived barriers in both groups after the intervention indicated the positive impact of education on a significant reduction of the mothers' perceived barriers in terms of self-medication in under-two-year-old children and this was also, seen in the results of other studies (24, 25, 30, 31).

The mean scores of the mothers' self-efficacy in terms of self-medication behavior in mothers of the children under two years of age in both groups were almost higher than average before the intervention. This implies that they had an acceptable understanding of their abilities to avoid self-medication and prevent the complications of medicines, even though the need to improve and strengthen their self-efficacy is always felt. A significant difference between the mean scores of the self-efficacy in both groups after the intervention indicated the positive impact of education on promotion of self-efficacy of the mothers in the case group in terms of self-medication in under-two-year-old children (24, 25, 30, 31).

In this study, the majority of external sources of information about self-medication in the case group were radio, television and health care workers; while the main source of information in the control group was the health care workers. These results are consistent with other similar studies which have been carried out in this field (34, 35). The most common cases of self-medication were observed for colds and fevers and the same results had been seen in the studies by Kharqany

Moghadam et al. (24), Delshad Noghabi et al. (21), Pirzadeh of Isfahan (7) and Ahmad et al. in India (26), but it was not consistent with the results of the studies by Pirzadeh and Sharifirad (3, 34) and Shamsi and Bayati (35). This could be due to the type of the study groups.

4-1. Limitations of the study

Some limitations of this study could be the difficulty of measuring the performances due to the use of self-presentation (questionnaire) and the lack of full cooperation of mothers when their children were restless.

5. CONCLUSION

The present study conducted based on maternal education and training, the results showed that HBM-based education for caregivers of the children less than 2 years old, can improve their knowledge, increase their understanding and attitudes and practices related to the lack of self-medication for their less than 2 years old children. Therefore, the use of HBM-based educational programs can be really effective in order to improve children's health.

6- CONFLICT OF INTEREST: None.

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