



The Impact of an Educational Program on Mothers' Knowledge, Attitudes, and Practices Towards Food Additives

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SUMMARY

Food additives are a special group of substances added to food in very small quantities to aid in processing, improve organoleptic properties, enhance stability, or preserve the nutritional quality of foods. Additives not normally consumed as a food in itself or as a characteristic ingredient of a food. As a class of chemicals food additives are generally low in toxicity. However, scientific studies have suggested that excessive intake of additives may result in adverse health conditions including hyperactivity, the development of an allergy, asthma and even cancer. In recent years, there have been increasing concerns amongst consumers about the use of additives, particularly artificial additives, in processed foods. Consumers are doubtful about the safety of additives and also in the effectiveness of various regulations on food additives established for the protection of their health. This has resulted in certain misconceptions and perceived adverse effects which may sometimes be false due to lack of scientific evidence.

Mother as the most influential consumer, was selected to be the target in this study. Consequently, this work aimed to study the impact of an educational program on mothers' knowledge, attitudes, and practices towards food additives. To fulfill this aim, quasi-experimental design was used and a total of 114 mothers participated in the study, divided into two groups each group contained 57 mothers. Knowledge, attitudes, and practices of mothers were assessed through a questionnaire before the intervention. The same questionnaire was used after intervention to investigate how this program had influenced on mothers' understanding to food additives.

Results of the present work revealed that:

- 67.5% of the sampled mothers were in the range of 30-39 year old. 77.2% university educated. About half of studied mothers were working. 93.9% were married. Most families were of 4 and 5 members, while families of less than 4 members were 14% and only 11% had more than 5 members.
- 70.2% in experimental group were depended on the father as the main source for income while the main source for income in the control groups families (43.9%) were both father and mother.
- The monthly income for 73.7% in the experimental and 70.2% in control group was only enough. About half of the sampled families (56.1%, 47.4 %) had 4 rooms while 12.3% and 36.8% had 3 rooms and 26.3% and 14.0% had 5 rooms for the experimental and control group respectively.
- 54.4% and 38.6 of families had 2 children, 29.8% and 40.4% have 3 children for experimental and control group, respectively.
- 98.2% and 89.5% of families having a computer at home in experimental and control group respectively.
- All family members in 48.2% and 45.1% of families were able to use the internet efficiently to search for information, while 8.9 %7.8 only mothers able to use the internet % efficiently in the experimental and control group respectively.
- 27.2% of the families had at least one of their members follow a special diet.
- 27.2% of families had one or more members suffering from chronic health problems.

- 22.8% of the families had one or more members allergic to a particular type of food.
- 49.1% of mothers were responsible alone for food purchasing decision, while in 36% of families 'mother and father' shared the decision.
- 43.9% of mothers were the only person in charge for food purchasing, where in 33.3% of families both father and mother were responsible and only 15.8% of families depends on father.
- 65.8% of the families purchase food from markets closest to home, 15.8% purchase from hypermarkets, while 14% depends on markets closest to work.
- 41.23% of mothers depended on the internet as the main source of information, 35.09% depended on relatives and friends, while only 17.54% considered physician the main source for information.
- 14.9% of mothers attended seminars about food safety before the program
- 74.6% of mothers though they not have enough information about food additives; 64.9% in experimental group and 84.2% in control group.
- 46.0% of mothers in experimental group considered that reason behind the lack of information was 'lack of adequate awareness'. 43.7% of mothers in control group suggested that not only lack of awareness was the reason but also difficulty and incompleteness of information.
- 61.4% of mothers choose media such as television, radio and internet as the easiest way for receiving information, 23.68% choose awareness seminars and 8.8% choose to read information on the foods covers.
- 26.32% of mothers need to be informed about side effects of additives, 12.28% need to know permissible quantities per day, 12.28% need to know food products that contain additives, 5.26% need to know the amount of additives in food, 6.14% care about reasons for using additives, while the highest percentage of mothers in both groups (37.72%) need to know all of the above.

Knowledge of experimental group:

- Before intervention 91.2% of mothers showed poor knowledge level, 7.0% showed fair level and 1.8% showed good level of knowledge regarding food additives. After intervention 73.7% showed good knowledge level, 26.3% showed fair level and none of mothers showed poor level of knowledge.
- The overall mean score percentage of knowledge was 23.75% before intervention. However, after intervention the overall mean score percentage increased to 78.79%.
- Knowledge about sulfite had the lowest mean score percentage (4.0%) before intervention, increased to 79.67% after intervention. Knowledge about nitrites and nitrates was 11.5% before intervention, increased to 66.75%. Knowledge about MSG was 16.50% before intervention, increased to 84.00%. Knowledge about food colours was 39.33% before intervention, increased to 80.00% after intervention
- Difference in knowledge level in experimental group before and after the intervention was found to be high statistically significant ($^{MH}p < 0.001^{**}$).
- There was a statistically significant relation between knowledge level and mother education ($^{MC}p = 0.020^{*}$).

- There was a statistically significant relation between knowledge level and ability of using the internet inside the family ($^{MC}p=0.004^*$).

Attitude of experimental group:

- Before intervention, 42.1% of mothers showed negative attitude towards food additives, 57.9% showed neutral attitude and none of mothers showed positive attitude.
- After intervention 80.7% showed positive attitude, 19.3% showed neutral attitude and none of mothers showed negative attitude.
- There was a statistically significant difference between the attitude of experimental group before and after the intervention ($MCp < 0.001^*$).
- There was no statistically significant difference between the attitude of the control group before and after the intervention period.
- A statistically significant relation was found between mothers' attitude and mother's knowledge level ($FEp=0.027^*$)
- A statistically significant relation was found between mothers' attitude and ability of using the internet inside the family ($MCp=0.004^*$)

Practice of experimental group:

- Frequency of consumption of processed food products that contains additives was decreased after intervention, especially in families used to consume it daily or 2-3times per week.
- Frequency of consumption of products containing mono sodium glutamate before intervention was as follow: 10.5% daily, 10.5% 2-3 times per week, 9.6% weekly, 17.5% 2-3times per month and 51.8% never consumed it. After intervention the frequency of consumption became 0% daily, 9.6% 2-3 times per week, 18.4% weekly, 17.5% 2-3times per month and 54.4% preferred not to consume it at all.
- Frequency of consumption of products containing nitrates and nitrites before intervention was as follow: 1.8% daily, 10.5% 2-3 times per week, 10.8% weekly, 26.3% 2-3times per month and 51.1% never. After intervention became 0% daily, 0.8% 2-3 times per week, 4.0% weekly, 26.3% 2-3times per month and 68.9% preferred not to consume it.
- Frequency of consumption of products containing sulfites before intervention was as follow: 37.7% daily, 13.6% 2-3 times per week, 15.4% weekly, 12.3% 2-3times per month and 21.1% never. After intervention became 8.8% daily, 3.1% 2-3 times per week, 5.7% weekly, 60.5% 2-3times per month and 21.9% never consumed it.
- Frequency of consumption of products containing colors before intervention was as follow: 16.9% daily, 13.8% 2-3 times per week, 18.9% weekly, 26.1% 2-3times per month and 24.3% never. After intervention became 1.1% daily, 21.3% 2-3 times per week, 19.7% weekly, 32.2% 2-3times per month and 25.7% never.
- Food additives presence as a factor affecting on purchasing decision of food was moved from the 6th (36.84%) and 5th (21.05%) orders to the 2nd (31.58%) and 3rd (28.07%)
- 40.35% of mothers were always reading label information before intervention, increased to 80.7%.
- 47.37% of mothers were always limiting the number of confections per day before intervention, increased to 68.42%.

- 54.39% of mothers were always explaining to children the kinds of food they are allowed to buy outside the house before intervention, increased to 64.91%
- 36.84% of mothers were always reducing foods containing preservatives before intervention, increased to 63.16%.
- 40.35% of mothers were always reducing foods containing colors before intervention, increased to 63.16%.
- 3.51% of mothers were always using colors in home decorated foods before intervention, decreased to 0%.
- 5.26% of mothers sometimes used MSG before intervention, increased to 19.3%
- 56.14% of mothers were always reducing processed foods consumption before intervention, increased to 80.7%.

According to the previous results, intervention had positive impact on mother's awareness regarding food additives. So, it can be concluded that intervention was effective and helped in improving knowledge, attitudes, and practices of mothers regarding food additives.

More education programs are recommended for different community groups and it should be tailored according to the target population and specific learning objective, to help in more control to the abuse of food additives by the consumer. Moreover, finding effective ways to support communication and trust between consumers, legislators and manufacturers by informing the consumer about every new in food processing and the usefulness of using modern technology and means of manufacturing. Moreover, consumers should be informed about precautionary measures that applied to maintain their safety and ensure the safety of any additive before permitting their addition to food.