

# Effectiveness of Structured Teaching Program on Knowledge Regarding Prevention and First Aid Management of Foreign Body Aspiration in Mothers of Toddler in Selected Rural Community

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## Abstract

**Objectives:** The primary objective of the study was to assess pre-test knowledge regarding prevention and first aid management of FBA in mothers of toddlers in selected rural community whereas the secondary objective was to evaluate effectiveness of structured teaching program on knowledge regarding prevention and first aid management of FBA in mothers of toddlers in selected rural community and to find out association between pre-test and post-test knowledge with selected demographic variables.

**Materials and Methods:** A quantitative, quasi-experimental – one-group pre-test, post-test research design was used where 100 mothers of toddler were selected as sample for study using convenience sampling technique. The data collected using structured knowledge questionnaires. Data were analyzed using paired *t*-test and Chi-square test in the study. Pre-test was conducted on the same day and after 7 days, post-test was conducted to assess the gained in knowledge using the same structured knowledge questionnaire to mothers of toddler to assess the post test.

**Results:** Most of the 64% of mothers of toddler were 18–24 years of age, majority 83% of the mothers of toddler were having primary educational background, maximum 98% of mothers of toddler were housewife/farming, maximum 90% of mothers of toddler were belonging to Hindu religion, 61% of the mothers were having two toddler children, 58% of the mothers of toddler were having male toddler child, 79% were not having previous knowledge related to FBA in children, 68% of mothers of toddler were not knowing about FBA in children, and 63% of mothers of toddler were living in joint family. The mean score for the pre-test was 13.72 and for post-test was 18.87. Paired *t*-test was applied and calculated *t*-value for knowledge (19.85) was more than the table value (1.66) at 99 degree of freedom for 0.05 level of significance. Hence, it was statistically interpreted that the structure teaching program was effective in improving the knowledge regarding prevention and first aid management of FBA in mothers of toddler in selected rural community and there was a significant association of post-test knowledge with demographic variables, that is, previous knowledge related to FBA in children (6.3528) was higher than the table value at 5% level of significance.

**Conclusion:** Structured teaching program acts as a guiding key for mothers of toddler to solve the problems associated FBA.

**Keywords:** Teaching program, first aid management, foreign body, mothers, rural community

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## INTRODUCTION

If we have a water pipe and when a stone get into that pipe so water get obstructed and less amount of water is flowed out, so similarly, we have trachea as an air pipe in our body and when child swallow any foreign object such as coin, bead, and

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latex balloon unknowingly, then it get obstruct and resulting in decrease respiration causing difficulty in breathing which leads to chocking.

As in most of the time, mothers are with their children's only, but when they are not around them, they put anything into their mouth and nose and child starts chocking which leads to breathing or respiratory problems and is known to be foreign body aspiration (FBA).

Mohammad *et al.* (2017), FBA is a preventable cause of mortality and morbidity in children. We conducted a chart review of children who presented to a university hospital due to FBA in the period 1999–2014. Children were either managed with bronchoscopy for removal of the foreign body or died due to FBA. A total of 103 children were seen due to FBA including 27 deaths. The majority of children were boys and were less than 3 years old. Most aspirated foreign bodies were food related, mainly peanuts. The majority of children presented with acute choking incidents, a smaller number presented with recurrent chest infections, and few children's choking incidents were unwitnessed. X-ray had a high rate of false negatives and bronchoscopy was the gold standard technique for assessment and management. Aspiration of foreign bodies is a preventable, life-threatening condition that calls for increased parent education and awareness.<sup>[1]</sup>

Jaswal *et al.* (2014), after analyzing multiple case series, these authors found that 84% of episodes occur before age 5 years and 73% before age 3 years. Of all episodes, 56.4% occurred in the 1–3 years group, and they underscored that there was an incidence of 6% in infants aged less than 1 year. Other authors have also found a second incidence peak at 8–11 years of age with somewhat different characteristics (for example, aspirated objects tend to be of a different kind, for example, non-food items). When it comes to the distribution by sex, FBAs are slightly more frequent in males. As for the setting of aspiration episodes, most take place at home, and most cases of suffocation occur while the child is eating or playing, usually in the presence of another person. We ought to underscore the lack of awareness regarding this issue in households and even in schools. Thus, for example, it is typical for some nurseries and schools to celebrate “chestnut” or “nut” parties with the arrival of autumn that are meant for children to learn about, try, and also become exposed to these foods.<sup>[2]</sup>

### Research methodology

The different steps were undertaken for gathering and organizing data for assessing knowledge of mothers of toddler regarding FBA.

In view of the nature of problem selected for the study and the objectives to be accomplished, a quantitative approach was used for the present study. This approach was considered to be the most suitable one to conduct the study because it would help the investigator to use one group and observe the difference in the knowledge before and after imparting of structured teaching program and evaluate the effect of structured teaching

program on knowledge regarding to prevention and first aid management of FBA in mothers of toddler in selected rural area.

A quasi-experimental one-group pretest-posttest research design was used to evaluate the effectiveness of structured teaching program on knowledge regarding prevention and first aid management of FBA in mothers of toddler in selected rural community. The design did not include any control group.

The study design shows that on the 1<sup>st</sup> day (day 1), pre-test was given to assess the existing knowledge regarding prevention and first aid management of FBA in mothers of toddler in selected rural community. The structured teaching program was also administered on the same day following pre-test. On the 7<sup>th</sup> day (day 7), post-test was conducted to assess the gain in knowledge using the structured knowledge questionnaire.

### Objectives of the study

#### Primary objective

The primary objective of the study was to assess pre-test knowledge regarding prevention and first aid management of FBA in mothers of toddlers in selected rural community.

#### Secondary objective

The secondary objective of the study was as follows:

- To evaluate effectiveness of structured teaching program on knowledge regarding prevention and first aid management of FBA in mothers of toddlers in selected rural community
- To find out association between pre-test and post-test knowledge with selected demographic variables.

## MATERIALS AND METHODS

### Independent variable

Structured teaching program.

### Dependent variable

Knowledge regarding prevention and first aid management of FBA.

### Sample

Mothers of toddler.

### Sample size

100.

### Sampling technique

Purposive sampling technique.

### Inclusion criteria

The criteria specify characteristics that a sample population does have.

- Mothers having 1–3 years of children
- Mothers who are willing to participate
- Mothers who can read, write Marathi language
- Mothers who are available at the time of data collection.

## Exclusion criteria

It is a criterion that involves people, who do not possess the population characteristics.

- Mothers of children above 3 years of age.

## Data collection instrument

### Section A

It consisted of 8 items regarding demographic variables of the mothers of toddler that was developed to collect the background information of them.

The items included in the demographic variable were age, educational qualification, occupation, religion, number of toddler children in family, do you have knowledge related to FBA in children, source of previous knowledge regarding FBA, and if yes, source of knowledge, type of family, total number of members in family, and gender of toddler?

### Section B

It consisted of 30 items to assess the knowledge of women regarding prevention and first aid management of FBA and questions were asked regarding:

- Meaning
- Incidence
- Clinical manifestations
- Diagnostic tests
- First aid management
- Preventive measures
- Complications.

## Data collection process

### Method of data collection relevant to objectives

#### Gathering process of subjects

First, the permission was taken from gram panchayat of selected rural community for conducting main study. There were 100 number of samples of mothers of toddler to be taken for main study. After taking the permission, researcher had visited 195 families from January 2 to January 5, 2020, home to home for selecting 100 mothers of toddler each day who were fulfilling the Inclusion criteria.

#### Administration of tool pre-test

Researcher has informed to the mothers of toddler to get assemble nearby to the Anganwadi of selected community at 1 pm to participate in the study. Then, written informed consent was taken from the selected mothers of toddler participating in main study. Group of 25 mothers of toddler was taken each day, that is, on January 2, January 3, January 4, and January 5, 2020, to complete the 100 required number of samples. Then, the structured knowledge questionnaires were distributed to mothers of toddler to conduct the pre-test and 20 min were allotted to solve the questionnaires.

#### Structured teaching program

Structured teaching knowledge was imparted to the mothers of toddler regarding prevention and first aid management of FBA with the help of AV aids and demonstration method

for 45 min after conducting the pre-test. The teaching was interactive where mothers of toddler were encouraged to perform re-demonstrations too and to come with their own thoughts, opinions, and feedback.

## Conducting post-test

A post-test was administered to selected mothers of toddler on the same place at 12 pm on the 7<sup>th</sup> day of teaching, that is, on January 8, January 9, January 10, and January 11, 2020. On the 3<sup>rd</sup> day of post-test, two mothers of toddler were not present at home, so 23 mothers of toddler were taken, and on the 4<sup>th</sup> day of post-test, those mothers were added up with the group of 25 mothers of toddlers. Hence, all mothers had participated in the post-test study.

## Statistical analysis

Descriptive statistics are useful for summarizing empirical information; inferential statistics which are based on laws of probability provide a means of drawing conclusion about the population from which data were obtained for the sample.

The data obtained were planned to be analyzed on the basis of the objectives of the study using descriptive and inferential statistics.

- The data were arranged in master sheet
- Description of the mothers of toddler with respect to demographic variables was presented using frequency and percentage
- Mean and standard deviation was used to evaluate the effectiveness of structured teaching program
- Data were presented in tables, graphs, and diagrams. The level of knowledge was grouped from poor to excellent
- Further statistical significance of the effectiveness of structured teaching program using paired *t*-test
- The association between the post-test knowledge of mothers of toddler and selected demographic variable was tested using Chi-square test.

## RESULTS

Section I: Demographic data of the subjects in frequency and percentage

- Maximum 64% of mothers of toddler were 18–24 years of age, 22% of mothers of toddler were of 25–31 years of age, and 14% of mothers of toddler were in 32–38 years of age
- Majority of the mothers of toddler that is 83% were having primary educational background, 11% of mothers of toddler had studied up to secondary education
- About 98% of mothers of toddler were housewife and doing farming, 2% of mothers of toddler were doing private services
- Maximum 90% of mothers of toddler were belonging to Hindu, 6% of mothers of toddler were Muslims, and 4% of mothers of toddler were belonging to Christian religion
- About 72% of mothers were having two toddler children, 48% of mothers were having one toddler child at home,

other 22% of mothers were having three toddler children at home, and remaining 2% of mothers were having more than 3 toddler children

- About 58% of mothers were having male toddler children and 42% of mothers were having female toddler children
- Majority of the mothers of toddler that is 79% were not having previous knowledge related to FBA in children's, and remaining 21% of mothers of toddler were having previous knowledge related to FBA in children's
- Maximum 68% of mothers of toddler were not knowing about FBA in children, 16% of mothers of toddler had got the previous knowledge through family members, 4% of mothers of toddler had got the knowledge through mass media, and again 8% of mothers of toddler had got the knowledge regarding FBA from health-care professionals
- About 37% of mothers of toddler were living in nuclear family and 63% of mothers of toddler were living in joint family.

Section II: Assessment of pre-test and post-test knowledge of mothers of toddler regarding prevention and first aid management of FBA in children

- In pre-test, 0% of mothers of toddler had poor knowledge, 31% of them had average knowledge, 68% of them had good knowledge, and 1% of them had very good knowledge
- About 59% of the mothers of toddler in the post-test had very good knowledge, 4% of them had average knowledge, 34% of them had good knowledge, and 3% of them had excellent knowledge regarding prevention and first aid management of FBA in children
- Post-test knowledge range in mothers of toddler was higher than their pre-test knowledge range.

Section III: Effectiveness of structured teaching program on knowledge regarding prevention and first aid management of FBA in mothers of toddler

- The mean post-test knowledge (18.87) was apparently higher than the pre-test knowledge (13.72) suggesting that the structured teaching program was effective in increasing the knowledge regarding prevention and first aid management of FBA in mothers of toddler
- The calculated *t*-value for knowledge (19.85) was more than the table value (1.66) at 99 degree of freedom for 0.05 level of significance
- $H_0$ : Thus, null hypothesis is rejected and it was concluded that structured teaching program on knowledge regarding prevention and first aid management of FBA in mothers of toddler was effective

Section IV: Question wise analysis to assess the effectiveness of pre-test and post-test knowledge of mothers of toddler regarding prevention and first aid management of FBA

- In question wise analysis shows that pre-test mean obtained 13.72, whereas post-test mean was 18.87, signifies that there was significant increase in the knowledge regarding

prevention and first aid management of FBA in mothers of toddler

- There were certain questions which have confused to the mothers of toddler resulted in decrease in some of post-test knowledge, for that particular again, the education was imparted where the mothers were having doubt, which got cleared at the end when the feedback was taken from them regarding the questions they got less in post-test. Therefore, the post-test knowledge was kept same as they have marked in post-test earlier and hence overall post-test knowledge was higher than pre-test knowledge

Section V: Association of pre-test and post-test knowledge of mothers of toddler regarding prevention and first aid management of FBA with selected demographic variables

- There was a significant association of pre-test and post-test knowledge in previous knowledge related to FBA in children (6.3528) of mothers of toddler regarding prevention and first aid management of FBA with demographic variables.

## DISCUSSION

A pre-experimental research study conducted in 2019 by Noor Al Huda Ali A. H. Saeed, Israa Hussein Hamzah, at Cancer Research Institute, located in South India. The objective of this study, to determine the effectiveness of a structured teaching program on knowledge about home management of chemotherapy side effects among parents, is determined and also aimed at finding an association between the pre-test knowledge score of parents and selected baseline information of subjects as well as children. The research design adopted for this study is pre-experimental, one-group pre-test, post-test design, to measure the effectiveness of structured teaching program. The study was conducted on 109 mothers of children with leukemia present in the selected hospital. Formal written permission was obtained from the concerned authority before the data collection. The instructions were given in either Tamil or English, with the content based on care of leukemia patients. The researcher established good rapport with mothers and children and explained the study. During the pre-test period, all participants were made familiar with the structured questionnaire on knowledge about caring for leukemia patients. A self-structured observational checklist also analyzed how the mothers took care of children with leukemia. The structured teaching intervention was carried out using a 20 min. It included the definition of leukemia, etiology, signs and symptoms, clinical manifestations, diagnostic findings, and treatment including management and chemotherapy. This was repeated 3–4 times for each participant. In the post-test period, using the same structured knowledge questionnaire, practice was assessed through the interview method by direct observation. A structured knowledge questionnaire and observational checklist were developed by the research team based on a review of the literature and expert guidance. The tools were the following: Section A had two tools: Tool 1: The



demographic profile consisted of background variables (age, sex, education, occupation of mother, number of siblings and children, income, family type, and duration of hospital stay). Tool 2: The structured knowledge questionnaire consisted of 20 questions on knowledge about leukemia, its definition, etiology, clinical manifestation, diagnostic findings, treatment and drugs, and side effects. Section B consisted of 20 items (structured practice observational checklist) to assess the practice of care related to hygiene, diet, sleep, medications, and diversional therapy at the time of hospital stay. The scoring was as follows: Inadequate knowledge (1–10 correct answers); moderate knowledge (11–15 correct answers); and adequate knowledge (16–20 correct answers). The result founded that most children were between 3 and 12 years old (58%). The male-to-female ratio was 1.6, and 46% of mothers had only one child; 29% and 18% of them had two and three children, respectively, and the remainder (6%) had four children. Only around 2% of mothers had studied above the post-graduate level, and the rest were below the graduate level of education. Almost 42% had only studied until high school. For occupation, 25% were unemployed; 23% and 33% had government jobs and private jobs, respectively. Family income varied and was equally distributed among the different earning levels. Most were from semi urban and/or urban areas. The age of children and number of children had a significant association with the knowledge score and mothers' practice of care of children with leukemia before the intervention. Post-intervention, education of the mother, and sex of the child were significantly associated with the mothers' knowledge and practice of care for children with leukemia. Before the intervention, many more mothers had inadequate (38.53%) and moderate knowledge (34.86%) than adequate knowledge (25.68%). These numbers changed significantly after the intervention, and the study found that the total number of mothers with moderate (29.35%) and adequate knowledge (66.05%) increased significantly. Similar trends were seen for practice of care where the unsatisfied with care aspect, which was 35.77% before the intervention, dropped to 2.75% during the post-test period. The mean knowledge (8.59) increased to 13.66, which was highly significant ( $p \leq 0.001$ ). The scores calculated for different aspects of care showed that the overall mean knowledge score of 9 during the pre-test period was increased significantly to 18.75 after the intervention. The changes were seen in all the aspects studied. From the study results, it can be concluded that a structured teaching program on knowledge about home management of chemotherapy side effects was found to be effective in increasing the knowledge among parents of children who receive chemotherapy.<sup>[3]</sup>

With regard to same study, in the present study, "Researcher evaluated effectiveness of Structured Teaching Program on knowledge regarding Prevention and First aid management of FBA in mothers of toddler in selected rural community." A quasi-experimental one-group pretest-posttest research design was used. A total of 100 mothers of toddler were selected by purposive sampling technique as per the inclusion

criteria. Structured knowledge questionnaires were used as an instrument which consisted of two sections. Section A consisted of 8 items regarding demographic variable and Section B consisted of questionnaires related to meaning of FBA, incidence, clinical manifestations, diagnostic test, first aid management, preventive measures, and complications of FBA. Before the collection of data, researcher was obtained permission from competent authority of the selected rural area and informed consent was taken from all the participants. Pre-test was conducted to assess the knowledge of mothers of toddler regarding prevention and first aid management of FBA using structured knowledge questionnaire on day "0." On the same day, structured teaching program was also administered to a mother of toddler regarding prevention and first aid management of FBA. On the 7<sup>th</sup> day, post-test was conducted to assess the gain in knowledge using the same structured knowledge questionnaire on the same sample.

The findings of the study revealed that highest percentage is that 64% of mothers of toddler were 18–24 years of age, 83% of mothers of toddler were having primary education, 98% of mothers of toddler were housewife/farming, 90% of mothers of toddler were belonging to Hindu religion, 72% were having two toddler children, 58% were having male toddler children, 79% were not having previous knowledge related to FBA in children, 68% of mothers of toddler were not knowing about FBA in children, and 37% of mothers of toddler were living in nuclear family. In this study, findings show that pre-test knowledge mean score was 13.72 and post-test mean score was 18.87. The post-test mean score was significantly greater than the pre-test mean score. The data presented show that *t*-value calculated between mean pre-test and post-test score was statistically highly significant (calculated *t*-value = 19.85, table value  $t = 1.66$ ,  $P < 0.05$ ). Hence, the null hypothesis ( $H_0$ ) was rejected and  $H_1$  was accepted. The present study concluded that the mothers of toddler lacked appropriate knowledge regarding prevention and first aid management of FBA. After the structured teaching program, overall findings suggest that considerable improvement was noticed in mothers of toddler knowledge. The structured teaching program was effective in increasing the knowledge regarding prevention and first aid management of FBA in mothers of toddler in selected rural community.

## CONCLUSION

From the study findings, it is concluded that the structured teaching program was effective in improving the knowledge of mothers of toddler regarding prevention and first aid management of FBA.

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## FINDINGS

Most of the 64% of mothers of toddler were 18–24 years of age, majority 83% of the mothers of toddler were having primary educational background, maximum 98% of mothers of toddler were housewife/farming, maximum 90% of mothers of toddler were belonging to Hindu religion, 61% of the mothers were having two toddler children, 58% of the mothers of toddler were having male toddler child, 79% were not having previous knowledge related to FBA in children, 68% of mothers of toddler were not knowing about FBA in children, and 63% of mothers of toddler were living in joint family. The mean score for the pre-test was 13.72 and for post-test was 18.87. Paired *t*-test was applied and calculated *t*-value for knowledge (19.85) was more than the table value (1.66) at 99 degree of freedom for 0.05 level of significance. Hence, it was statistically interpreted that the structure teaching program was effective in improving the knowledge regarding prevention and first aid management of FBA in mothers of toddler in selected rural community and there was a significant association of post-test knowledge with demographic variables, that is, previous knowledge related to FBA in children (6.3528) was higher than the table value at 5% level of significance.

## CONFLICTS OF INTEREST

1. The study was confined to specific geographical area, which imposes limits to any larger generalization
2. The finding of the study was restricted to the respondents under study, only from selected community area
3. The data were collected from 100 samples to find out the knowledge. It could be done on more samples for the larger generalization.

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