

# Impact of Pharmacists' Intervention in Breastfeeding Mothers' Knowledge about Child Immunization

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## ABSTRACT

**Background:** Vaccines are recommended during the early phases of life to prevent against the serious deadly diseases that may occur in the long run. **Aim:** The aim of the study is to find out the impact of Pharmacists' intervention on Knowledge about Immunization among breast feeding mothers. The study also aimed at assessing the attitude and practice of mothers regarding breastfeeding and immunization, identifying the barriers in effective immunization. **Materials And Methods:** An educational interventional study was carried out among 192 samples in selected villages of Bengaluru. The data was collected by using self-designed content validated questionnaire and responses were recorded. All information's were processed and analyzed by using Microsoft excel and latest version SPSS software. **Results:** It was found that most of the mothers' knowledge (pre-test average score was 6.16 and post-test average score was 10.19) towards child immunization was found to be improved after suitable intervention. Time, cost, continuous relocation of residence and distance were identified as barriers in effective immunization. **Conclusion:** Immunization is an effective way of reducing child morbidity and mortality. According to our study, most of the mothers agreed to the benefits of immunization. The major hindrances of child immunization were also identified. With the right information and guidance provided by means of educational programs or by providing facilities for door-to-door immunization services we can further enhance mothers' knowledge, attitude and practice regarding immunization and breastfeeding.

**Keywords:** Immunization, Breastfeeding Mothers, Barriers, Adverse Event Following Immunization, Morbidity, Mortality, Intervention.

## INTRODUCTION

Immunization is a process in which antibodies are introduced into the body to stop contamination or to monitor disease caused by a positive pathogen, which is a disease-causing organism such as an infection, microbes, or parasite. By eliciting an immune response, the immunization "teaches" the body how to protect itself from the pathogen in a restricted environment.<sup>1</sup> Over the last decade, more than 1 billion children get vaccinated, and it prevents 2-3 million deaths every year. The number of children under the age of one who did not receive basic vaccines like Bacillus Calmette-Guerin (BCG), Hepatitis B, and Oral Polio

vaccine (OPV) was found to be around 19.7 million. As of June 2020, there are only 37% of children fully immunized, 56% are partially immunized, and 7% have never been immunized.<sup>2</sup> Every year vaccination towards Vaccine Preventable Disease (VPD) prevents debilitating illness and disability, saving thousands and thousands of younger lives globally.<sup>3</sup> In India, about 5 lakh children die every year due to VPD and almost 89 lakh are at risk of developing the disease due to partial or no immunization. One of the major challenges is that children are still being missed from immune coverage. The leading cause of death in children under 5 of age are malaria, pneumonia, all of which can be prevented by simple interventions

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like immunization, adequate nutrition, safe water, food, and quality care. Hence improving mother's knowledge has a positive impact on child immunization and good childcare practice in our society. Despite the continuous efforts made by the government, most of the children are not getting vaccinated. Hence the purpose of the study is to improve mother's knowledge towards Immunization and to find out various barriers associated with immunization.<sup>4</sup>

The objectives of the present study are to assess and improve the Knowledge on immunization among breastfeeding mothers, to assess the attitude and practice of mothers on immunization and breastfeeding and to identify the barriers in effective immunization.

## MATERIALS AND METHODS

### Participants and Study Design

This interventional study was conducted for a period of six months in selected villages of Bengaluru District. Clearance was obtained from Institutional Ethics Committee of Acharya & BM Reddy College of Pharmacy (Ref No: ABMRCP/IEC/2020-21/03). The subjects for the study were identified by the investigators by conducting a community visit with the help of Asha workers and Anganawadi teachers, and door to door interviews were also carried out based on the inclusion and exclusion criteria. The purpose of the study was explained to the subjects and the consent was obtained. A total of 203 samples were collected using convenient sampling method and due to insufficient data 11 samples were omitted. Relevant data (demographic details, immunization card) were recorded on the case report form, and the subjects were administered the other study tools to obtain relevant information. The data thus obtained was entered in Microsoft Excel Sheet and was analyzed appropriately.

Sample size was calculated based on the formula:

$$S = Z^2 * P * (1 - P) / M^2$$

S= Sample size for infinite population

Z= Z score

P= Population proportion

M= Margin of error (5% or 0.05)

### Study Tools

The following tools were employed to obtain information pertaining to the study:

1. **Informed consent form:** The subject was explained about the study and their consent was obtained prior to the study.
2. **Self-designed and validated questionnaire:** A self-designed validated questionnaire was given. The method of validation adopted was content validation.
3. **Patient information leaflet:** The general information regarding immunization was distributed in both local (Kannada) and English language.

### Statistical Analysis

All recorded data were entered using MS Excel software and analyzed using SPSS 22 version software for determining the statistical significance. The statistical test used for the analysis was paired samples *t*-test and the results were expressed in proportions and descriptive statistics like mean, standard deviation and standard error of mean were calculated. To compare the knowledge group student paired *t* test was conducted.

## RESULTS

The study was carried out for a period of six months, and a total of 203 of samples were collected and out of these 11 samples were dropped out due to insufficient data and the overall sample size was 192. Out of 192 subjects 38 (19.79%) were working and 154 (80.2%) were housewives as shown in below Figure 1. Figure 2 indicates that 12 (6.25%) had completed primary schooling, 32 (16.66%) had completed high school, 37 (19.27%) had completed PUC and 111 (57.81%) had completed degree. Our study was carried out in primigravida mothers aged 22 to 30 years.

### Distribution of Responses Received to KAP Questionnaire

Respondents were interviewed using a self-designed questionnaire about their knowledge, attitude and practice related to immunization. The KAP questionnaire

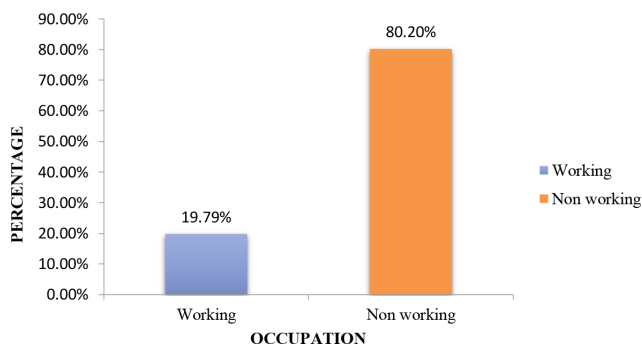


Figure 1: Distribution of subjects to occupational status.

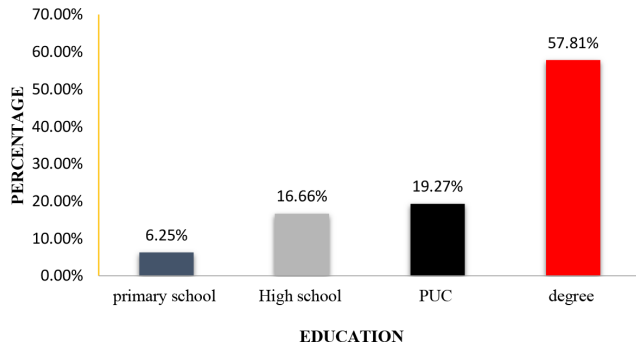


Figure 2: Distribution of subjects by educational status.

| Table 1: Distribution of response to knowledge questions.                                 |          |        |           |        |
|---|----------|--------|-----------|--------|
| Question  | Pre-test |        | Post-test |        |
|   | N        | %      | N         | %      |
| Why is vaccination given?   | 189      | 98.43% | 192       | 100%   |
| Which of the following is a vaccine?  | 148      | 77.08% | 190       | 98.95% |
| When should the 1 <sup>st</sup> dose of vaccine be given?                                 | 182      | 94.79% | 192       | 100%   |
| What is polio?  | 98       | 51.04% | 184       | 95.83% |
| How many times Hepatitis vaccine is recommended?  | 64       | 33.33% | 169       | 88.02% |
| Vaccine that is administered within 12 hr after birth                                     | 123      | 64.06% | 190       | 98.95% |
| Which among the following vaccine is given yearly for children more than 6 months of age? | 25       | 13.02% | 155       | 80.72% |
| Knowledge regarding the side effects of polio vaccine.                                    | 66       | 34.37% | 179       | 93.22% |
| Respondent's knowledge regarding the use of Hib vaccine                                   | 27       | 14.06% | 133       | 69.27% |
| Knowledge regarding route of administration of vaccine                                    | 79       | 41.14% | 182       | 94.79% |

consisted of 23 questions divided into three domains – Knowledge, Attitude and Practice. The knowledge domain consisted of 11 questions, Attitude domain consisted of six questions and practice domain had six questions.

There were 11 multiple choice questions in knowledge domain. The respondent's knowledge about immunization was assessed and improved based on their responses. The attitude domain consisted of six multiple choice questions. There were three general questions to assess the attitude of the respondent regarding breastfeeding

and immunization, while the remaining three questions assess the personal barriers related to immunization. There were six multiple choice questions in practice domain. One question to assess about the side effects of vaccine, two questions to assess about the source of information about Immunization and remaining three questions to assess the practice regarding breastfeeding and Immunization. The distribution of response to knowledge questions are as given below in Figure 3 and Table 1.

In our study majority of the study subjects had less knowledge regarding immunization in the pretest (52.13%) which was improved post intervention (91.97%) which is shown in Figure 4. Out of 192 subjects, 148(77.08%) strongly agreed and 43(22.39%) agreed to exclusive breastfeeding is the most beneficial form of nutrition for first 6 months to the child and 1(0.52%)

had neutral approach. The graphical representation shown above specifies that majority of the study population had a positive attitude, and a small part of study population had neutral approach.

In our study a few subjects agreed that distance (9.89%) and cost (5.72%) acted as barriers to

Immunization. A percentage of study subjects admitted that time and continuous relocation of residence respectively acted as a barrier in effective immunization.

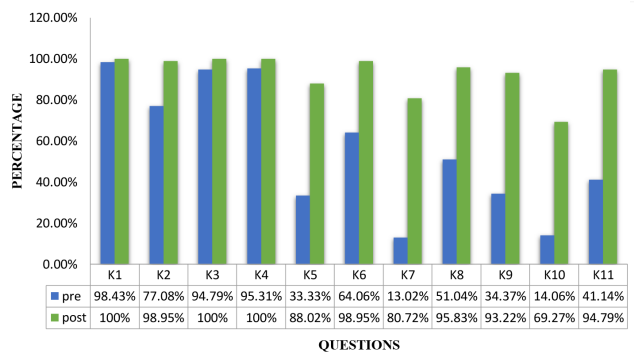


Figure 3: Distribution of response to knowledge questions.

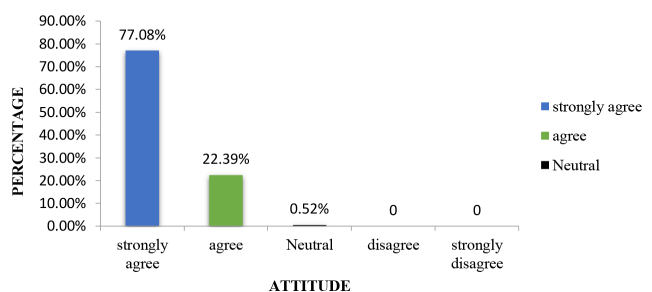


Figure 4: Distribution of response to exclusive breastfeeding is the most beneficial form of nutrition.

## DISCUSSION

Immunization is commonly regarded as one of the best public health achievements in industrialized nations during the 20<sup>th</sup> century, decreasing morbidity and mortality from a huge range of VPD. According to WHO about 23 million children under the age of one year did not receive even the basic vaccines. Hence by providing proper intervention it can create a positive impact on the mothers regarding immunization.

An educational interventional study was performed in the selected villages in Bengaluru district by enrolling 192 study subjects conducted for a period of 6 months. Out of 192 subjects included in the study, most of them belonged to age group of 22-30 years. The average age of the study subjects was 26 years which is similar to the mean age of participants as in the study of Dharmalingam A *et al.*, conducted in Pondicherry.<sup>5</sup> Majority (57.8%) of the participants' level of education is high unlike in the study conducted by Dharmalingam A *et al.*, in which the literacy level is low, which shows that there is a significant relationship between educational status and knowledge about child immunization.<sup>5</sup> Our study includes only the Primigravida mothers which is in line with the study conducted in southern India by Kumar A *et al.*, which signifies that first time mothers need proper education regarding child immunization and child care.<sup>6</sup> Majority (98.43%) of the subjects were aware about the importance of immunization even before the intervention was made and was further improved post intervention unlike in the study conducted by Awadh AI *et al.*<sup>7</sup> From our study it was evident that majority of mothers were knowledgeable about good breastfeeding practices which is in contrary to the study conducted by Akinremi ZO *et al.*, were lot of misconception regarding early initiation of breastfeeding was observed.<sup>8</sup> The majority of study subjects (77.08%) involved in this study had agreed that exclusive breastfeeding is beneficial to their child which is in comparison to a study conducted by Jino GB *et al.*, which signifies that they are knowledgeable about the benefits of breastfeeding and breast milk.<sup>9</sup> In our study, most (82.81%) of the respondents were able to provide breast milk on time whenever the baby demands whereas in a study conducted by Akinremi ZO *et al.*, in Nigeria and Zhou Q *et al.*, in Ireland, majority of the subjects were embarrassed to provide breast milk in public.<sup>8,10</sup> A few subjects agreed that distance (9.89%) and cost (5.72%) acted as barriers to immunization but in a similar study conducted by Rahman M *et al.*, 54.8% responded that distance act as a barrier and in a study conducted by Hayar TMM *et al.*, concluded that cost is a major barrier in immunization.<sup>11,12</sup> In our study, a percentage of study subjects admitted that time and continuous relocation

of residence respectively acted as a barrier in effective immunization which is in line with the study conducted by Tefera YA *et al.*, and Bangura JB *et al.*<sup>13,14</sup> In our study, 8.33% presented with fever as an adverse event and it was managed with the help of a physician which is in line with a study conducted by Datta A *et al.*<sup>15</sup>

### The study has certain limitations

- The data was collected only from selected villages, and it may not be a representative of pattern across the city.
- The sample size of the study was less.
- The study only represents the rural population.

## CONCLUSION

Immunization is a simple and effective way in reducing morbidity and mortality associated with various range of VPD. Apart from breastfeeding, providing immunization is also the prime responsibility of mothers which must be carried out without any failure. According to our findings, majority of the mothers agreed about the benefits of immunizing their child on time but were only aware of the basic vaccines like polio and BCG. Most of them were unaware of the vaccines like Hepatitis-B, Hib, and Influenza. We were able to provide intervention to improve mothers' knowledge regarding immunization. It was also found that there were lot of factors that acted as hindrance for effective immunization which includes indirect costs related to vaccines, distance from their residence to immunization center, and time constraints due to employment. Few of the mothers identified AEFI and they were knowledgeable enough to seek medical attention, rather than adopting for self-care. In a nutshell, by imparting proper educational interventional strategies, door to door immunization services, adequate facilities for immunization and conducting various community awareness programs can enhance breastfeeding knowledge, attitude and practice towards immunization and breastfeeding.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## ABBREVIATIONS

**ADRs:** Adverse Drug Reactions; **AEFI:** Adverse Events Following Immunization; **BCG:** Bacillus Calmette – Guerin; **OPV:** Oral Polio Vaccine; **Hib:** Haemophilus influenza type b; **KAP:** Knowledge, Attitude and Practice; **SPSS:** Statistical Package for the Social Sciences; **VPD:** Vaccine Preventable Disease.

## SUMMARY

Immunization is a method adopted worldwide to prevent VPDs. Due to many factors children are still being missed from timely immunization. Our study aimed to find out the impact of Pharmacists' intervention on Knowledge about Immunization among breast feeding mothers. This study also aimed at assessing the attitude and practice of mothers regarding breastfeeding and immunization, identifying the barriers in effective immunization. An educational interventional study was carried out among 192 samples in selected villages of Bengaluru. The data was collected by using self-designed content validated questionnaire and responses were recorded. All information's were processed and analyzed by using Microsoft excel and latest version SPSS software. The result after providing suitable intervention was that the knowledge of the mothers was increased and the major hindrances found were time, cost, continuous relocation of residence and distance. Thus, we concluded that educating the mothers about immunization has a positive impact on the immunization routine of the child.

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