

Effectiveness of an information booklet on knowledge regarding asthma management among parents of children suffering from asthma at AIIMS, Jodhpur, India

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Childhood is the most precious gift from god. A child is carefree, happy and

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Key words: Asthma; Childhood

INTRODUCTION

Childhood is the most precious gift from god. A child is carefree, happy and is untouched by the worries of everyday life but all are not so lucky because for many children playing in grass is a distant dream as even this small game can threaten their life by causing devastating respiratory disorder, which is known as bronchial asthma [1].

Asthma is a chronic inflammatory disorder of the airways. Inflammation of airways causes recurrent episodes of wheezing, breathlessness, chest tightness, and cough, especially at night or in the early morning [2]. 3-35% of people in the world (300 million individuals) suffer from asthma [3] and 100 million more patients may be added to this statistic until 2025 [4]. Aggarwal et al. has reported asthma prevalence to be 2.38% in Indian population based on a survey conducted in Delhi, Chandigarh, Kanpur and Bangalore [5]. According to WHO report 2016, asthma is the most common chronic disease of childhood, the primary cause of school absences, and the third leading cause of hospitalization in children younger than the age of 15 years [6].

Asthma is a non-curable but preventable disease [7]. Treating children with asthma is not only limited to medication therapy and resistance against allergens, but education also plays a vital role. In this regard, Rekha et al. [8] reported increase in knowledge of mothers with asthmatic children after a structured teaching program. An RCT conducted on 50 parent's shows significant improvement in the knowledge with the help of multimedia program on asthma [9]. According to Clark et al. knowledge of asthma provides the foundation for parents and children to make decisions in response to changing conditions such as climate changes, allergen levels and activity levels [10]. Hence, the role of training is important to teach children and their parents how to control the disease.

The incidence of asthma is increasing among children and poor knowledge of parents contributes to increase in morbidity and mortality due to it. This study aimed to identify the areas in which knowledge & practices of parents are lacking related to asthma and then empowering them with knowledge with the help of an information booklet. Improved knowledge may help parents to adopt better practices. It may also help in bridging the existing gap between recommended and actual practices.

MATERIALS AND METHODS

A quasi-experimental, pre-test post-test control group study was conducted on parents of children with asthma. The required sample size was calculated

from effect size ($d=0.94$) obtained from pilot study for test power of 80% at 5% level of significance which came to be 21 but researcher decided to take 30 subjects in each group. Non-probability purposive sampling technique was used to select the subjects. The inclusion criteria included: parents who were available in paediatric OPD, who can read and understand Hindi or English, who were having asthmatic child between 6 yr to 12 yrs, diagnosed for more than 1 month and called for follow-up within 3-5 weeks and parents of children on inhaled corticosteroids. Exclusion criteria included: parents of children with any congenital abnormality or any history of chronic, heart, vascular or kidney disease.

The instruments used in this study included socio demographic data sheet containing 10 questions about child and parents (gender, age, parent education, parent occupation, any family member in health related setting, monthly income, place of living and duration of diagnosis) and knowledge questionnaire which include 30 multiple choice questions related to MCQ related to asthma, triggers, sign & symptoms, prevention, treatment and myths. One mark was given to right answer and zero mark was given to wrong answer. There was no negative marking. Knowledge level were categorized as poor (score <10), fair (11-20) and good (21-30). Reliability was assessed using KR 20 and was found to be 0.82. The instrument was validated by 9 experts including paediatricians, child pulmonary health specialist and child health nurse specialists.

The study was conducted in three stages:

a. The stage before intervention

After obtaining ethical clearance from the institute ethical committee of AIIMS, Jodhpur, subjects who were fulfilling the inclusion criteria were selected from the Paediatric OPD of AIIMS, Jodhpur by purposive sampling technique. Out of 60 subjects, first 30 were allocated to the control group and next 30 to the experimental group. After getting acquainted with the parents, the researcher introduced herself and stated the objectives of the study, its importance and how the research is going to be done, then informed written consent is obtained ensuring confidentiality of information and pre-test was obtained from both the groups.

b. The stage of intervention

In this study an information booklet was used to achieve the objectives of this study. An information booklet on asthma was developed after reviewing literatures, books and booklets and pamphlets available from various international asthma societies. The booklet included information

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about asthma, its triggers, sign and symptoms, prevention, asthma attack, diagnosis, medication, proper use of inhaler, breathing exercises and some facts about asthma.

The booklet was validated and approved from the experts. After obtaining the approval booklet was given to subjects of experimental group after getting pre-test data from them. A short briefing about the topics covered in the booklet was also given to them. Subjects of control group received no special treatment.

c. The stage after intervention

When the subjects came for the follow-up after 3-5 weeks, post-test data was collected. Information booklet on asthma was also given to subjects of control group after obtaining post-test data from them. Data were statistically analysed using SPSS version 16. Descriptive statistics include frequency, percentage, mean and standard deviation. Inferential statistical methods include unpaired t-test to measure the effectiveness of the information booklet and chi-square to check the association of knowledge with demographic variables.

RESULTS

Description of socio demographic variables of teachers

TABLE 1

Frequency and percentage distribution of socio demographic variables (N=250).

| Variables | | Control Group (n=30) | | Experimental Group (N=30) | | p-value |
|---|------------------------------|----------------------|------|---------------------------|------|-----------------------|
| | | n=30 | % | N=30 | % | |
| Parent | Father | 20 | 66.7 | 23 | 76.7 | 0.76 ^(ns) |
| | Mother | 10 | 33.3 | 7 | 23.3 | |
| Age of Parent | <20 years | 0 | 0 | 0 | 0 | 0.81 ^(ns) |
| | ≥ 20-30 years | 8 | 26.7 | 8 | 26.7 | |
| | ≥ 30-40 years | 18 | 60 | 19 | 63.3 | |
| | ≥ 40-50 years | 4 | 13.3 | 3 | 10.0 | |
| Education of the parent | Below 10 th class | 9 | 30 | 10 | 33.3 | 0.77 ^(ns) |
| | 10 th pass | 7 | 23.3 | 9 | 30 | |
| | 12 th pass | 9 | 30 | 5 | 16.6 | |
| | Graduate and above | 5 | 16.6 | 6 | 20 | |
| Occupation of the parent | Government job | 2 | 6.7 | 5 | 16.7 | 0.086 ^(ns) |
| | Private job | 8 | 26.7 | 4 | 13.3 | |
| | Business | 4 | 13.3 | 7 | 23.3 | |
| | Farmer | 6 | 20.0 | 5 | 16.7 | |
| | Daily wage worker | 2 | 6.7 | 3 | 10.0 | |
| | Homemaker | 8 | 26.7 | 6 | 20.0 | |
| Family member in health related setting | Yes | 4 | 13.3 | 2 | 6.7 | 0.56 ^(ns) |
| | No | 26 | 86.7 | 28 | 93.3 | |
| Family income per month (in Rs.) | <5,000 | 1 | 3.3 | 5 | 16.7 | 0.57 ^(ns) |
| | 5,000-10,000 | 14 | 46.7 | 11 | 36.7 | |
| | >10,000 | 15 | 50.0 | 14 | 46.7 | |
| Place of living | Rural | 17 | 56.7 | 14 | 46.7 | 0.12 ^(ns) |
| | Urban | 13 | 43.3 | 16 | 53.3 | |
| Age of the child | 6-8 years | 7 | 23.3 | 9 | 30.0 | 0.53 ^(ns) |
| | 8-10 years | 13 | 43.3 | 10 | 33.3 | |
| | 10- 12 years | 10 | 33.3 | 11 | 36.7 | |
| Gender of the child | Male | 19 | 63.3 | 17 | 56.7 | 0.85 ^(ns) |
| | Female | 11 | 36.7 | 13 | 43.3 | |
| Duration of diagnosis | Below 6 months | 6 | 20.0 | 13 | 43.3 | 0.30 ^(ns) |
| | 6 months- 2years | 7 | 23.3 | 14 | 46.7 | |
| | >2years | 17 | 56.7 | 3 | 10.0 | |

*Note: ns-non significant, s-significant *chi square, level of significance <0.05

Table 1 describes the socio demographic characteristics of the 60 subjects at the baseline survey. There were 30 subjects in each group and result shows two groups had statistically comparable baseline characteristics.

Table 2 describes pre-test and post-test knowledge in experimental and control group. The result shows that mean pre-test & post-test knowledge scores of subjects were almost similar in control group (14.3 ± 3.86 vs. 14.2 ± 3.58). However, in experimental group post-test knowledge scores has improved as compared to pre-test (24.9 ± 2.85 vs. 13.2 ± 4.85). Most of the subjects (76.7%) in control group had fair knowledge in pre-test. This remains same in post-test of control group. In experimental group, majority of subjects 63.3% had fair knowledge in pre-test whereas, 76.7% had adequate knowledge in post-test.

Table 3 show that there is significant improvement in knowledge of subjects in experimental group ($t=11.449$, $p<0.05$). Hence, null hypothesis was rejected. This could be interpreted as information booklet on asthma was effective in improving the knowledge of subjects in experimental group.

Table 4 shows that association with knowledge and selected demographic variables using Chi-square. The findings clearly reveal that there was significant association between level of knowledge and education of parent, occupation and monthly income of family ($p<0.05$). There is no significant

TABLE 2

Pre-test & post-test knowledge score regarding asthma management among parents of children having asthma in control and experimental group

| S. No. | Knowledge Score | Control Group (n=30) | | Experimental Group (N=30) | |
|---------------|--------------------|----------------------|-----------------|---------------------------|-----------------|
| | | Pre-test | Post-test | Pre-test | Post-test |
| 1. | Good (21-30) | 1 (3.3%) | 1 (3.3%) | 2 (6.7%) | 23 (76.7%) |
| 2. | Fair (11-20) | 23 (76.7%) | 23 (76.7%) | 19 (63.3%) | 7 (23.3%) |
| 3. | Poor (≤ 10) | 6 (20%) | 6 (20%) | 9 (30%) | 0 (0%) |
| Mean \pm SD | | 14.3 \pm 3.86 | 14.2 \pm 3.58 | 13.2 \pm 4.85 | 24.9 \pm 2.85 |

TABLE 3

Comparison of post-test knowledge score of control and experimental group

| Measures | Control group Mean \pm SD | Experimental group Mean \pm SD | t-value | df | p-value |
|---------------------|-----------------------------|----------------------------------|---------|----|----------------------|
| Post-test knowledge | 14.2 \pm 3.58 | 24.9 \pm 2.85 | 11.449 | 58 | 0.000 ^(s) |

Note: Level of significant at $p < 0.05$ (df=58) (Independent t-test)

TABLE 4

Association between knowledge of parents with selected socio-demographical variables (n=60).

| Variables | | Level of Knowledge | | | Df | Chi-square value | p-value |
|---|------------------------------|--------------------|------|------|----|------------------|-----------------------|
| | | Good | Fair | Poor | | | |
| Parent | Father | 2 | 27 | 14 | 2 | 4.632 | 0.099 ^(ns) |
| | Mother | 1 | 15 | 1 | | | |
| Age of Parent | <20 years | - | - | - | 4 | 5.123 | 0.275 ^(ns) |
| | $\geq 20-30$ years | 2 | 12 | 2 | | | |
| | $\geq 30-40$ years | 1 | 24 | 12 | | | |
| | $\geq 40-50$ years | 0 | 6 | 1 | | | |
| Education of the parent | Below 10 th class | 0 | 12 | 7 | 6 | 19.317 | 0.005 ^(s) |
| | 10 th pass | 0 | 14 | 6 | | | |
| | 12 th pass | 0 | 9 | 2 | | | |
| | Graduate and above | 3 | 7 | 0 | | | |
| Occupation of the parent | Government job | 3 | 4 | 0 | 10 | 35.808 | 0.000 ^(s) |
| | Private job | 0 | 9 | 3 | | | |
| | Business | 0 | 9 | 2 | | | |
| | Farmer | 0 | 5 | 6 | | | |
| | Daily wage worker | 0 | 2 | 3 | | | |
| Family member in health related setting | Homemaker | 0 | 13 | 1 | 2 | 3.651 | 0.161 ^(ns) |
| | Yes | 1 | 5 | 0 | | | |
| Family income per month (in Rs) | No | 2 | 37 | 15 | 4 | 21.626 | 0.000 ^(s) |
| | <5,000 | 0 | 1 | 5 | | | |
| | 5,000-10,000 | 0 | 16 | 9 | | | |
| | >10,000 | 3 | 25 | 1 | | | |
| Place of living | Rural | 0 | 23 | 8 | 2 | 3.385 | 0.184 ^(ns) |
| | Urban | 3 | 19 | 7 | | | |
| Age of the child | 6-8 years | 2 | 10 | 4 | 4 | 6.526 | 0.163 ^(ns) |
| | 8-10 years | 1 | 13 | 8 | | | |
| | 10-12 years | 0 | 19 | 3 | | | |
| Gender of the child | Male | 1 | 25 | 10 | 2 | 1.171 | 0.557 ^(ns) |
| | Female | 2 | 17 | 5 | | | |
| Duration of diagnosis | Below 6 months | 2 | 14 | 3 | 4 | 3.509 | 0.477 ^(ns) |
| | 6 months-2 years | 0 | 14 | 7 | | | |
| | >2 years | 1 | 14 | 5 | | | |

*Note-level of significance $p < 0.05$, ns-non significant, s-significant

association of level of knowledge with other socio demographic variables. Thus, the null hypothesis was rejected.

DISCUSSION

The study result reveals that information booklet increased parents' knowledge in the experimental group after intervention. There is a significant difference between the mean of parents' knowledge before and after the intervention ($p < 0.05$). Similar results were found in a research conducted by Ahmed Reza Zarei et al. [11], results showed that knowledge score of parents increased significantly after training using a computer-based programme ($p < 0.05$). Another research conducted by Krishna et al. [12] on children with asthma, found that using multimedia education programs increase the knowledge of parents and children in order to control and prevent asthma attack. Parallel result were found in a research conducted on 60 mothers of children suffering from asthma which revealed that structured teaching program was effective in improving the knowledge with t-value of 6.56 and $p < 0.05$ [1].

This study revealed that there was significant association of knowledge with education and occupation of the parent and monthly income of family which was also seen in a study conducted by Prashanth PV [1].

LIMITATIONS

Only single setting was selected to conduct the study, hence the findings cannot be generalized.

Strength of the study:

- Information booklet on asthma was prepared from brief review of literature, books and various international asthma societies.
- Emphasis on correct knowledge related to asthma can improve the health status of the child.
- Information booklet was also given to subjects of control group after collection of post-test data.

RECOMMENDATIONS

- A study can be replicated on a large sample and in different setting thereby findings can be generalized for a larger population.
- A study can be conducted by using interventions like computer assisted instructions and video films on prevention and management of asthma.
- A study with a longer duration of intervention can be evaluated to get a clear picture.
- Randomized control trial can be done.
- A study can be conducted for the future research to seek systematic research and intervention to establish a better understanding of disease and prevention.

CONCLUSION

The study concluded that most of the parents in both the groups had inadequate knowledge related to asthma. Knowledge of parents in experimental group had significantly improved after implementation of information booklet. Parents as the primary caregivers are the first ones who encounter with diseases in their children. Adequate knowledge of parents helps in early identification and effective management of this disease

condition. Physician and nurses should always pay attention to educate the parents of children suffering from asthma. In routine, OPD physician and nurses are not able to give quality time to counsel the parents; an information booklet will help in bridging this gap and will further help in improvement of overall knowledge and practices of children.

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Nil.

CONFLICT OF INTEREST

There are no conflicts of interest.

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