Impact of Maternal Education on Pediatric Asthma Medication Compliance and Peak Expiratory Flow Rate

Erna Judith Roach, PhD
Maternal and Child Health, College of Nursing, Sultan Qaboos University, Muscat, Oman
Nalini Bhaskaranand, MD
Department of Pediatrics, Hi-Tech Medicare Hospital, Udupi, India

Purpose:
Pediatric asthma is the most common non-communicable chronic disease among children, triggering recurrent attacks of breathlessness and wheezing. It is prevalent among children in all countries irrespective of their level of development (World Health Organization, 2017). Medications play a significant role in the management and control of the symptoms. Compliance with the prescribed medication regimen for children is an arduous task for mothers. The reasons for poor medication adherence are: lower educational level, poor socioeconomic status, unmanageable regimens, fear about side effects, anger about the condition/treatment, and forgetfulness (Prakasam, & Sentilkumar, 2017), female gender, Asian ethnicity, living in smaller households, and diagnosis at an early age (Chan et al. 2016), side effects, drug safety, potential addiction, and perceived social stigma (Lycett et al. 2018). Educational intervention is vital to promote compliance, prevent asthma exacerbations, and improve the quality of life. Kalantari et al. (2017) reported that education improved the forced expiration and vital capacity, decreased the frequency of hospitalization and reduced school absenteeism among children. A Cochrane systematic review on adherence education revealed a benefit of 20% points better adherence over controls (Normansell, Kew, & Stovold, 2017). The purpose of the study was to investigate the impact of asthma education on the medication compliance status of mothers and assessed improvement in the peak expiratory flow rates of children.

Methods:
A quasi-experimental study was conducted in the pediatric outpatient departments’ in two hospitals in Karnataka, India. Eighty mothers and their children with asthma were randomized into the experimental (n=40) and control groups (n=40). Data collection instruments used were baseline proforma, medication compliance scale, daily asthma drug intake, and symptoms diary, Mini Wright peak flow meter, and a measuring tape. After the pretest on day one, asthma education was delivered through a video to the experimental group. The control group received routine instructions by the treating physicians. The post-test was conducted for both groups on day 180. The height of children was measured on day one, and their peak expiratory flow rate (PEFR) measurements were obtained on day 1, day 30, day 90 and day 180.

Results:
The posttest mean drug compliance score in the experimental group 33.58 ± 1.24 (CI: 33.18 – 33.97) was higher than the control group 30.73 ± 3.14 (CI: 29.72 – 31.73). The Wilcoxon signed-rank test showed significant difference in drug compliance scores from
pretest to posttest in the experimental group (p< 0.01) than in the control group. The Mann Whitney U test showed significant difference between the experimental and control group (p < 0.01) with mean difference of 2.18 (CI: 1.13 – 3.22). The two factors ANOVA for repeated measures of PEFR revealed significant improvement from pretest to follow up PEFR scores as F= 140.600, p< 0.01, and a significant difference in the PEFR between the experimental and control groups as F= 12.622, p< 0.01.

**Conclusion:**
Education is a cornerstone in the management of medication compliance for mothers of children with asthma. Education must be provided based on the level of understanding with language-specific educational materials.

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**Keywords:**
Asthma education, Medication compliance and Mothers of asthmatic children

**Abstract Summary:**
This quasi-experimental study investigated the impact of asthma education on medication compliance of mothers for their asthmatic children and assessed for improvement in the peak expiratory flow rates of children. Significant improvement was found in the asthma medication compliance and peak expiratory flow rate of children after video education.

**References:**
First Primary Presenting Author

**Primary Presenting Author**

Erna Judith Roach, PhD  
College of Nursing, Sultan Qaboos University  
Maternal and Child Health  
Assistant Professor  
Al Khoud  
Muscat  
Oman  

**Author Summary:** Dr. Erna Judith Roach is an Assistant Professor in the Department of Maternal and Child Health at College of Nursing, Sultan Qaboos University, Sultanate of Oman. Her specialization is Child Health Nursing. Dr. Roach has completed her Ph.D. in Nursing from Manipal University, India, in 2011. She is the recipient of the Venus International Foundation Award “Excellence in Child Health Nursing” in the year 2018. Her research interests are in health promotion of chronic childhood illnesses.

Second Author

Nalini Bhaskaranand, MD  
Hi-Tech Medicare Hospital  
Department of Pediatrics  
Consultant Paediatrician  
Ambalapadi  
Udupi  
India  

**Author Summary:** Dr. Nalini Bhaskaranand has obtained the Bachelor of Medicine, Bachelor of Surgery (MBBS) in 1975 from Karnataka Medical College, Hubli, India. She completed M.D Paediatrics from Kasturba Medical College in 1980 and joined as faculty in the Department of Paediatrics in the same college in 1981 and retired in July 2017. Dr. Nalini is currently working as a Consultant Paediatrician at Hi-Tech Medicare Hospital, Udupi, Karnataka, India. She is also a recipient of several awards.