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RESEARCH ARTICLE

A STUDY TO EVALUATE THE EFFECTIVENESS OF EDUCATIONAL PACKAGE (EP) IN TERMS OF PARENTAL ABILITY REGARDING SAFE ADMINISTRATION OF ORAL MEDICATION IN CHILDREN IN CIVIL HOSPITAL, PANCHKULA, HARYANA

***Sarika, Pawan Rekha, Passang Lhamu Bhutia, Pooja Kumari, Neha Kashyap, Nani Jasmine, Neha Devi, Neena Kumari, Nitika and Pooja Devi**

Himalayan Institute of Nursing Kala Amb, Ambala, India

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ABSTRACT

Introduction: Medications are an amazing discovery. They promote healing, reduce suffering and contribute to modern medical miracles. However, because thousand of new drugs have been developed recently because the health care environment is increasingly complex and because the patients are often sicker, there is increasing risk for medication errors (Shivayogi, 2014). Medication error are one of the serious problem in health care and can be source of significant morbidity and mortality in the health care setting medication error is recognized as the eight leading cause of death, but it can be prevented with strategies like safe administration of oral medication (Rekha, 2013). **Aim of the study:** To assess parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP). **Methods and materials**: This Quasi-experimental study using one group post test only research design was conducted at Civil Hospital, Panchkula, Haryana, India, using non probability purposive sample size 100 parents was used to collect the data regarding the safe administration of oral medication. 9 demographic variables of parents and 4 clinical variables of children were use to collect personal data. Observational checklists were used for the data collection with maximum score was 22 and the minimum score was 0 and analyzed with descriptive and inferential statistics. Educational Package (EP) was given to them in form of demonstration regarding safe administration of oral medication in children. After 3 (three) days post test was done to evaluate the effectiveness of Educational Package (EP) in terms of parental ability regarding safe administration of oral medication in children through observation checklist. **Results:** Out of 100 parents, majority of parents had excellent (59%) parental ability regarding safe administration of oral medication after implementation of Educational Package (EP). Qualification (0.376), health profession (0.515) and previous knowledge (0.557) were found to be associated at 0.05 level of significance. **Conclusion:** Based on the findings of the study, it is concluded that majority of parents had excellent (59%) level of parental ability regarding safe administration of oral medication in children. Educational Package (EP) help the parents to enhance their parental ability regarding safe administration of oral medication evidenced by the post test score. Educational Package (EP) must be demonstrating to the parents in order to improve parental ability regarding safe administration of oral medication in children.

Corresponding author:

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INTRODUCTION

According to WHO, health is defined as state of complete physical, mental and social well being and not merely the absence of disease or infirmity. As with all human actions, the decision regarding health behavior are influenced in part by external stimuli (Pankaj Agrawal, 2013). A medication is a substance use in the diagnosis, treatment or prevention of a disease (http:// en.m.wikipedia.org>wiki>ord.medication administration (2006), 6(1); 41-44).

Oral administration is a route of administration where a substance is taken through the mouth. Many medications are taken orally because they are intended to have systemic, reaching different parts of the body via the bloodstream (http://ezproxy.ouls.ox.ac.uk:2). Medication errors can be defined as failure in the treatment process that leads to, or has the potential to lead to harm to the patient. This error including inaccurate dosing as well as non adherence to medication regimens, place children at risk of morbidity and mortality

(Mohit D. Buddhadev, 2016). The stage of medication process include ordering/prescribing, transcribing/verifying, dispensing/delivering and administrating; medication error with pediatric patient have occurred at every stage of process. Medication errors affect the pediatric age group in all setting: outpatient, inpatient, emergency department, and at home. Children may be at special risk due to size and physiologic variability, limited communication ability, and treatment by non-pediatric health care providers (Daniel, 2015). According to the Joint Commission (2008), children are more vulnerable than adults to medication errors. For example, because of their rapid growth and wide range of size, children's medication often needs to be dosed based on weight. This often requires the need for more decimal points and fractional dosing (Kelly Gonzales, 2011). Medication errors directly impact the lives of the patients. It also leaves a lasting negative impression on the minds of the people about the hospital. These can be broadly divided into four categories–prescription error, administration error ,transcription error and dispensing errors (Rekha, 2013). Leape and colleagues reported more than 15 types of medication errors; wrong dose, wrong choice, wrong drug, unknown allergy, missed dose, wrong time, wrong frequency, wrong technique, drug-drug interaction, wrong routes, extra dose, failure to act on test, equipment failure, inadequate monitoring, preparation error (Ravi Kiran, 2016). Children's medications come in many forms, such as capsules, pills, and liquid. While liquid medication is often easier for children to swallow, there is a high potential for error when dosing (Kelly Gonzales, 2011). Parents should be educated about way to avoid common medication error in children. Strategies are needed to reduce pediatric home medication error and minimize adverse drug events and to provide medication information to parents (Rekha, 2013).

Need of the Study: Studies have shown that it can be hard to stay up-to-date on the latest scientific finding –but it's so important to learn what you should be doing. As evidence by the studies done in the past, we found out the result of medication error is due to the inadequate educational level of the parents regarding the safe administration. Therefore, the main aim of objectives is to provide an adequate education and knowledge regarding the proper and safe administration of oral medication to the children. Previous studies suggested that parents should be educated about way to avoid common medication error in children. Strategies are needed to reduce pediatric home medication error and minimize adverse drug events and to provide medication information to parents. Medication error can occur anywhere in health care system from prescriber to dispenser to administrator and finally to patient use. Thus reporting and prevention of medication error has become an important part because therapeutic will, ultimately improve the quality of patients life (Rekha, 2013). It is been estimated that 7000 death occur annually ancient population due to the medication error (Ravi Kiran, 2016).

Review of Literature: The Indian scenario, a proper reporting of medication error in hospital is not available. The fast growing rate of medication errors all over the world decides the need for starting a routine prescription auditing in all the multispecialty and tertiary health care centre in India. Previous study showed that a significant percentage of the parents did not use the correct equipment to administer medications, used non prescription medicines, did not administer medications at correct intervals and mixed medication into foods. Breaking of the capsules, chewing the tablets or using wrong measuring tools like spoons, which also cause medication error. Teaspoons used at home vary greatly in size, causing many children to be under dosed (Boztepe, 2016).

A Harvard study by professor Jha shows that 5.2 million medical errors are happening in India annually. Similarly the British medical journals quoted that India like any other developing country is recording a lots of medical errors. Result of the Harvard medical practice study 19.4% of adverse event. Out of these 45% were due to medication error 58% were potentially preventable and 27.6% could be considering as negligence. A decrease in medication administration errors was observed after the intervention, with a pre-intervention error rate of 17.3% and a post–intervention rate of 9.2% (Parikh, 2008). Studies have shown that antipyretics (59%) and antibiotics (25%) were the most commonly used medicines by parents without prescription.

Nearly half of the parents stated that they gave liquid medicine with a household spoon. It was found that 54% of the parents whose children refused to take tablets or liquid medicine mixed these medications into foods. Treatment was delayed in 20·7% of the children who refused to take tablets and in 29·1% of the children who refused to take liquid medicine. The results of the study showed that a significant percentage of the parents did not use the correct equipment to administer medications, used non-prescription medicines, did not administer medications at correct intervals and mixed medication into foods (Rekha, 2013).

Chelsea Hughes *et al*. (2016) conducted a survey study to identify parents /caregiver who make dosing error when measuring out liquid medication for their children in Arnold Palmer Hospital in Orlando, Florida. 25 parents/ caregiver were selected through convenience sampling technique. The data was collected through direct observation and interview method. The result revealed that out of 25 participants, high incidence of errors among the 25 participants with 13 (52%) making an error greater than 20% deviation from the dose indicated by the dosing instructions. Of these errors, 77% (n=10) were overdose errors. This study showed that many parents are at risk for making error when measuring liquid medication (Chelsea Hughes, 2016).

Athimuthu Anantharaj *et al*. (2014) conducted a study cross sectional study to assess the general practice followed by parents in the use of common pediatric liquid medication, knowledge of dosage, frequency of consumption, side effect and impact on oral health in pediatric and preventive Dentistry D.A Pandu memorial R.V. Dental college, Bangalore. 45 parents were included in the study and randomized control sampling technique was used and data was collected through structured questionnaire method. The result revealed that nine out of 34(26.4%) parents administered the syrups as and when the child demanded,12(35.2%) parents said they administered the medication twice a day,5(14.7%) said they administered it once or twice a day and 8(23.5%) parents said they administered it twice or thrice a day. The study showed a limited knowledge pertaining to the harmful effect of pediatric liquid medication on the oral health status of their children.

Problem statement: A study to evaluate the effectiveness of Educational Package (EP) in terms of parental ability regarding safe administration of oral medication in children in civil hospital, Panchkula, Haryana".

Objectives of the study

- To assess parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP).
- To find out the association of level of parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP) with selected demographic variables and clinical variables.

Hypotheses

The hypotheses which underline this study were:

H_1. There will be a significant association between level of parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP) with selected demographic variables.

Operational definition

Effectiveness: In this study, it refers to the capability to producing desire result or the ability to produce desire output, the degree to which something is successful in producing a desire result.

Educational Package (EP): In this study, it refers to demonstration on safe administration of oral liquid and solid medication.

Parental ability: In this study, it refers to self ability of the parents to give accurate oral medication to children (i.e. solid and liquid preparation) after administration of Educational Package (EP) through demonstration.

Safe Administration: In this study, it refers to administration of correct medication to their child on with correct dose, time, route and reason.

Oral medication: Oral medication administration is the process by which drugs are delivered by mouth through the gastrointestinal tract in forms of solid and liquid preparation.

Demographic variables: In this study, it refers to characteristics of parents as respondent, age, gender, religion, occupation, monthly income, qualification, previous knowledge and belongs to health profession. In this study, it refers to clinical variables of children as age, gender, diagnosis and duration of hospitalization.

MATERIALS AND METHODS

This Quantitative Quasi-experimental one group post test only research study were conducted form April, 2018 to May, 2018 at Civil Hospital, Panchkula, Haryana, India. The ethical approval was taken from Principal Medical Officer of Civil Hospital, Panchkula, Haryana, India prior to the study. Total 100 parents were selected using non probability purposive sampling technique. Observational checklist for solid and liquid oral medication was use for data collection consisted of 22 items. Content validity of the tool was established by seven expert in the field of Medical Surgical Nursing, Child Health Nursing and reliability coefficient was calculated to be 0.73. Informed consent was taken from the study participants and demonstration was given to parents. After 3 (three) days post test was done to evaluate the effectiveness of Educational Package (EP) in terms of parental ability regarding safe administration of oral medication in children through observation checklist. Data was analyzed with SPSS statistics version 20 by using descriptive and inferential statistics.

RESULT

Section 1: Description of sample characteristics

The demographic variables which comprised of 9 variables to collect personal data of parents including respondent, age, gender, religion, qualification of father and mother, occupation of father and mother, monthly income, previous knowledge regarding safe administration of oral administration and belong to health profession and 4 clinical variables of children were age, gender, diagnosis and duration of hospitalization. Frequency and percentage distribution of demographic variables of parents and clinical variables of children revealed that 74% of them were mother and 17% were father. Majority of the parents were in the age group of 26-35 (55%). Majority of parents 77% were female. More than half, 79% parents were from Hindu religion 25% of the parents were uneducated, 20% were middle school passed and 19% were high school passed. 52% of parents were homemaker and 21% were in private job. 68% parents had the monthly income of <10000 rupees/month, 25% of had 10000-20000 rupees/ month. 64% of parents had no parental ability regarding safe administration of oral medication in children.90% of parents were not belonged to health profession. 47% children were in the age group of 1-5 years. 51% of children were female and 49% were male. 30% of the children were diagnosed with gastrointestinal disorder, 26% from Pyrexia of Unknown Origin, 20% were from upper respiratory tract infection and duration of hospitalization was 87% for 3-6 days.

Section 2: Frequency and Percentage Distribution of Level of Parental Ability Regarding Safe Administration of Oral Medication in Children after Implementation of Educational Package (EP).

Figure 1 showed that 59% of parents had excellent parental ability, 31% had good parental ability and 9% had average parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP). Hence, it can be concluded that majority of parents had excellent parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP). Table 1 depicts that standard deviation for level of parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP) was 0.703 and means score was 1.52.

Section 3

Chi-Square Value Showing Association of Level of Parental Ability Regarding Safe Administration of Oral Medication in Children after Implementation of Educational Package (EP) with Selected Demographic Variables of Parents: Table 2 showed that qualification of parents (0.376), previous knowledge of parents (0.537) and belong to health profession (0.515) were found statistically significant regarding safe administration of oral medication in children the after implementation of Educational Package (EP).

Table 1. Range, Mean, Mode , Median and Standard Deviation of level of Parental Ability Regarding Safe Administration of Oral Medication in Children after Implementation of Educational Package (EP).

N=100

Level of Parental Ability	Range	Mean	Median	Mode	Standard Deviation
Post Implementation	3	1.52	1.00	1	0.703

Maximum Score = 22Minimum Score = 0

Sr. No.	Selected Demographic variables	F/t value	df value	p Value
1.	Qualification of respondent	19.25	18	0.376*
2.	Do you have any previous knowledge regarding administration of oral medication?	2.173	3	0.537*
3.	Do you belong to health profession?	2.286	3	0.515*

Significant (p≤0.05); NS- Not Significant (≥0.05)

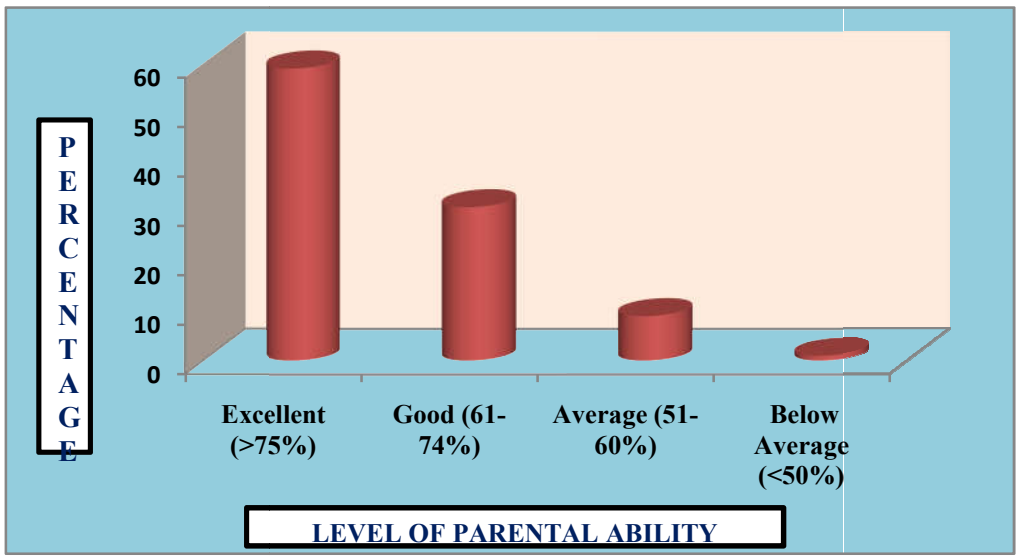

Figure 1. Bar Diagram Showing Percentage Distribution According to Level of Parental Ability Regarding Safe Administration of Oral Medication in Children after Implementation of Educational Package (EP)

DISCUSSION

The aim of the present study was to evaluate the effectiveness of Educational Package (EP). 100 parents of children were selected through non probability purposive sampling technique. The study results revealed that parents had excellent (59%), good (31%) parental ability regarding safe administration of oral medication in children after implementation of Educational Package (EP). Qualification (0.376), health profession (0.515) and previous knowledge (0.557) were found to be associated with selected demographic variables at 0.05 level of significance.

Yin (2014) conducted a cross sectional study to assess liquid medication dosing error in children: role of provider counseling strategies in Bellevue Hospital Center and Woodhull Medical Center, New York. 287 parents were chosen whose children are <9 years were selected through randomized control sampling technique and data was collected through self reported questionnaire. The results revealed that out of 287 parents, 411% made dosing errors. Advanced counseling and instrument provision in the emergency department were reported by 33.1% and 19.2% respectively; 15% reported both. Advanced counseling and instrument provision in the emergency department were associated with decreased error (30.5 vs.46.4%, p=0.01; 21.8 vs 45.7%, p =0.001).

Conclusion

Educational Package (EP) is effective in improving the level of parental ability regarding safe administration of oral medication in children. After implementation of Educational Package (EP), majority of the parents had excellent (59%), good (31%) parental ability regarding the safe administration of oral medication in children. Qualification (0.376), health profession (0.515) and previous knowledge (0.557) were found to be associated at 0.05 level of significance.

Recommendation

Video based teaching should be given to parents to improve their abilities regarding safe administration of Oral Medication in children and comparative study can be conducted to check the parental ability regarding safe administration of oral medication in children in rural and urban population.

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