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THE EFFECT OF EDUCATIONAL INTERVENTION ON KNOWLEDGE AND PRACTICE REGARDING THE USE OF METERED DOSE INHALER AMONG MOTHERS OF CHILDREN SUFFERING FROM RESPIRATORY TRACT INFECTIONS IN SELECTED HOSPITALS

Nursing

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ABSTRACT

Background: The quality of life of children depend up on the impact of Respiratory disorders.¹ Its affect all age groups often starts in childhood. Inhalation therapy is the most recommended and efficient therapy for Asthma and Respiratory infections.¹¹ Inhaler devices are a mainstay in the management of respiratory diseases and their proper usage requires continuous training. Correct use of inhalers requires specific training as a healthcare provider, nurses play a significant role in patient's education.⁹ Educational interventions should be high quality and repeated to maintain correct inhaler technique.⁹

Objectives: The objective of the study is to assess the effect of educational intervention on knowledge and practice regarding the use of metered dose inhaler among mothers.

Materials and method: An evaluative study with Pre- experimental one-group pre-test post-test design was used to assess the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler among mothers. 100 samples were taken using Non Probability Convenient Sampling from selected hospitals. The data was collected using self-structured demographic data, knowledge questioner and observation checklist.

Results: The analysis was done by using descriptive and inferential statistics. Researcher applied paired t-test for the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler among mothers. Average knowledge score of mothers in pre-test was 8.3 which increased to 16.5 in post-test. T-value for this test was 19.9 with 99 degrees of freedom. Average practice score of mothers in pre-test was 9.5 which increased to 13.3 in post-test. T-value for this test was 25.9 with 99 degrees of freedom. Corresponding p-value for knowledge and practice was small (less than 0.05), null hypothesis is rejected. It is evident that educational intervention is effective in improving the knowledge and practices regarding the use of metered dose inhaler among mothers of children with respiratory infections.

Conclusion: The inhalers is always preferred to treat respiratory infections. The mastering correct inhaler technique is yet to be very difficulties in many people and is necessary to improve the therapeutic effect. In the present study sufficient improvement in knowledge and practice regarding the use of metered dose inhaler is found. Educational interventions were effective in improving the knowledge and practices among mothers.

KEYWORDS

Educational intervention, Metered dose inhaler, Mother, children, and Respiratory infections.

INTRODUCTION

The quality of life of children and adolescents is depending up on the impact of Respiratory disorders¹. India has an estimated 15-20 million asthmatics; rough estimates indicate a prevalence of between 10% and 15% in 5-11 year old children. Asthma attacks all age groups but often starts in childhood.⁶

Inhaler devices are a mainstay in the management of respiratory infections.⁴ The correct use of inhaler devices is one of the most important aspects and it emphasize the importance of assessing inhalation technique to improve the efficiency of drug delivery⁵.

Thus, considering the correct use of inhalers requires specific training, the researcher felt the need to conduct an evaluative study on assessing the effect of educational intervention on knowledge and practice regarding the use of metered dose inhaler among mothers.

METHODS AND MATERIALS

Study objectives

- To identify the knowledge and practice regarding the use of metered dose inhaler.
- To evaluate the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler among mothers of children suffering from respiratory tract infections.
- To find out the association between the level of knowledge and practice with selected socio-demographic variables.

Study design

The study used an evaluative approach with Pre- experimental one-group pre-test post-test design to assess the effect of educational intervention on knowledge and practice regarding the use of metered dose inhaler among mothers . 100 samples using Non probability convenient sampling technique- from selected hospitals. The data was collected using a structured knowledge questionnaire and observational checklist.

FINDINGS-

Section I: - Data on demographic variables of mothers.

Table 1: Description of samples (mothers of children suffering from respiratory tract infections) based on their personal characteristics.

N=100

Sr. no.	Demographic variable	Category	Frequency	%
1.	Age of the mother	< 20 years	9	9%
		21-30 years	29	29%
		31-40 years	52	52%
		41 and above	10	10%
2.	Educational status	Primary	8	8%
		Secondary	36	36%
		High school	40	40%
		Graduate and Above	16	16%
3.	Occupation of mother	Homemaker	73	73%
		Service	2	2%
		Daily wage	14	14%
		Business	11	11%
4.	Religion	Hindu	55	55%
		Christian	2	2%
		Muslim	32	32%
		Others	11	11%
5.	Type of family	Nuclear	99	99%
		Joint	1	1%
6.	Monthly income of the family	Rs.10000-20000	28	28%
		Rs.20001-30000	64	64%
		Rs. 30001-40000	7	7%
		More than Rs.40001	1	1%
7.	Number of children	One	41	41%
		Two	41	41%
		Three	18	18%
8.	Previous history of child suffering from Lower respiratory tract infection	Yes	60	60%
		No	40	40%
9.	If yes, the treatment modalities taken	Cough syrup	47	47%
		Oral Antibiotics	4	4%
		Inhalation	11	11%
		3- 5 year	66	66%

10. Age of the child suffering from Lower respiratory tract infection	6-8 year	34	34%
	Newly diagnosed	64	64%
11. Duration of illness of the child	1 Month	7	7%
	2 Months	19	19%
	More than 2 months	10	10%
12. Previous information about technique used for use of metered dose inhalers in children suffering with lower respiratory tract infection	Yes	18	18%
	No	82	82%
	Health professionals	7	7%
13. If yes, source of information	Friends/family member	2	2%
	T.V, Internet, mass media	9	9%

Table no 1 show that majority 52% of them had age 31-40 years, 40% of them had high school education, Majority 73% of them were homemakers, 55% of them were Hindu, 99% of them had nuclear family, Majority 64% of them had family income Rs.20001-30000, 41% of them had one child, 60% of them had previous history of child suffering from Lower respiratory tract infection, 18% of them had previous information about technique used for use of metered dose inhaler and 9% of them had information from TV, internet, and mass media.

Section II: - Data related to the knowledge and practice regarding the use of metered dose inhaler

Table 2: Description of Knowledge and practice regarding the use of metered dose inhaler

N=100

Knowledge	Pre-test		Practice	Pret-test	
	Freq	%		Freq	%
Poor (score 0-5)	11	11%	Poor (score 0-5)	0	0%
Average (score 6-10)	71	71%	Average (score 6-10)	80	80%
Satisfactory (score 11-15)	18	18%	Good (score 11-15)	20	20%
Good (score 16-20)	0	0%			

The table no 2 shows that, 11% of the mothers of children suffering from respiratory tract infections had poor knowledge (score 0-5), 71% of them had average knowledge (score 6-10) and 18% of them had satisfactory knowledge (Score 11-15) regarding the use of metered dose inhaler. 80% of the mothers of children suffering from respiratory tract infections had average practices (score 6-10) and 20% of them had good practices (Score 11-15) regarding the use of metered dose inhaler.

Section III: Data related to the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler among mothers.

Figure No 1: Effect of educational intervention on knowledge regarding use of metered dose inhaler among mothers

Figure No 1: The bar graph shows that, in pre-test, 11% of the mothers of children suffering from respiratory tract infections had poor knowledge (score 0-5), 71% of them had average knowledge (score 6-10) and 18% of them had satisfactory knowledge (Score 11-15) regarding the use of metered dose inhaler. In post-test, 10% of them had average knowledge (score 6-10), 26% of them had satisfactory knowledge (Score 11-15) and 64% of them had good knowledge (Score 16-20) regarding the use of metered dose inhaler. This indicates that the knowledge of the mothers of

children suffering from respiratory tract infections improved remarkably after educational intervention.

Table 3: Paired t-test for the effect of educational intervention on knowledge regarding use of metered dose inhaler among mothers

N=100

	Mean	SD	T	Df	p-value
Pre-test	8.3	2.2	19.9	99	0.000
Post-test	16.5	3.2			

Table No 3 shows, researcher applied paired t-test for the effect of educational intervention on knowledge regarding use of metered dose inhaler among mothers. Average knowledge score of mothers in pre-test was 8.3 which increased to 16.5 in post-test. T-value for this test was 19.9 with 99 degrees of freedom. Corresponding p-value was small (less than 0.05), null hypothesis is rejected. It is evident that the educational intervention was significantly effective in improving the knowledge of the mothers of children suffering from respiratory tract infections regarding use of metered dose inhaler among mothers.

Figure No 2: Effect of educational intervention on practices regarding use of metered dose inhaler among mothers

The figure no 2: The bar graph shows, In pre-test, 80% of the mothers of children suffering from respiratory tract infections had average practices (score 6-10) and 20% of them had good practices (Score 11-15) regarding the use of metered dose inhaler. In post-test, 4% of the mothers of children suffering from respiratory tract infections had average practices (score 6-10) and 96% of them had good practices (Score 11-15) regarding the use of metered dose inhaler. This indicates that the practices of the mothers of children suffering from respiratory tract infections improved remarkably after educational intervention.

Table 4: Paired t-test for the effect of educational intervention on practice s regarding use of metered dose inhaler among mothers

N=100

	Mean	SD	T	Df	p-value
Pretest	9.5	0.9	25.9	99	0.000
Posttest	13.3	1.2			

Table no 4 shows, Researcher applied paired t-test for the effect of educational intervention on practice regarding use of metered dose inhaler among mothers. Average practice score of mothers in pre-test was 9.5 which increased to 13.3 in posttest. T-value for this test was 25.9 with 99 degrees of freedom. Corresponding p-value was small (less than 0.05), null hypothesis is rejected. It is evident that the educational intervention was significantly effective in improving the practices of the mothers of children suffering from respiratory tract infections regarding use of metered dose inhaler among mothers.

Section IV: Data on analysis of data related to the association of knowledge with selected socio-demographic variables.

Table 5: Fisher's exact test for association of knowledge with selected socio-demographic variables

N=100

Demographic variable		Knowledge			p-value
		Poor	Average	Satisfactory	
Age of the mother	< 20 years	0	5	4	0.447
	21-30 years	3	21	5	
	31-40 years	7	36	9	
	41 and above	1	9	0	
Educational status	Primary	0	4	4	0.376
	Secondary	3	28	5	
	High school	6	27	7	
	Graduate and Above	2	12	2	

Occupation of mother	Homemaker	8	52	13	0.303
	Service	0	2	0	
	Daily wage	2	7	5	
	Business	1	10	0	
Religion	Hindu	7	37	11	0.529
	Christian	0	1	1	
	Muslim	3	23	6	
	Others	1	10	0	
Type of family	Nuclear	11	71	17	0.290
	Joint	0	0	1	
Monthly income of the family	Rs.10000-20000	2	24	2	0.081
	Rs.20001-30000	9	43	12	
	Rs. 30001-40000	0	4	3	
	More than Rs.40001	0	0	1	
Number of children	One	3	31	7	0.854
	Two	6	27	8	
	Three	2	13	3	
Previous history of child suffering from Lower respiratory tract infection	Yes	7	40	13	0.443
	No	4	31	5	
Age of the child suffering from Lower respiratory tract infection	3- 5 year	7	46	13	0.892
	6-8 year	4	25	5	
Duration of illness of the child	Newly diagnosed	8	44	12	0.502
	1Month	0	4	3	
	2 Months	2	14	3	
	More than 2 months	1	9	0	
Previous information about technique used for use of metered dose inhaler in children suffering with lower respiratory tract infection	Yes	2	11	5	0.448
	No	9	60	13	

Table no 5 shows , Since all the p-values are large (greater than 0.05), none of the demographic variable was found to have significant association with the knowledge regarding use of metered dose inhaler among mothers of children suffering from respiratory tract infections.

Table 6: Fisher's exact test for association of practices with selected socio-demographic variables

N=100

Demographic variable		Practices		p-value
		Average	Good	
Age of the mother	< 20 years	6	3	0.073
	21-30 years	27	2	
	31-40 years	38	14	
	41 and above	9	1	
Educational status	Primary	4	4	0.067
	Secondary	32	4	
	High school	30	10	
	Graduate and Above	14	2	
Occupation of mother	Homemaker	58	15	0.145
	Service	2	0	
	Daily wage	9	5	
	Business	11	0	
Religion	Hindu	41	14	0.120
	Christian	1	1	
	Muslim	27	5	
	Others	11	0	
Type of family	Nuclear	80	19	0.200
	Joint	0	1	

Monthly income of the family	Rs.10000-20000	26	2	0.042
	Rs.20001-30000	48	16	
	Rs. 30001-40000	6	1	
	More than Rs.40001	0	1	
Number of children	One	36	5	0.155
	Two	32	9	
	Three	12	6	
Previous history of child suffering from Lower respiratory tract infection	Yes	45	15	0.201
	No	35	5	
Age of the child suffering from Lower respiratory tract infection	3- 5 year	53	13	1.000
	6-8 year	27	7	
Duration of illness of the child	Newly diagnosed	51	13	0.230
	1Month	6	1	
	2 Months	13	6	
	More than 2 months	10	0	
Previous information about technique used for use of metered dose inhaler in children suffering with lower respiratory tract infection	Yes	15	3	1.000
	No	65	17	

Table no 6 shows, since p-value corresponding to monthly family income is small (less than 0.05), monthly family income was found to have significant association with the practices mothers of children suffering from respiratory tract infection

DISCUSSION

Present study was done on 100 mothers to assess the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler. Researcher applied paired t-test for the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler among mothers. Average knowledge score of mothers in pre-test was 8.3 which increased to 16.5 in post-test. T-value for this test was 19.9 with 99 degrees of freedom. Average practice score of mothers in pre-test was 9.5 which increased to 13.3 in post-test. T-value for this test was 25.9 with 99 degrees of freedom. Corresponding p-value for knowledge and practice was small (less than 0.05), null hypothesis is rejected. It is evident that educational intervention is effective in improving the knowledge and practices regarding the use of metered dose inhaler among mothers of children with respiratory infections.

The association of knowledge and practice with selected socio-demographic variables was assessed by using Fisher's exact test. Since all the p-values are large (greater than 0.05), none of the demographic variable was found to have significant association with the knowledge regarding use of metered dose inhaler among mothers of children suffering from respiratory tract infections. The association of practice with selected socio-demographic variables p-value corresponding to monthly family income is small (less than 0.05), was found to have significant association with the practices regarding use of metered dose inhaler among mothers of children suffering from respiratory tract infections.

CONCLUSION

The purpose of the study was to assess the effect of educational intervention on knowledge and practice regarding use of metered dose inhaler. The research was a learning experience for the investigator which gave her better exposure. In this study since the ($p < 0.05$) H_0 (null hypothesis) was rejected. It is evident that the educational intervention improved the knowledge and practice regarding the use of metered dose inhaler among mothers of children suffering from respiratory infections.

Conflict Of Interest - Nil

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REFERENCES

- Bateman ED, Hurd SS, et al. Global strategy for asthma management and prevention: GINA executive summary, Eur Respir J. 2008;31(1):143-78.
- Brunner, Suddarth. Text book of medical surgical nursing 10th Ed. New York:

- Lippincott Williams and Williams; 2004.
3. Wim M. van Aalderen ,Childhood Asthma: Diagnosis and Treatment Hindawi publishing corporation, Scientifica 2012: Article ID 674204, 18 pages
 4. Roopam Sehajpal, et.al Assessment of inhalation technique of bronchial asthma and chronic obstructive pulmonary disease patients attending tertiary care hospital in Jaipur, Rajasthan , Year : 2014 | Volume : 28 | Issue : 2 | Page : 78-82
 5. Einstein (São Paulo) ,Metered-dose inhaler for asthma patients: knowledge and effects of a theoretical and practical guidance for paediatricians, vol.9 no.3 São Paulo July/Sept. 2011
 6. <http://www.who.int/mediacentre/factsheets/fs206/en/>
 7. Wikipedia the free encyclopedia. Article related to bronchial asthma. Available from :URL: <http://www.en.wikipedia.org>
 8. Gopinath. N. ,et.al An epidemiological study of Bronchial asthma in adults in the urban population of Delhi. The Journal of the Association of Physicians , of India. 2004. 42 (3): 90–95.
 9. Plaza V, et.al Medical personnel and patient skill in the use of metered dose inhalers: a multicentric study. CESEA Group. Respiration. 1998;65(3):195-8.
 10. Virchow JC, et al. Importance of inhaler devices in the management of airway disease. Respir Med. 2008;102:10–19.