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Research Article

A Quasi Experimental Study to Assess the Effectiveness of Guidelines Regarding Knowledge of Parents on Care of Children with Leukemia in a Selected Hospital of Delhi

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Abstract

Aim: A quasi-experimental study to assess the effectiveness of guidelines regarding knowledge on the care of children with leukemia under age 19 years for the parents of children with leukemia. **Methodology:** Conceptual model used for the study was Orem's supportive-educative system. Non-equivalent control group pre-test post-test design and convenient sampling technique was used in the study. The sample comprised 60 subjects taken from the Safdarjung Hospital with 30 subjects each in experimental and control groups. The experimental group was exposed to guidelines prepared. **Results:** After the administration of guidelines, the mean post-test (50.43) of the experimental group was higher than their mean pre-test knowledge score (25.86) with a mean difference of 24.57. *t* value of 18.47 for df (28) was found to be statistically significant at the 0.05 level as the table value for *t* was 2.05. This shows that the obtained mean difference of 24.57 was a true difference and not by chance. Thus, it can be inferred that the guidelines were found to be effective in enhancing the knowledge of parents. **Conclusion:** Hence, it is concluded that the guidelines prepared had a positive impact and was effective in improving the knowledge of subjects regarding the care of children with leukemia.

Key words: Children with leukemia, evaluating, guidelines, parents

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Background

World Cancer Day which was led by the union of international cancer control based in Geneva, supported by Pan American Health Organization and WHO promoted ways to ease the global burden of cancer, preventing cancer and raising the quality of life for cancer patients. Metayer *et al*. explained that children are a unique population to care for because the decision about their management affects not only the children but also the entire parental unit and require an amount of sensitivity.[1] Communicating bad news are one of the hardest tasks encountered by a physician, especially in the field of pediatrics, and particularly in cases where the diagnosis is potentially terminal.[2,3] The study pointed out that patient education and his active participation in self-care have become recognized among the health-care deliveries, and patients are beginning to meet their self-care needs.[4] The high cost of health services has stimulated the medical services to become more oriented toward keeping the patient well.

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Objectives

The objectives of the study were as follows:

1. To identify the learning needs of the parents of children with leukemia under the age of 19 years.
2. To develop the guidelines for parents of children with leukemia under the age of 19 years on the basis of identified learning needs.
3. To evaluate the effectiveness of guidelines on the care of children with leukemia under age 19 years for the

parents on the basis of identified learning needs after the administration of guidelines.

Research hypotheses

1. H_1: There will be no significant difference in the mean post-test and pre-test knowledge score of parents of children with leukemia in the experimental group as measured by a structured questionnaire at 0.05 level of significance.
2. H_2: There will be no significant difference in the mean post-test and pre-test knowledge score of parents of children with leukemia in the control group as measured by a structured questionnaire at 0.05 level of significance.
3. H_3: There will be no significant difference between the mean post-test knowledge score of parents of children with leukemia in the experimental group and control group as measured by a structured questionnaire at 0.05 level of significance.

Methodology

A quasi-experimental research approach with a non-equivalent control group design was adopted for the study. A sample of 60 relatives of patients admitted in leukemic units of Safdarjang Hospital, Delhi were selected for the study. Out of these, 30 subjects were taken as a control group from the oncology unit and 30 subjects as an experimental group from the leukemic unit by convenience sampling. In the present study, the independent variable is the guidelines on the care of children with leukemia given by the researcher and dependent variable in the present study is the knowledge of parents regarding care of children with leukemia. The extraneous variables are the age of parents, education of parents, the occupation of parents, and family income.

Table 1: The symbolic representation of the research design

E	K1	X1	K2
C	K3	-	K4

E – Experimental group, C – Control group, K1 – Pre-test knowledge score before administration of guidelines to the experimental group, X1 – Treatment, i.e., guidelines on the care of children with leukemia to the experimental group, K2 – Post-test knowledge score after administration of guidelines to the experimental group, K3 – Pre-test knowledge score of control group, K4 – Post-test knowledge score of the control group

The research design used for the study is quasi-experimental (nonequivalent control group pre-test post-test design) [Table 1].

The tool developed into two sections. The following tools were used for the purpose of data collection:

1. Leukemia learning needs a questionnaire
2. Structured knowledge questionnaire
3. Guidelines for parents of children with leukemia on the care of children with leukemia

Section I contained items on demographic data of child and parents and leukemia-related information.

Section II contained 40 questions in the area like leukemia, its definition, diagnosis, causes, sign and symptoms of leukemia, complication of leukemia and management of these complications, management of children with leukemia, dietary management, and rest and sleep recreational therapy. Each question had several, and a score of 1 was given for every correct response. The maximum possible score was 144. Criteria of interpreting the scores were good: 120–144 (90% and above), average: 80–119 (70–80%), and poor: 50–79 (below 50%). The content validity of the tool and guidelines was assessed. Both the tool and guidelines were prepared in English and translated in Hindi also. Permission was obtained from the Ethical Committee Jamia Hamdard Institutional Review Board. After obtaining permission from the administrative authorities also, a pilot study was conducted. A final study began with the self-introduction and establishment of a good interpersonal relationship. The purpose of the study was explained and confidentiality was assured. Final data collection for assessing the learning needs was done at Safdarjang Hospital from 7 October to 20 October. A

Table 2: Representation of research methodology

1	Research approach and Design	Quantitative approach Quasi experimental Nonequivalent pre-test post-test design
2	Setting and study population	Safdarjang Hospital New Delhi Parents of children with leukemia
3	Sample and sampling technique	60 parents 30 in each experimental and control group
4	Tool and method of data collection	Leukemia learning need questionnaire and structured knowledge questionnaire and guidelines Paper pencil technique
5	Analysis and interpretation of data	Descriptive statistics Inferential statistics
6	Outcome measures	Structured knowledge questionnaire to evaluate the effectiveness of guidelines on the care of children with leukemia

total of 60 parents (30 in experimental and 30 in control) were assessed to identify the learning needs. This was followed by the development of the final tool and draft of the guidelines on the care of children with leukemia. Final data collection to assess the effectiveness of the guidelines was done simultaneously. Pre-test on knowledge regarding the care of children with leukemia was administered to 60 parents of children with leukemia. This was followed by administration of guidelines on the next day. They were asked to read the guidelines thoroughly and clarify the doubts during the interactive session planned on the 4th day. Post-test similar to pre-test was administered on day 7 to assess the effectiveness of guidelines on the care of children with leukemia for the parents of children with leukemia [Table 2].

Research design

The research design used for the study is quasi-experimental (non-equivalent control group pre-test post-test design).

Results

Data presented in Table 3 shows that maximum of children in control group 12 (40%) was in the age group of 6–10 years, in the experimental group 40% were females and 60% were males. In the control group, 53.33% were males and 46.66% were females. In the experimental group maximum, 16 (53.3%) of the respondents were having acute lymphocytic leukemia (ALL) followed by 12 (4%) acute myeloid leukemia (AML) and a few 2 (6.6%) had chronic myeloid leukemia (CML). In the control group, 18 (60%) were having ALL followed by 9 (33%) AML and a few 3 (7%) were having CML. No respondents had CLL. Both the groups were compared using Fishers exact which was not significant. In the experimental group, 21 (71%) were having the first birth order followed by 9 (29%) which belongs to second birth order. In the control group, 25 (75%) were having first order and 5 (25%) had a second order. No respondent belongs to others category. Both the groups were compared using Fisher exact which was not significant.

Table 3: Comparison of demographic variables of children with leukemia in the control and experimental group based on their frequency-percentage distribution

Demographic variables	$+n_2$=60		Test used	*P* value
	Control group (n_1=30)	Experimental group (n_2=30)		
	f (%)	f (%)		
Age (in years)				
6–10	12 (40)	16 (53.33)	Fisher exact	0.558
11–15	9 (33.33)	9 (33.33)		
16–19	8 (26.66)	5 (13.33)		
Sex				
Male	18 (60)	16 (53.33)	Chi square test, df (1)	0.602
Female	12 (40)	14 (46.66)		
Diagnosis				
ALL	16 (53.3)	18 (60)	Fisher exact	0.729
AML	12 (40)	9 (33.33)		
CML	2 (6.6)	3 (7.7)		
Birth order				
First	21 (71)	25 (75)	Fisher exact	0.360
Second	9 (29)	5 (25)		
Duration of illness				
<1 year	16 (53.3)	18 (60)	Fisher exact	0.073
1–2 years	9 (33.3)	12 (40)		
3–4 years	5 (13.3)	0 (0)		
Admission to the hospital				
1st time	0 (0)	0 (0)	Fisher exact	0.795
2nd time	0 (0)	0 (0)		
3rd time	16 (53.3)	18 (60)		
More than 3 times	14 (46.6)	12 (40)		
Informant				
Mother	19 (57)	21 (63)	Chi square, df (1)	0.584
Father	11 (43)	9 (37)		

ALL: Acute lymphocytic leukemia, AML: Acute myeloid leukemia, CML: Chronic myeloid leukemia

Table 4: Mean, modified mean and rank order of the obtained score of leukemia learning need questionnaire from parents of children with leukemia in different learning need area

Learning need area	$n_1+n_2=60$		
	Mean	Modified mean	Rank order
Definition, diagnosis, causes, and sign and symptoms of leukemia in children	12.6	0.42	IV
Treatment of leukemia in children and side effects of chemotherapy, radiotherapy and its management	17.4	0.58	II
Complications of leukemia in children and its management	27.4	0.91	I
Management of children with leukemia including diet, rest, and recreation	15.3	0.51	III

Table 5: Mean, standard deviation, mean difference, standard error, and *t* value of pre-test and post-test knowledge scores of the experimental group

Experimental group ($n_1=30$)	$n_1=30$					
	Mean±SD	Mean D	SE	Df	*t* value	Table value (t)
Pre-test	25.86±4.72	24.57	1.3	28	18.47*	2.05
Post-test	50.43±5.94					

*t (28)=2.05, $P<0.05$, significant. SD: Standard deviation, SE: Standard error

Table 6: Mean difference, standard error of mean, and *t* value of post-test knowledge scores between the experimental and control group

Group	Post-test knowledge score					
	Mean	Mean D	SE	Df	*t* value	Table value (t)
Experimental ($n_1=30$)	50.43	21.1	0.79	58	16.01*	2
Control ($n_2=30$)	31.41					

*t (58)=2, $P<0.05$, significant. SE: Standard error

The data presented in Table 4 depicts the rank of the different learning need area score of the parents of children with leukemia. Through ranking of the learning need score, we can depict that the highest knowledge deficit is in complications of leukemia and its management.

The data in Table 5 show that the mean post-test (50.43) of the experimental group was higher than their mean pre-test knowledge score (25.86) with a mean difference of 24.57. The *t* value of 18.47 for df (28) was found to be statistically significant at the 0.05 level as the table value for *t* was 2.05. This shows that the obtained mean difference of 24.57 was a true difference and not by chance. Thus, it can be inferred that the guidelines were found to be effective in enhancing the knowledge of parents.

The mean post-test (50.43) of the experimental group was higher than their mean pre-test knowledge score (25.86) with a mean difference of 24.57. t value of 18.47 for df (28) was found to be statistically significant at the 0.05 level as the table value for *t* was 2.05. This shows that the obtained mean difference of 24.57 was a true difference and not by chance. The obtained mean difference was found to be statistically significant as evident from *t* value of 16.01 for df (58), at 0.05 level of significance. Hence, it can be inferred that guidelines were more effective in enhancing knowledge of parents of children for the care of children with leukemia [Table 6].

Discussion

The study conducted a study on the WHO guidelines for cancer pain relief effective in controlling pain in children and adolescents with cancer: An institutional prospective study of 184 episodes of pain in children and adolescents with cancer was conducted.[5,6] The study revealed that the WHO guidelines for cancer pain relief were effective in controlling pain in children and adolescents with cancer. Despite their low socioeconomic level, patients were able to qualify their pain rating scales.[7]

Conclusion

The quasi-experimental can be inferred that guidelines were more effective in enhancing knowledge of parents of children for the care of children with leukemia under age 19.

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