Original Research Article

A Pre-Experimental Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge Regarding Lead Poisoning among Mothers of Under-Five Children in Selected Areas at Mukerian, Punjab

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Abstract

Introduction: Lead poisoning is considered the most preventable environmental disease among young children, yet its exposure is estimated to contribute approximately 600,000 new cases of children with intellectual disabilities every year. A simple health awareness Lead poisoning can prevent permanent brain damage that will last a lifetime.

Aim of the Study: The aim of the study is to improve the knowledge on lead poisoning among mothers of under-five children through a structured teaching programme.

Material and Methods: A quantitative research approach and Pre-experimental one group pre -test-posttest research design was used. Total 50 samples of mothers of under-five children were selected by a purposive sampling technique. Data collection was done through self-structured knowledge questionnaire. The collected data were analyzed by calculating frequency, percentage, mean, standard deviation, 't test and F test.

Results: As per overall pretest knowledge score, most mothers of under-five children i.e. 90%had poor knowledge, 10% had average knowledge and none of them had good knowledge regarding lead poisoning. After structured teaching programmes most mothers i.e. 98% had good knowledge, 2% had average knowledge and none of them had poor knowledge. The difference between the mean pretest and posttest score was statistically highly significant at $p<0.001$ level.

Conclusion: Structured teaching programme was an effective tool in improving knowledge of mothers of under-five children regarding lead poisoning.

Keywords: Lead poisoning, mothers of under-five children

Introduction and Background Of The Study

The birth of a child is a significant event in any family. A child is a precious gift, which has a lot of potential within. The health of a growing child is always a matter of great concern, because a healthy child can become a healthy citizen in future.[1]

Lead poisoning is preventable but still exposure is estimated to account for 0.6% of the global burden

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of disease, with the highest burden in developing countries. Childhood lead exposure estimated 600, 000 new cases of children with intellectual disabilities every year. Overall, 99% of children affected by high exposure to lead live in low and middle income countries. It is also estimated that 143,000 deaths per year results from lead poisoning and lead paint is a major contributor to this **(WHO 2014).**[2]

Lead is the top six toxic threats globally and estimates conservatively that about 1.5-2 million people are affected in India alone. Children, when exposed to it are most vulnerable to even low levels of this toxic metal, especially when they are six years and younger.**(World's Worst Population Problem Report 2010)**[3]

Children around the world are at risk of exposure to lead from multiple sources. These sources are lead based paints and pigments, lead solder in food cans, ceramic glazes drinking water systems and lead in products such as herbal and traditional medicines. Lead may be found in the paint on toys and also used in plastic toys to stabilize the plastic molecules from heat. [2]

Socio economic status is a powerful predictor of lead exposure. Poor children are more likely to be affected with lead poisoning. The blood lead level measured in the micrograms of lead per deciliter of blood(/dl). Nearly everyone has a measurable blood lead level. The center for disease control and prevention (CDC) state that a blood lead level of 10g/dl or above is a cause for concern. However lead can impair development even at blood level <10g/dl.[4]

Lead is available, the body confuses it with more essential elements like calcium and begins using lead to make bones, muscles, brain connections etc. children below six grow rapidly, lead affects them by causing decreased intelligence (reduced IQ), attention deficit disorders, behavior issues, speech and language impairment, damage to nervous system, reduced bone and muscle growth and kidney damage.[5]

The national referral center for prevention of lead poisoning in India suggested that lead poisoning with the complaints of nausea, vomiting and sometimes constipation is confusing with other diagnoses. The mothers and caregivers must have adequate knowledge about the lead poisoning in the children because they are the primary caretakers. But parents don't have much knowledge of ways to prevent childhood lead poisoning. Information from health care providers can aid parental knowledge. [6]

Objectives of the Study

- To assess the pre -test level of knowledge regarding lead poisoning among mothers of under-five children.
- To assess the post-test level of knowledge regarding lead poisoning among mothers of under- five children.
- To compare the pre - test and post- test level of knowledge regarding lead poisoning among mothers of under- five children.
- To find out the relationship of pre- test and post- test level of knowledge regarding lead poisoning among mothers of under - five children with selected demographic variables.

Hypothesis

H_1. There is a significant difference in the level of knowledge regarding lead poisoning among mothers of under-five children after a structured teaching programme.

Material and Methods

In the present study, a quantitative approach with pre-experimental research design was adopted. By Purposive sampling technique 50 mothers of under-five children were selected. Pre test and post test were used for data collection. Analysis of data was done using descriptive and inferential statistics. A study was conducted in the month of February, 2016. Formal written permission was obtained from the Sarpanch of villages Madinpur and Ramgarh kulliyan village of Mukerian.

After discussing the purpose and objectives of the study. Analysis and interpretation of data was done according to objectives of the study by using descriptive and inferential statistics.

Ethical Consideration

- Before commencing the task of data collection, Permission was sought from the ethical research committee of SPN college of Nursing, Mukerian. After that letter seeking permission to conduct study was obtained from Sarpanch of village Madinpur, Ramgarh kulliyan of Mukerian, Punjab.
- Written informed consent was obtained from mothers of under-five children for participation in study by explaining to them the purpose of study. They were also informed that they have the right to refuse their participation in study.

Result

Table-1: Frequency and percentage distribution of mothers of under-five children according to overall post test knowledge score regarding lead poisoning.

N = 50

	Post-test		
Levels of Criteria knowledge	**Measures**	**Frequency (n)**	**Percentage (%)**
Good	>70%	49	98%
Average	36-70%	1	2%
Poor	≤35%	—	—
Total		**50**	**100%**

The data in table 1 depicts that in the post-test 98% mothers of under-five children had good knowledge, 2% had average knowledge and none of them had poor knowledge regarding lead poisoning

Associate the findings with selected socio-demographic variables.

Highest mean posttest knowledge score i.e. 22.00 was obtained by subjects in the age group of above 36 years, followed by mean posttest knowledge score i.e. 21.04 and 20.50 by mothers in the age group of 25-30 years and 19-24 years respectively. Post-test knowledge score for age was not significant at p<.067 level.

According to level of education, Highest mean posttest knowledge score i.e. 23.00 was obtained by mothers who were graduate and above followed by mean posttest knowledge score 21.13, 20.55 and 20.38 was obtained by mothers who were on the educational level of senior secondary, middle and secondary . F value for posttest knowledge score for level of education was not significant at p<0.05 highest mean posttest knowledge score i.e. 21.50 was obtained by mothers who had monthly income of above Rs.15, 001 followed by mean posttest knowledge score i.e.20.58 and 20.50 by mothers in monthly income group of Rs.5,001 -10,000 and Rs. 10.001-15,000respectively. F value for posttest knowledge score for monthly income was not significant at p<0.05 level.

According to type of family highest mean posttest knowledge score i.e. 21.00 was obtained by mothers who lived in extended family and 20.80 and 20.53 had monthly income of above Rs.15, 001 followed by mean posttest knowledge score i.e.20.58 and 20.50 obtained by mothers who lived in nuclear family and joint family. F value for posttest knowledge score for type of family was not significant at p<0.05 level.

According to the type of house, the highest mean posttest knowledge score i.e. 21.25 was obtained by mothers who were living in kacha house and 20.75 and 20.50 was obtained by mothers who were living in pucca house and mixed type of house. F value for posttest knowledge score for type of house was not significant at p<0.05 level.

According to the total number of children, the highest mean posttest knowledge score i.e.21.04 was obtained by mothers who had 2 children and 20.89, 19.94 and 20.00 was obtained by mothers who had 1 child,2 children and more than 4 children. F value for posttest knowledge score for total number of children was not significant at p<0.05 level.

According to occupational status highest mean While highest mean posttest knowledge score i.e. 20.91 was obtained by mothers whose occupational status was government employee. F value for posttest knowledge score for type of house was not significant at p<0.05 level.

According to source of information, the highest mean posttest score i.e. 20.83 who received information from social groups ,and 17.33 who didn't receive any information regarding lead poisoning from any source.F value for posttest knowledge score for source of information was significant at p < .001 level.

Hence it can be concluded that in posttest, age of mother, level of education, monthly family income, type of family, type of house, total number of children, occupational status had no impact on knowledge of mothers regarding lead poisoning except previous sources of information.

Discussion

The first objective of the present study was to assess the pre test knowledge regarding lead poisoning among mothers of under-five children.

The findings of the present study revealed that 90% of mothers of under-five children had poor knowledge, 10% had adequate knowledge and none of them had good knowledge during pretest regarding lead poisoning.

The second objective of study was to assess the post test knowledge regarding lead poisoning among mothers of under-five children.

Findings of the study revealed that 98% mothers of under-five children had good knowledge, 2% had average knowledge and none of them had poor knowledge regarding lead poisoning.

The findings of the study consistent with the results of study was conducted by **Maheshwari BU 2014 to** assess the knowledge regarding impact of lead among mothers of children in selected rural settings, Bangalore. The results revealed that 48% of mothers had inadequate knowledge, 4% had adequate knowledge and 48% had moderate knowledge. It was concluded that mothers had inadequate knowledge regarding impact of lead on children.[19]

The third objective of study was to compare the pre test and post-test level of knowledge regarding lead poisoning among mothers of under-five children

The findings of the present study revealed that the mean pretest and post test score of mothers of under-five children regarding lead poisoning was3.94 and 20.62 respectively. The difference between the mean pretest and posttest score (16.68) was statistically highly significant at $p<0.001$ level. Hence, the research hypothesis H_1 was accepted.

The findings of the study consistent with the results of study was conducted by**Vageriya V.2014**A to assess the effectiveness of structured teaching programme on knowledge about the prevention of lead poisoning among mothers of toddlers in selected rural areas at Hassan, Karnataka. 60 mothers of toddler were selected as a sample by using convenient sampling techniques. The results revealed that the overall mean percentage in pre-test is 19.66%, post test is 69%. It shows that there was a significant increase in knowledge after structured teaching programme.[30]

- **The fourth objective of study was to find out the relationship of pre- test and post- test level of knowledge regarding lead poisoning among mothers of under -five children with selected demographic variables.**

The findings of the present study revealed that in pretest and post test sources of information regarding lead poisoning was significant at the level of $p< 0.05$. Then other variables such as age, level of education, monthly income, type of family, type of house, total number of children, occupational status was non-significant at $p< 0.05$ level in both pre-test and post test.

Conclusion

Based on the findings of the present study, the investigator found that the knowledge score of mothers of under-five children was improved after a structured teaching programme. Thus structured teaching programme was an effective tool in improving knowledge of mothers of under-five children regarding lead poisoning.

Conflict if Interest: Nil

Source of Funding: Self

Summary: A structured teaching programme was prepared which contains definition of lead poisoning, sources, risk factors, clinical manifestation and prevention of lead poisoning. A self-structured knowledge questionnaire was developed for the data collection which had two sections. **Part-I:** Demographic variables **Part-II:**Self-structured knowledge questionnaire to assess the knowledge regarding lead poisoning among mothers of under – five children. Purposive sampling technique was applied for the selection of 50 samples for data

collection. The informed consent was obtained from mothers of under-five children and confidentiality of their responses was assured. Pre pre-test was applied to assess the knowledge level of mothers of under-five children regarding lead poisoning and thereafter a structured teaching programme was administered regarding lead poisoning in children among mothers of under-five children. After 7 days, a post test was applied to assess the knowledge of mothers of under-five children regarding lead poisoning. Analysis and interpretation was done in accordance with the objectives by using descriptive and inferential statistics.The results revealed that as difference between mean pre test and post test knowledge score was highly significant at $p<0.001$, So H1 Hypothesis was accepted.Thus structured teaching programme was an effective tool in improving knowledge among mothers of under-five children regarding lead poisoning.

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