



EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING MUMPS & ITS MANAGEMENT AMONG PARENTS OF UNDER FIVE YEAR CHILDREN

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ABSTRACT

Background:

Mumps is a highly contagious viral infection caused by the mumps virus, affecting approximately 100,000 people worldwide annually. The mumps virus is a single- stranded, non-segmented, negative-strand RNA virus belonging to the Paramyxoviridae family. Mumps, a vaccine preventable disease, causes inflammation of salivary glands and may cause severe complications such as encephalitis, meningitis, deafness, and orchitis/oophoritis (Moghe et al 2018). Mumps is an infectious disease controlled by specific vaccine prophylaxis. To date, its social and epidemiological significance remains high (Chekhlyayeva et al 2022).

Aim:

This study aims to evaluate the effectiveness of structured teaching program on knowledge regarding mumps & its management among parents of under five year children.

Method:

A pre-experimental, one-group pre-test and post-test design was conducted with 60 parents under five-year children at community area Talwandi, Kota (Raj.). A structured questionnaire assessed baseline knowledge, followed by the distribution of structured teaching program as an educational intervention. a post-test was conducted seven days later to measure the effectiveness of the intervention.

Results:

The mean of the pre-test level of knowledge regarding mumps and its management among parents under five-year children is 13.37 with SD is ± 2.81 . The mean of the post-test level of knowledge regarding mumps and its management is 21 with SD is ± 2.40 , whereas t value is 18.64 and p - value is $<.0001$. Chi square value computed between the pre-test knowledge score of parents regarding mumps and its management and selected socio demographic variables like area of residence, types of family, educational status of parents, previous source of information regarding immunization, any program /event attended regarding mumps & it's management, any family relatives / neighbor working in health profession were significant at 0.05 level. The variables like age in year, monthly income of family were found not significant at 0.05 levels.

Conclusion:

The study proved that structural teaching program is an effective teaching strategy in improving the knowledge of parents under five-year children regarding mumps and its management.

KEYWORDS

Effectiveness, Structured teaching program, knowledge, Mumps, Parents, Under five year Children

1. INTRODUCTION

The mumps virus is a single-stranded, non-segmented, negative-sense RNA virus belonging to the Paramyxoviridae family. Mumps is characterized by bilateral or unilateral swelling of the parotid gland. Aseptic meningitis is a common complication, and orchitis is also common in adolescents and adult men. Diagnosis is based on clinical findings, but because of high vaccination coverage, clinical findings alone are not sufficient for diagnosis, and laboratory confirmation is needed¹. Mumps is preventable by vaccination, but despite high vaccination coverage, epidemics occur in several countries, including Korea. Many hypotheses are suggested for these phenomena. In this review, we investigate the reason for the epidemics, optimal methods of diagnosis, and surveillance of immunization status for the prevention of future epidemics. The clinical diagnosis of mumps is not difficult in population with low vaccination coverage, but currently because of high vaccine coverage and low incidence of mumps, clinical diagnosis of mumps is complicated. Major outbreaks have occurred worldwide, despite the high rate of vaccination coverage. The incidence of mumps is on the rise in Korea, as reported by the Korea Centers for Disease Control and Prevention (KCDC).² Approximately 75% of all cases of apparent mumps in children are full-blown but without complications. Up to 30% of children infected with mumps may not even show signs of parotitis. Parotid gland swelling is at its maximum at 1-3 days and gradually decreases by 7 days. Generally, the clinical manifestations appear to be mild in children and severe in adults. Complications are less common after vaccination.³ Mumps became nationally reportable in 1968 with about 152,000 cases reported. After the use of the mumps vaccine, cases began to decrease rapidly. By 1985, fewer than 3,000 cases were reported annually. In the mid-1980 there was a relative resurgence of mumps with approximately 13,000 cases reported in 1987.³ The highest incidence of mumps during the resurgence was among older school-age and college-age youth (age 10 through 19 years), who were born before routine mumps vaccination was recommended. Several mumps outbreaks among highly vaccinated school populations were reported, indicating that high coverage with a single dose of mumps vaccine did not always prevent disease transmission.⁴

2. NEED FOR THE STUDY

“Education is the most powerful weapon which you can use to change the world”

Impact on Patient Behavior: Studies on general patient information leaflets (PILs) for other conditions suggest they can trigger various patient behaviors, from seeking additional support to stopping medication. Research is needed to specifically assess how mumps structured teaching program influence patient compliance with isolation protocols, rest recommendations, and medical advice.⁵

Knowledge Assessment: One study revealed that primary school teachers had poor to fair knowledge about mumps symptoms, diagnosis, and prevention, leading to a recommendation for targeted education programs. This suggests a broader need for research into the baseline knowledge of the general public and how effectively structured teaching program on mumps & its management can improve this knowledge⁶.

Targeted Interventions: Educational interventions have been shown to significantly improve knowledge levels in specific groups, such as medical students or healthcare professionals. Research is required to determine the optimal content, format (e.g., printed booklet vs. video-assisted), and delivery method for mumps structured teaching program to effectively reach different populations (e.g., parents, adolescents, adults in outbreak settings).⁷

Outcome Evaluation: The primary mumps research focuses on the clinical effectiveness of vaccines and the public health impact of immunization programs. There is a lack of studies using patient-centered outcomes (e.g., reduced anxiety, improved symptom management at home, reduced rates of avoidable hospital visits or complications) to evaluate the success of structured teaching program for mumps management.⁸

Readability and Comprehension: Research has shown that patient-facing literature on MMR can have varying readability levels. Studies are needed to ensure mumps structured teaching program are written at an appropriate reading level for the target audience to maximize comprehension and impact.⁹

Current scientific literature points to a strong need for dedicated, prospective studies that evaluate the effectiveness of mumps structured teaching program. Such research would fill significant knowledge gaps and provide evidence-based strategies for improving patient education, managing symptoms effectively, and reducing the spread of mumps, particularly during outbreaks.¹⁰

3. REVIEW OF LITERATURE

Literature indicates that while parents often have positive attitudes towards vaccination, knowledge gaps exist regarding specific diseases like mumps, particularly concerning vaccine effectiveness, potential side effects (like aseptic meningitis), and management, with low-to-moderate parental knowledge levels common, highlighting a significant need for targeted, educational interventions like structured teaching programs or information booklets to improve understanding and practice for under-5 children.¹¹ Studies show structured education improves knowledge, and improved knowledge correlates with better vaccination practices, necessitating tailored health promotion for at-risk groups.¹² Reviews on parental knowledge about mumps show generally moderate to low understanding, with significant gaps regarding complications (like deafness), vaccine necessity (though vaccine acceptance is often high, especially with support), and risks of not vaccinating, indicating a strong need for targeted health education to improve both knowledge and uptake, according to studies from various regions like India and Japan. Many parents know mumps exists but lack specific details, often holding misconceptions (e.g., vaccine-autism link).¹³⁻¹⁵

Key Findings from Literature:

- Parental Knowledge Gaps: Many parents have low knowledge about mumps, even with general positive attitudes towards vaccines, particularly concerning adverse reactions and contraindications.¹⁶
- Impact of Education: Structured teaching programs or information booklets significantly improve parental knowledge about immunization, as shown by pre- and post-test scores.¹⁷
- Correlation with Practice: Higher parental knowledge levels are significantly associated with better

vaccination practices for their children.¹⁸⁻¹⁹

- Mumps-Specific Concerns: Outbreaks highlight the need for mumps vaccination, yet parents might be unaware of its importance, its inclusion in the MMR vaccine, or the risks of non-vaccination, leading to low uptake.²⁰
- Factors Influencing Knowledge: Education level, socioeconomic status, and family size can influence parents' knowledge, attitudes, and practices.²¹
- Effectiveness of Interventions: Information materials and health professional guidance are crucial to address misinformation and improve parental understanding, especially regarding the safety and necessity of the MMR vaccine.²²

Hussein et al. (2022) conducted a study aimed to determine the parents' knowledge and practice regarding MMR vaccination and examine its associations. A cross-sectional study was conducted among the 202 parents in Selangor Malaysia using simple random sampling. The parents' knowledge and practice regarding MMR vaccination were measured using the modified self-administered questionnaire developed by Awadh et al. The data were analyzed using the Statistical Package for the Social Sciences Statistic for Windows (version 23.0) and the significant level (P) was set at $P < 0.05$. Study concluded that majority of parents have low knowledge of MMR vaccination but they practice good MMR vaccination. It is necessary to consider parents' level of knowledge when planning the health promotions regarding MMR vaccinations.²³⁻²⁵

Hara et al. (2021) conducted a cross-sectional survey for all parents whose children underwent 18-month health checkups in Kanazawa City between October 2019 and February 2020. Community nurses interviewed the parents using a unified questionnaire, and 1422 parents responded. Based on records from maternal and child health handbooks, the mumps vaccination rate was 55.6%. The most common reason for parents not vaccinating their children against mumps was that "it is not a routine vaccine" (35.9%), whereas "concern about adverse reactions" accounted for only 2.2%. In multivariate analysis, the significantly positive factors associated with vaccination against mumps were children whose parents knew that adverse reactions were fever, rash, diarrhea, and vomiting; had received a recommendation for vaccination from their family members; had read the Vaccination Guide issued by the city; vaccinated with other voluntary vaccines or treated for gastroenteritis; and had a deep general understanding of vaccination. Conversely, the significantly negative factor was children whose parents had not received any recommendation for vaccination. Study concluded that mumps vaccination rate could be improved by adding the mumps vaccine in the routine vaccination program and educating parents by disseminating correct information on mumps and the mumps vaccine, and by primary care physicians routinely recommending vaccination.²⁶⁻²⁸

4. STATEMENT OF THE PROBLEM

A study to assess the effectiveness of structured teaching program on knowledge regarding mumps & its management among parents of under five year children at selected community area Kota, (Raj.)

5. OBJECTIVES

- (1) To assess the pre-test knowledge among parents of under five-year children regarding mumps and its management.
- (2) To prepare and implement structured teaching program regarding the mumps and its management among parents of under five-year children.
- (3) To assess the post-test knowledge among parents of under five-year children regarding mumps and its management.
- (4) To assess the effectiveness of structured teaching program on knowledge regarding mumps and its management among parents of under five-year children by comparing their pre-test and post-test knowledge scores.

6. HYPOTHESES (At 0.05 level of significance)

H₀₁: There is no significant difference between pre-test and post-test knowledge scores regarding the mumps and its management among parents of under five-year children.

H₁: There is significant difference between pre-test and post-test knowledge scores regarding the mumps and its management among parents of under five-year children.

7. OPERATIONAL DEFINITIONS

Assess:

It refers to evaluate the knowledge level of parents of under five-year children regarding mumps and its management.

Effectiveness:

In this study, effectiveness refers to determine the extent to which the information available in the structured teaching program regarding mumps and its management would be able to achieve the desired effect among parents as expressed by gain in their post-test knowledge scores.

Structured teaching program: It is a pre-planned document to help in learning process regarding mumps and its management among parents of under five- year children.

Knowledge – In this study, term knowledge refers to awareness & proper understanding regarding mumps and its management among parents of under five- year children. It refers to the correct response from the Parents of under five- year children regarding items on cognitive aspects of Mumps and its management.

Community Area- In this study, community area belongs to urban area where a group of people live & share common characteristics.

Mumps- It is a type of infection, which majorly affects the children through the spreading of Paramyxovirus.

Parents of under five-year children – In this study, it refers to those Parents who have children aged less than five years & who are living in selected urban area of Kota (Raj).

8. MATERIALS AND METHODS

Research approach: Quantitative impact evaluative approach.

Research design: Pre-experimental research design (One group pre-test post-test design).

Research setting: Study was conducted in urban community area in Talwandi, Kota (Raj.)

Study population: Parents of under five-year children living in urban community area of Talwandi, Kota (Raj.).

Study sample and sample size: Parents of under five-year children living in urban community area of Talwandi, Kota (Raj.). Sample size was 60.

Sampling technique: Purposive sampling technique

Variables: In this study, structured teaching program is the independent variable. Dependent variable is the knowledge of parents under five-year children regarding mumps and its management. The demographic variable in this study are age of parents, area of residence, type of family, monthly income of family, educational status of family, previous source of information about mumps, attendance at any program regarding mumps and its management, any family or relatives working in health profession on mumps and its management.

Criteria for sample selection:

Inclusion criteria:

- ✓ Parents who were available during the study in urban community area.
- ✓ Parents who were interested in the study.
- ✓ Parents who were able to read and understand English & Hindi.

Exclusion criteria:

- ✓ Parent who were not available at the time of data collection.
- ✓ Parents who were not interested in the study.
- ✓ Parents who were not able to read & understand English and Hindi.

Data collection method & tool:

In this study, data collection method was questioning & tool was self-administered multiple choice questionnaire.

Description of tool:

Section A: It comprised of demographic characteristics of Parents. It consists of 8 items on information regarding Age of parents (in year), Area of residence, Type of family, Monthly income of family, Educational status of family, Previous source of information about mumps, Any program or event attend about mumps, Any family / neighbor working in health profession.

Section B: Structured Teaching program consisting of 30 questions regarding mumps and its management which was divided into parts.

Part I: Consisting 10 questions regarding general information about mumps.

Part II: Consisting 8 questions regarding Etiology, Clinical manifestation, Diagnostic evaluation about Mumps.

Part III: Consisting 12 question regarding prevention and management of mumps.

Scoring Criteira:

Maximum score is 30, Each correct response: 1 score, Each incorrect response: 0 score.

Content validity of tool & intervention:

A prepared tool with the objectives, inclusion criteria, exclusion criteria, blue print and check list were submitted to nine experts including assistant & associate professors in Child Health Nursing, Pediatric doctors. It consists of 3 criteria relevant, not relevant, need modification. A suggestion column was provided for each item, where experts could give their remarks. Structured Teaching Plan was also validated from these experts & necessary changes were

made. The reliability of the structured knowledge questionnaire was tested by Split Half Method and reliability found as $r = 0.79$ which indicated that the tool was reliable.

9. DATA COLLECTION PROCESS

Research study was conducted in community area of Talwandi, Kota (Raj.). Prior to the collection of the data, permission was obtained from CMHO, Kota. Period of data collection was Nov –Dec 2024. Parents of community area, who fill filled the criteria were selected as sample by using purposive sampling technique. The researcher introduced herself to the participants and established support with them. The purpose of study was explained to participants. The researcher assured the participant for the confidentiality of their responses. Written consent was obtained from each participant in the study before starting data collection. Questionnaires were distributed among the parents. Pre-test was conducted by using self-structured questionnaires. Structured teaching program was given to sixty parents in community area. After seven days post test was conducted by the same questionnaire. At the end of the data collection, the researcher conveyed thanks to all the participants. Data were analyzed using SPSS 22.0 software and interpreted in form of tables and charts.

10. RESULTS OF THE STUDY

SECTION-I: Description of socio- demographic variables.

SECTION-II: Analysis and interpretation of pretest knowledge scores.

SECTION-III: Analysis and interpretation of post-test knowledge scores.

SECTION-IV: Analysis of Effectiveness of Structured Teaching Program regarding Mumps and It's Management

SECTION-I: Description of socio- demographic variables.

S.NO.	SOCIO-DEMOGRAPHIC VARIABLE AND RESPONSES		FREQUENCY	PERCENT (%)
1.	Age (In Years)	18 to 22	23	38.33%
		23 to 27	22	36.67%
		28 to32	12	20.00%
		Above 32	03	05.00%
2.	Area of residence	Rural	00	00.00%
		Urban	60	100.00%
3.	Type of Family	Nuclear	26	43.33%
		Joint	34	56.67%
4.	Family Income Per Month	Up to 10,000/-	16	26.67%
		10,001/- to 20,000/-	19	31.67%
		20,001/- to 30,000/-	16	26.67%
		Above 30,000/-	09	15.00%
5.	Educational Status of Parents	Primary education	08	13.33%

		Secondary education	22	36.67%
		High Secondary education	14	23.33%
		Graduate & above	16	26.67%
6.	Previous source of information	News paper	37	61.66%
		Mass media	14	23.33%
		Friend & Family	06	10.00%
		Health Personal	03	05.00%
7.	Attended any program and event regarding mumps and its management	Yes	14	23.33%
		No	46	76.67%
8.	Any family relatives/ Neighbor working in health profession	Yes	14	23.33%
		No	46	76.67%

SECTION-II: Analysis and interpretation of pretest knowledge scores of Parents of under Five Year Children Regarding Mumps and its Management.

Pre -test Level Of Knowledge	Frequency	Percentage
Inadequate Knowledge	34	57.67. %
Moderate Knowledge	26	43.33 %
Adequate Knowledge	0	0.00 %
Mean	13.37	
SD	2.81	

SECTION-III: Analysis and interpretation of post-test knowledge scores of Parents of under Five Year Children Regarding Mumps and its Management.

Post-test Level Of Knowledge	Frequency	Percentage
Inadequate Knowledge	2	4.00 %
Moderate Knowledge	38	63.00 %
Adequate Knowledge	20	33.00 %
Mean	21	
SD	2.40	

SECTION-IV: Analysis of Effectiveness of Structural Teaching Program regarding Mumps and It's Management among Parents of under Five Year Children

Assessment	Mean	Mean %	SD	Enhancement	Df	T Value	P Value	Interpretation
Pre-test	13.73	49.04%	2.81	25.96 %	59	18.64	<.0001	Significant
Post-test	21	75.00 %	2.40					

11. DISCUSSION BASED ON FINDINGS

The finding of the study revealed that in pre-test level of knowledge regarding mumps and its management. The major findings were 34 (57.67%) of parents had inadequate knowledge, 26 (43.33%) of parents had moderate knowledge. The mean of the pre-test level of knowledge regarding mumps and its management among parents under five-year children is 13.37 with SD is ± 2.81 .

In contrast to these findings, post-test level of knowledge regarding mumps and its management. The major finding was 38 (63.00%) of parents had moderate knowledge, 20 (33.00%) of parents had adequate knowledge, 2 (4.00%) of parents had inadequate knowledge. The mean of the post-test level of knowledge regarding mumps and its management is 21 with SD is ± 2.40 .

Regarding the analysis the analysis of effectiveness of structural teaching program on knowledge regarding mumps and its management among parents under five-year children. The mean of the pre-test level of knowledge regarding mumps and its management is 13.73 with SD is ± 2.81 . The mean of post-test level of knowledge regarding mumps and its management is 21 with SD is ± 2.40 whereas t value is 18.64 and p - value is $<.0001$. This shows the study findings are significant. Thus, the H_1 Hypothesis (alternative hypothesis) is accepted. In nutshell, the structured teaching program has potential to improve the knowledge of parents under five-year children regarding mumps and its management.

12. RECOMMENDATIONS FOR FURTHER RESEARCH

For further research on parental knowledge assessment, focus should be given on longitudinal studies evaluating targeted interventions (e.g., for developmental milestones, nutrition, health), exploring cultural/socioeconomic impacts, comparing knowledge vs. practice gaps, investigating impact of digital resources (like apps, websites) and parental learning styles, and assessing specific knowledge related to child health challenges (e.g., mental health, chronic conditions), using validated, culturally-sensitive tools.²⁹⁻³⁰

13. CONCLUSION

On basis of this study findings, structured teaching program significantly improves parents' knowledge about mumps and its home management, with studies showing higher post-test scores compared to pre-tests, boosting understanding of symptoms, transmission, complications (like infertility, meningitis, deafness), and effective relief measures (rest, fluids, pain relievers) for under-5 children, making structured teaching program a valuable tool for health education to improve vaccination uptake. In essence, providing clear, simple information via structured teaching program / information booklets empowers parents with the knowledge needed to care for their child with mumps and understand the importance of prevention, leading to better health outcomes.

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