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A Study to Assess the Compliance to Immunization Schedule among Under-Five Children and Determine its Association with Sociodemographic Factors of their Parents Attending Paediatric OPD of Selected Hospitals at Bagalkot

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Abstract **Original Research Article**

Background: Immunization is crucial for children under the age of five as it plays a vital role in protecting them against various preventable diseases. Compliance to immunization can be influenced by various factors, including individual, social, cultural, and systemic factors. Here are some commonly recognized factors influencing compliance to immunization are level of understanding about the importance, benefits, and safety of vaccines and it is very important to analyze how far parents are compliance to immunization schedule. ***Methods:*** Non-Experimental cross sectional survey design was used for present study. The sample for the study consists of 100 Parents of under-five children visiting pediatric OPD, selected by purposive sampling technique method, data was collected by self-structured questionnaires, Structured 5 Point Likert's scale and check list. The data analysis done by using descriptive and inferential statistics. ***Results:*** Findings of the study regarding basic level of knowledge of immunization revealed that 65(65%), 20(20%) and 15(15%) Parents had Average, Good, Poor Knowledge. And regarding compliance rate, 85% of Parents are having delayed compliance to immunization schedule followed by this 15% of Parents having on time compliance and none of parents were in state of no Compliance and about parents attitude regarding immunization shows majority (98%) of parents had highly favourable attitude towards the compliance to immunization schedule, followed by only 2% of parents are of moderate attitude and No parents of Unfavourable attitude.No association found with selected socio-demographic variables and also with determining factors. ***Conclusion:*** The study concludes that the majority of the Parents even though having average & favorable attitude and good knowledge but when it comes to compliance rate majority of parents are of delayed compliance to immunization schedule because of parent's busy schedule, child illness and blind beliefs. We recommend that health agencies must develop multiple education interventions regarding immunization and periodic reminders for scheduled vaccination for their child.

Keywords: Assess, Parents, Compliance, Immunization, Under-Five, Determine, Pediatric OPD.

INTRODUCTION

Children are incredibly important for several reasons they represent the future generation and hold the potential to shape society and drive progress in various fields. Children are essential for the social and economic development of a nation. Investments in children's education, health, and well-being contribute to the overall development of a society [1].

Children under the age of five are a particularly vulnerable group that requires special attention and care. Early Childhood Development and the period from birth to five years is critical for a child's overall development. It is a time when their brain rapidly develops, and they acquire crucial cognitive, social, emotional, and physical skills [2 3]. As per 2020 study according to Sample Registration System (SRS) India has under 5 mortality rate(U5MR) about-32 [4]. Immunization is a crucial and it is a preventive measure to protect children, from vaccine-preventable diseases. Immunization plays a vital role in preventing the spread of infectious diseases, reducing illness, disability, and death among children and as well as in adults also [5]. Immunization is one of the most cost-effective health investments in worldwide [6].

Compliance to immunization can be influenced by various factors, including individual, social, cultural, and systemic factors. Here are some commonly

recognized factors influencing compliance to immunization they are Level of understanding about the importance of vaccines, its benefits, and safety of vaccines, awareness of the disease's vaccines prevent and their potential risks. And it also focuses on Knowledge of the immunization schedule and recommended vaccines [7]. Compliance also depends up on the availability of vaccines in local healthcare facilities, affordability and cost of vaccines. And Convenience of vaccination services, including location and hours of operation [8].

Karnataka has recorded a five-point decline in under-five mortality rate (U5MR), from 26 per 1,000 live births in 2019 and 21 in 2020. According to data from the Sample Registration System (SRS) bulletin for 2020 released on Friday, U5MR varies from 18 in rural areas to 17 in urban areas in Karnataka. On an average, the under-five mortality rates of female children are higher than that of male except in Delhi, Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Tamil Nadu and West Bengal [9].

Considering determinants related compliance to immunization schedule researcher during his clinical postings in pediatric OPD has been observed that, many parents are not adhering to the policies of immunization schedule, hence paying a special attention to existing barriers in accessing and receiving the immunizations on time as per schedule or given date is crucial. In addition, building parent's self-efficacy, which is confident in making healthy decisions, such as keeping their children's immunizations up to date is important, thus we conducted cross-sectional research study to find out how far the parents are having compliance to immunization schedule even though they are fully vaccinated.

MATERIALS AND METHODS

Research approach quantitative research approach. The present study is Non experimental cross-sectional survey design. A purposive sampling technique was used to select 100 Parents of under-five children visiting pediatric OPD at BVVS HSK Hospital and Research Centre Navanagar, Bagalkot. Written consent was taken from participants for the study. Self-structured questionnaires for sociodemographic variables and level of parent's knowledge regarding immunization schedule, structured 5 Point Likert scale was used to assess the Parents attitude towards immunization and check list was prepared to measure the compliance rate. The data was analyzed by using descriptive and inferential statistical.

Study Design: The study design adopted for this study was Non experimental cross-sectional survey design.

Setting of the Study: The present study was conducted at Pediatric OPD of BVVS HSK Hospital and Research Centre Navanagar, Bagalkot.

Participants: In the present study participant were the Parents of under-five children visiting pediatric OPD at BVVS HSK Hospital and Research Centre Navanagar, Bagalkot. Who met the inclusion criteria were selected as sample for the study.

Instruments: The study was conducted using a Structured Questionnaires with items related socio demographic data of parents and children along with basic level of knowledge of parents regarding immunization and Structured 5 Point Likert scale was used to assess the Parents attitude towards immunization and check list was prepared to measure the compliance rate.

Description of data collection instruments

Part I: Sociodemographic factors of Parents of Under-five Children.

Part II: Sociodemographic factors of Under-five Children.

Part III: Assessment of basic level of knowledge of parents regarding Immunization.

Part IV: Assessment of Parents Attitude Towards Compliance to Immunization Schedule among parents of under-five Children.

Part V: Assessment of Compliance rate as per their Immunization card according to immunization schedule.

Data Collection Procedures: Data collection was done for about 2.5 Months from date 19/05/2024 to 30/07/2024 at HSK Hospital & Research Centre Navanagar, Bagalkot. A formal Permission was obtained from the Principal of Sajjalashree Institute of Nursing Sciences Navanagar, Bagalkot. Then permission was obtained from the Medical Superintendent of HSK Hospital & Research Centre Navanagar, Bagalkot. Data was collected from parents of under-five children by explaining the purpose of this study. Written consent was obtained from the study participants. Data was collected from participants by data collection instruments.

Variable under study: Study variables for the present study were the Compliance to immunization schedule, determining factors Knowledge and Attitude.

Socio-demographic variables of Children: Age of child, gender of children, Number of children in family.

Socio-demographic variables of parents: Age of parent, Relationship with child, Education of father, Education of Mother, Religion, Occupation of father, Occupation of Mother, Family income, Place of residence, Type of family.

Statistical analysis: The obtained data were statistically examined in terms of the objectives of the study using descriptive and inferential statistics. A master sheet was prepared with responses given by the study participants. Frequency and percentage distribution were used to analyze the demographic variables of Parents and Children, Parental attitude towards the compliance to Immunization schedule and to analyze the Parents Compliance rate to Immunization schedule. Chi Square test was used to find out the association Between the level of Knowledge, attitude of parents regarding Immunization with their selected Socio-Demographic Variables and also Chi Square test was used to find out the association between the Level of knowledge of Parents regarding Immunization and Compliance rate of parents to Immunization Schedule is measured with the help of taayi card.

Ethical Clearance: A certificate of ethical permission was obtained from ethical committee of the institution and written consent was taken from each participant.

RESULTS

Part I: Description Sociodemographic profile of Parents of Under-five Children.

In this study the distribution of parents according to the Age depicts that the majority 53% of parents were in the age group of 26-31 years followed by this, least 7% of parents were in the age group of 38-42 years. parents according to the Relationship with their child depicts that the majority 52% of participants were fathers, followed by this 48% of participants were mothers. Parents (Father) according to their Education depicts that the majority 42% of parents have completed their education as degree and above and the majority 29% of parents were in Government service and Private Employee, the majority 45% of Mother had completed PUC and the majority (90%) of Mothers were home maker. parents according to their Type of family depicts that the majority 53% of parents were from nuclear family and only 47% of parents were from Joint family.

Part II: Sociodemographic Profile of, Under-five Children.

In this study the distribution of children according to their Age depicts that the majority 76% of children were in the age group of 1-24 Months and only 2% of children in the age group of 49-60 Months. children according to their gender depicts that the majority 70% of children were Males and only 30% of children were Females.

Part III: Assessment of basic level of knowledge of parents regarding Immunization.

Table No 1: Describes the Level of knowledge of Parents regarding Immunization (N=100).

SI. NO	Level Of Knowledge	Frequency	Percentage
1	Good (11-15)	20	20%
2	Average (6-10)	65	65%
3	Poor (0-5)	15	15%
	Total	100	100%

Table No 1: Indicates that the majority 65% of Parents had Average Knowledge regarding Immunization followed by this 20% of parents had good Knowledge and only 15% parents are having Poor Knowledge.

Part IV: Likert Scale Based on Parents Attitude Towards Compliance to Immunization Schedule among parents of under-five children.

Table No 2: Describes the Percentagewise distribution of Parental attitude towards the compliance to Immunization schedule

SI.NO	Attitude towards to Compliance to immunization Schedule	Frequency	Percentage
1	Highly Favourable (41-50)	98	98%
2	Moderately Favourable (38-40)	2	2%
3	Unfavourable (1-30)	0	0
	Total	100	100%

Table No 2: Depicts that the majority (98%) of parents had highly favourable attitude towards the compliance to immunization schedule, followed by only 2% of parents are of moderate attitude and No parents of Unfavourable attitude.

Part V: Assessment of Compliance rate as per their Immunization card according to immunization schedule. N=100

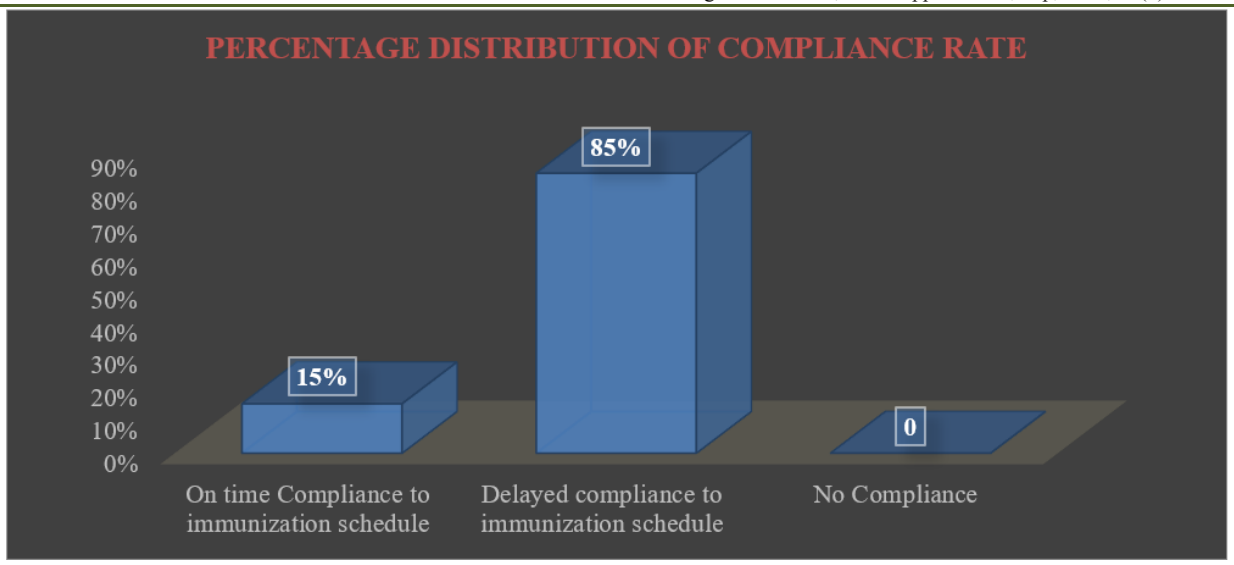

Fig No. 1: Describes the Compliance Rate to Immunization schedule

Fig No. 1: Describes the distribution of compliance rate of immunization schedule depicts that the majority 85% of Parents are having delayed compliance to immunization schedule followed by this 15% of Parents having on time compliance to immunization schedule and none of parents were having no compliance to Immunization schedule.

Part VI: Association between the level of Knowledge of parents regarding Immunization with their selected Socio-Demographic Variables.

Table No 3: Describes the association between the Level of knowledge of Parents regarding Immunization with their selected Socio-Demographic Variables. N=100

Sl. No	Socio-demographic variables of parents	df	χ^2 Calculated Value	Table Value	Association
1	Age	2	0.67	5.99	Not significant
2	Relation with child	2	1.44	5.99	Not significant
3	Father Education	2	1.315	5.99	Not significant
4	Father Occupation	2	5.535	5.99	Not significant
5	Mother Education	1	2.143	3.841	Not significant
6	Mother Occupation	1	0.16	3.841	Not significant
7	Family monthly Income	1	0.729	3.841	Not significant
8	Type of Family	2	0.0453	5.99	Not significant
9	Area of Residence	2	3.179	5.99	Not significant
10	Religion	1	1.22	3.841	Not significant

Table No 3 shows the findings that, there is no significant association between the level of Knowledge of parents regarding Immunization with their selected Socio-Demographic Variables like Parents Age, Parent relationship with child, Father Education, Father occupation, Mother Education, Mother occupation, Family monthly income, Type of family, Area of Residence, Religion.**P < 0.05.** Hence, **H_1:** There will be significant association between the level of knowledge of parents regarding Immunization with their selected Socio-Demographic Variables, rejected for all sociodemographic variables.

Part VII: Association between the Parental attitude towards Compliance to immunization schedule with their selected sociodemographic variables.

Table No. 4: Describes the association between the Parental attitude towards Compliance to immunization schedule with their selected sociodemographic variables. N=100

Sl. No	Socio-demographic variables of parents	df	χ^2 Calculated Value	p-Value	Association
	Age	1	0.0939	3.841	Not significant
	Relation with child	1	0.4958	3.841	Not significant
	Father Education	1	0.3455	3.841	Not Significant
	Father Occupation	1	0.3845	3.841	Not Significant
	Mother Education	1	0.496	3.841	Not Significant

Sl. No	Socio-demographic variables of parents	df	χ^2 Calculated Value	p-Value	Association
	Mother Occupation	1	0.356	3.841	Not Significant
	Family monthly Income	1	0.256	3.841	Not Significant
	Type of Family	1	0.182	3.841	Not Significant
	Area of Residence	1	0.345	3.841	Not Significant
	Religion	1	0.162	3.841	Not Significant

The table No 4 shows the findings that, there was no significant found between the Parental attitude towards Compliance to immunization schedule with their selected Socio-Demographic Variables like Parents Age, Parent relationship with child, Father Education, Father occupation, Mother Education, Mother occupation, Family monthly income, Type of family, Area of Residence, Religion.**P < 0.05.** Hence, **H_2:** There will be significant Association between the Parental attitude towards Compliance to immunization schedule with their selected sociodemographic variables, rejected for all sociodemographic variables.

Part VIII: Association between the Level of knowledge of Parents regarding Immunization and Compliance rate of parents to Immunization Schedule.

Table No. 5: Describes the association between the Level of knowledge of Parents regarding Immunization and Compliance to Immunization Schedule. N=100

Sl. No	Level of Knowledge of parents regarding Immunization.	df	χ^2 Calculated Value	Table Value	Association
1	Level of Knowledge	1	0.292	3.841	Not Significant

The table No 5 shows that the calculated Chi-square value for the variable like Level of Knowledge is 0.292. The Chi square table value for the variable with 2×2 Contingency table and with degree of freedom 1 is 3.846. Hence the Chi square calculated value for variable like Level of Knowledge is lesser than the Chi square table value. This indicates that there was no significant association found between the above said selected variables with Compliance rate of parents to Immunization Schedule. $P < 0.05$. Hence, H_3: There will be significant association between the level of knowledge of Parents regarding Immunization and Compliance rate of parents to Immunization Schedule. with their selected variable, is rejected for variable level of knowledge.

DISCUSSION

The findings of the present study are discussed in light of previous scientific studies in this chapter and discussion regarding findings of the study is presented in accordance with the objectives of the study and hypothesis.

Findings of the study shown related to level of knowledge of parents regarding Immunization, indicates that the majority 65% of Parents had Average Knowledge regarding Immunization followed by this 20% of parents had good Knowledge and only 15% parents are having Poor Knowledge.

The results of the study are in contradictory with a study conducted by Kanchan Bhandari (2021) Himachal Pradesh. A descriptive study was conducted to assess the Knowledge Regarding Awareness of Immunization Schedule among Mothers of under Five Children. The study showed that 60% of mothers of under-five children have average knowledge, 17% of mothers have good knowledge and 23.3% of mothers have below average knowledge [10].

Parent's attitudes according to their compliance depicts that the majority 98% of parents had highly favourable attitude towards the compliance to immunization schedule, followed by only 2% of parents are of moderate attitude and none of parents were having unfavourable attitude.

Findings of the present study are consistent with study conducted by Perla Matta, Rayane El Mouallem, et al.(2020) Study results shows that 955 (34.5%) parents had poor attitude (scores ≤39), whereas 1070 (38.7%) and 740 (26.8%) had moderate (scores between 40 and 44) and good (scores of 45 and above) attitude respectively [11].

Compliance rate of immunization schedule depicts that the majority 85% of Parents are having delayed compliance to immunization schedule followed by this 15% of Parents having on time compliance to immunization schedule and none of parents were having no compliance to Immunization schedule.

The findings of the study are in contradictory with a study conducted by Kanma-Okafor O, Adefolalu O, Balogun M. (2019) The majority 86.4% of the respondents indicated from their responses that they had immunized their child completely or up-to-date. A minority (4.4%) of the respondents did not have their children's immunization cards in their possession, whether with them at the time of interview or kept elsewhere [12].

The calculated Chi-square value for the variable like Level of Knowledge is 0.292. The Chi square table value for the variable with 2×2 Contingency table and with degree of freedom 1 is 3.846. Hence the Chi square calculated value for variable like Level of Knowledge is lesser than the Chi square table value. This indicates that there was no significant association found between the above said selected variables with Compliance rate of parents to Immunization Schedule. $P < 0.05$. Hence, H_3 There will be significant association between the level of knowledge of Parents regarding Immunization and Compliance rate of parents to Immunization Schedule. with their selected variable, is rejected for variable level of knowledge.

The results of the study are in contradictory with a study conducted by Jisy, Melba, Nisha, Shilpa, and Umarani., (2013) who carried out a study on immunization awareness among mothers of children less than five years in Mangalore, India, they found that 30% of mothers had poor knowledge, 43.4% of mothers had the average knowledge, 23.4% mothers had good knowledge, and 3.3% of mothers had excellent knowledge. Overall, the study found that there is no significant association between knowledge score and compliance [13].

LIMITATIONS: The study limited to the sample of 100 Parents of under-five children visiting pediatric OPD at BVVS HSK Hospital and Research Centre Navanagar, Bagalkot.

CONCLUSION

: The study concludes that the majority of the Parents even though having average and good knowledge but when it comes to compliance rate majority of parents are of delayed compliance to immunization schedule. Hence it is important that parents should vaccinate their child on time with compliance to immunization schedule.

Declaration by authors

Ethical Approval: Institutional ethical clearance approved.

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Conflict of Interest: The authors declare no conflict of interest.

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