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IMMUNIZATION STATUS OF CHILDREN AGED 11 -23 MONTHS IN MALAPPURAM DISTRICT, KERALA

Mini Sacharias * — Part time Ph. D scholar, Department of Political Science and Development Administration, Gandhigram Rural Institute, Tamil Nadu, India. *Corresponding Author

Dr. A Celine Rani — Professor, Department of Political Science and Development Administration, Gandhigram Rural Institute, Tamil Nadu, India.

ABSTRACT

Background: Kerala state is way ahead with regard to development indices and health indicators, but there are some pockets in the state which is lagging behind in attaining immunization coverage and thereby resulting in upsurge of vaccine preventable diseases. Malappuram shows lowest vaccination coverage and re-emergence of disease outbreak of especially diphtheria and measles.

Objectives: (1) To assess the immunization status of children in Malappuram district, Kerala and (2) To find out the association between immunization status and socio demographic variables.

Materials and methods: this cross sectional study was conducted among 680 children aged 11 – 23 months old in Malappuram district, selected through 30 cluster sampling method adopted from WHO immunization coverage evaluation guide. Data was collected from mothers of children using pretested interviewer administered questionnaire. The data has been analysed using Statistical Package for the Social Sciences (SPSS) version 20.

Results: As large as 72.9% of sample surveyed were fully immunized. 25% of children were partially immunized and 2.1% of children were not given any immunization.

KEYWORDS : immunization

Introduction

Immunization is one of the most cost effective public health interventions since it provides direct and effective protection against preventable morbidity and mortality. [1] Reported cases of Vaccine Preventable Diseases (VPDs) in the country in 2015 include Diphtheria 2365, Pertussis 25206, Measles 25488 and Rubella 3252. [2]

Kerala state is way ahead with regard to development indices and health indicators, but there are some pockets in the state which is lagging behind in attaining immunization coverage and there by resulting in upsurge of vaccine preventable diseases. Malappuram shows lowest vaccination coverage and re-emergence of disease outbreak of especially diphtheria and measles.

Materials and Methods

Primary data from mothers of children aged 11-23 months were collected through informal interviews at respondents' residence. Socio demographic data of household was collected using interview schedule which included data on child characteristics including, age, gender, ordinal position and immunization status of child, background characteristics of family, individual characteristics of mother and perception of mothers regarding immunization services.

Results and Discussion

Data collected was entered in Excel sheet and analyzed using SPSS. For Descriptive statistics, frequency and percentage was calculated and Chi square and F test were used for finding out associations.

Table 1: Distribution of Children According To Their Age

n=680

Sl. No.	Age group of children	Frequency	Percent
1	11-13 months	232	34.1
2	14-16 months	126	18.5
3	17-19 months	182	26.8
4	20-23 months	140	20.6
	Total	680	100

Source: Computed.

Table 1 shows that 34.1% of children were in the age group of 11 to 13 months during the survey period. 26.8% of children belonged to 17 to 19 months and 20.6% of children were in the age group of 20 to 23 months. 18.5% of children were between14 to16 months.

Table 2: Distribution of Children According To Their Gender and Birth Order

n=680

Variable		Frequency	Percent
Gender	Male	348	51.2
	Female	332	48.8
Birth order	1st	238	35
	2nd	262	38.5
	3rd	127	18.7
	4th and above	57	7.8
	Total	680	100

Source: Computed.

Table 2 reveals that regarding gender of the surveyed children, males were 51.2% and 48.8% were females. Regarding birth order, 38.5% of children were second born, whereas 35% of children were first born. 18.7% and 7.8% belonged to 3rd and 4thand above birth order respectively.

Immunization Status of Children aged 11-23 months in Malappuram District

Children are considered fully immunized if they receive one dose of BCG, three doses of DPT/ PENTA and Polio vaccine each, and one Measles vaccine. In India, only 44% of children aged12–23 months are fully vaccinated and about 5% have not received any vaccination at all.[3]

Table 3: Distribution of Children according to their Immunization Status

n=680

Sl. No.	Immunization status	Frequency	Percent
1	Fully immunized	496	72.9
2	Partially immunized	170	25.0
3	Non immunized	14	2.1
	Total	**680**	**100**

Source: Computed.

Table 3 focuses on immunization status of children aged 11 months to 23 months. It depicts that 72.9% of sample surveyed were fully immunized. 25% of children were partially immunized and 2.1% of children were not given any immunization.

Table 4: Distribution of Children based on Reasons for Non-Immunization either Partially or Fully

n = 184

Sl. No.	Reasons for Non- immunization	Frequency	Percent
1	Fear of side effects	34	18.5
2	No faith in immunization	47	25.5
3	Rumours about vaccination	1	0.5
4	ANM absent	7	3.8
5	Vaccine not available	24	13.0
6	Postponed to another time	33	17.9
7	Family problem	22	12.0
8	Child ill, not brought	4	2.2
9	Long waiting time	1	0.5
10	Lack of support from family	11	6.0
	Total	**184**	**100**

Source: Computed.

Table 4 delineates that 34 (18.5%) of mothers of children had fear regarding side effects of immunization, 47 (25.5%) had no faith in immunization, 33(17.9%) postponed the immunization due to their personal delay, 22 (12.0%) had family problems at the time of immunization. Lack of support from family was reported by 11 (6.0%) mothers.

Multiple reasons were identified by researchers in India and outside. Study done by Nandraj S, Muraleedharan VR., Baru RV, Qadeer I identified a total of 901 reasons and factors associated with the under-vaccinated child from 209 articles. [4] Of these reasons and factors, 393 (44%) were related to immunization systems, 255 (28%) to parental attitudes and knowledge, 199 (22%) to family characteristics, and 58 (6%) were associated with communication and information.

Table 5: Association between Immunization Status and Child Characteristics

Variables		Immunization Status		X^2 value	DF	P value
		Fully immunized	Non immunized			
Gender of the Child	Male	254 (73.0)	94 (27.0)	0.001	1	0.977
	Female	242 (72.9)	90 (27.1)			
Birth order of the Child	1st child	171 (71.8)	67 (28.2)	0.969	3	0.809
	2nd child	190 (72.5)	72 (27.5)			
	3rd child	97 (76.4)	30 (23.6)			
	4th & above	38 (71.7)	15 (28.3)			

Source: Computed. Figures in parenthesis are percentages.

Above table shows that the calculated chi square value for gender (0.001) is less than the table value (3.841) at degree of freedom 1 and hence the null hypothesis is accepted. There is no association between immunization status and gender. This finding is contradicting the findings of many studies done outside the country and in other states of the country.

Laura C Rodrigues [5] in her study gives the evidence that gender of the child is a determining factor as far as immunization is concerned. Suresh Sharma [6] also substantiates this finding. The author reports that boys are still significantly more likely to be fully immunised than girl children.

Girls have been found to be significantly less likely to be fully immunized than boys, particularly in the northern states of India [7, 8]

With regard to the association of birth order with immunization status, the above table indicates that there is no association between indicates that there is no association between Birth order of the child and immunization status, since the calculated chi square value (0.969) is less than the table value (7.815) at degree of freedom 3. Findings from other studies show contradicting evidence.

Results of the present study in terms of gender of child and birth order of child is probably due to the increased literacy and cultural standards of the state.

Table 6: Association between Maternal Characteristics and Immunization Status

Variables		Immunization Status		X^2 Value	DF	P value
		Fully Immunized	Non Immunized			
Education of mother	10th and below	256 (66.7)	128 (33.3)	25.819	3	0.000
	11-12th	191 (84.5)	35 (15.5)			
	Degree	35 (76.1)	11 (23.9)			
	PG/Professional	14 (58.3)	10 (41.7)			
Mother's role in decisions related to health of self	Has role	488 (75.9)	155 (24.1)	52.214	1	0.000
	Has no role	8 (21.6)	29 (78.4)			
Mother's role in decisions related to health of children	Has role	481 (78.2)	134 (21.8)	90.541	1	0.000
	Has no role	15 (23.1)	50 (76.9)			

Source: Computed. Figures in parenthesis are percentages

Above table shows that education of mother is having significant association with immunization status since the calculated X^2 value 25.819 is higher than table value (7.815) with 3 degree of freedom (P value 0.000). Mothers having education up to 12th or degree is noted to immunize their children completely than others (less educated mothers) in the group. Earlier researchers like Caldwell [9] have postulated that with at least some years of maternal schooling, utilization of child health services will be improved. Study done by Cebu [10] study team in Philippines shows that for every one year of increase in maternal schooling, the likelihood of mothers seeking child health services increases by four percent. Findings presented in this table is supported by studies all over the world. [11, 12]

Mothers' role in decision making related to their health and their children's health related matters are having significant association with immunization of children. Here the calculated X^2 value is more than the table value and hence there is association. Autonomy of the mother to take decisions regarding her health and her child's health matters increases the immunization coverage.

Family Characteristics and Immunization Status

Family is the locus of decision making in health related matters. Family can generate, prevent, treat, tolerate and manage the health problems of its members. Characteristics of a family determine the health promoting, disease preventing and health seeking behaviours of members.

Table 7: Association between Immunization Status and Socio Economic Variables of Household

Variables		Immunization Status		X^2 Value	DF	P value
		Fully Immunized	Non Immunized			
Type of family	Nuclear	273 (77.6)	79 (22.4)	11.911	2	0.003
	Joint	204 (66.7)	102 (33.3)			
	Extended	19 (86.4)	3 (13.6)			
Place of residence	Rural	441 (76.8)	133 (23.2)	28.204	1	0.000
	Urban	55 (51.9)	51 (48.1)			
Family monthly income	2000 and below	168 (83.2)	34 (16.8)	19.697	4	0.001
	2001-5000	163 (73.1)	60 (26.9)			
	5001-10000	116 (64.4)	64 (35.6)			
	10001-20000	46 (64.8)	25 (35.2)			
	>20000	3 (75)	1 (25)			
Income Status	BPL	289 (78.5)	79 (21.5)	12.705	1	0.000
	APL	207 (66.8)	105 (33.7)			

Source: Computed. Figures in parenthesis are percentages

Table 7delineates the association between the immunization status and socio personal variables. Chi square test was used to find out the association between immunization status and socio personal variables.

Calculated 2 value for type of family is 11.911 with degree of freedom 2, which is greater than the table value. Hence the null hypothesis is rejected and there is significant association between immunization status and type of family. Findings of present study in this regard is in congruence with findings of the work of Anjaly and Guruswamy [7]. Findings contrary to this is seen in study done by Thalia VB[13] which identified that children born into larger families had lower vaccine uptake,

Table further delineates that the ^{2} value of association between place of residence and immunization status is 28.204 which is higher than the table value and hence there is association. Percentage of children fully immunized living in rural area is more than unimmunized and in urban area it is almost the same.

Calculated X^2 value for association between family income and income status with immunization status at 4 and 1 degree of freedom is 19.697 and 12.705 respectively, which are more than table value and hence family income and income status has association with immunization status of children. Children in lower income group received full immunization than those in higher income strata. [14]

CONCLUSIONS:

Results of the present study identifies that 72.9% of sample surveyed were fully immunized. 25% of children were partially immunized and 2.1% of children were not given any immunization. Regarding reasons for non-immunization of their children, 47 (25.5%) had no faith in immunization, 34 (18.5%) of mothers of children had fear regarding side effects of immunization, 33(17.9%) postponed the immunization due to their personal delay, 22 (12.0%) had family problems at the time of immunization. Lack of support from family was reported by 11 (6.0%) mothers. Further it was also found that that education of mother, is having significant association with immunization status. Mothers having education upto 12th or degree is noted to immunize their children completely than others in the group. Mothers' role in decision making related to their health and their children's health related matters, type of family or the family structure, place of residence and family income and income status were also found to have association with immunization status of their children.

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