ASSESS THE PERCEIVED HEALTH BELIEFS AMONG MOTHERS OF INFANTS ON ADHERENCE TO VACCINATION

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Abstract: Vaccine is one of the most significant contributions of the medical fraternity to humanity. The study was aimed to evaluate the association between perceived health beliefs among mothers' of infants regarding adherence to vaccination and behaviour of these mothers regarding vaccination of their infants. Cross sectional Descriptive Research Design was used in this study. The study participants were chosen by Non-Probability convenient sampling technique. We conducted 115 mothers to participate in the study and filled out the following questionnaires: Demographic variables of mothers with infants, Perceived health beliefs of mother on vaccination and Vaccination behaviour of mothers of infant. The vaccination adherence were appraised by checking infant vaccination cards.The descriptive statistics was used to organize the data and to examine the quantum of information and inferential statistics was used to determine the relationship. Findings of the study shows that most of mothers 57(49.57%) were in the age group of 26 – 30 years, 44(38.26%) of infants were in the age group of 21 – 24 months, 70(60.87%) of fathers were graduates, 78(67.83%) of mothers were graduates, 114(99.13%) of fathers were employed, 88(76.52%) of mothers were unemployed, 66(57.39%) responded that their infant get sick often and 96(83.48%) had responded that their infants had no history of hospital .Mother's level of perceived health belief revealed that 60(52.17%) were strongly perceived, 51(44.35%) were moderately perceived , only 4(3.48%) were poorly perceived and that maximum 69(60%) used to take their infants for vaccination to private hospital, 68 (51%) came to know about vaccination through doctor 47 (49%) came to know about vaccination through nurse, 100(86.96%) were well adhered to vaccination and 15(13.04%) were partially adhered to vaccination among mothers of infants. We found between perceived health belief and adherence to vaccination shows a moderate positive correlation which was found to be statistically significant at $p<0.001$ level.

Index Terms - Infants vaccination; Health belief model; Mothers

INTRODUCTION

Vaccine is one of the most significant contributions of the medical fraternity to humanity. Vaccine has certain agents that not only resembles a disease-causing microorganism but it also stimulates body's immune system that recognize the foreign agents. Vaccines prevent vaccine preventable disease. Vaccines are very safe, and serious adverse reactions are uncommon. Vaccines are one of the most effective health interventions ever developed The globally vaccine are recommended into the four main

antigen types such as Live attenuated vaccine, Inactivated (killed antigen), Subuint (purified antigen), Toxoid (inactivated toxins). They stimulates   two types of adaptive immunity such as humoral immunity and cell-mediated immunity. Only humoral immunity is producing the antigen- specific antibodies, which is the main difference between two immunity. Some boosters (called adjuvant) are also used in association with vaccines for increasing the immune response. (World Health Organisation 2017) In 2018, National Family Health Survey, as many as 72.5% of children in the age group of 12 to 23 months were not getting immunised on time. Vaccination is not only reduces the incidence of a disease, it also reduces the social and economic burden of the disease on communities. Very high immunization coverage can lead to complete blocking of transmission for many vaccine preventable disease.

OBJECTIVE

- To assess the perceived health beliefs among mothers' of infants regarding adherence to vaccination
- To evaluate the behavior of mothers of infants regarding the practice of vaccination
- To assess the relationship between health beliefs and vaccination adherence of mothers of infants.
- To assess the relationship between health beliefs and vaccination adherence wit selected demographic variables of mothers of infants

RESEARCH HYPOTHESES

- H1:There will be significant association between the perceived health beliefs with adherence behaviour pattern of mothers
- H2: There will be significant association between   perceived health beliefs with demographic variables

METHODOLOGY

Research Approach:

In this study descriptive research approach was used to assess the perceived health beliefs, adherence to vaccination and behaviour of these mothers regarding vaccination of their infants attending out patient department, Sri Balaji Nursing Home, Ramapuram and A.N. Clinical Lab & Health Centre, Mogappair -77 Chennai.The sample study design was Cross sectional Descriptive Research Design was used in the study

Setting of the study:

The study was conducted attending outpatient department of Sri Balaji Nursing Home, Ramapuram and A.N. Clinical Lab & Health Centre Mogappair. The setting has been chosen on the basis of feasibility of adequate sample and co-operation of people. The both vaccine centres are working at 24

hours. Every day 30 to 40 mothers coming for vaccinating their children in each hospital and also delivering information about vaccination through pamphlet, leaflet. The population of study was to include infant's mothers attending outpatient department [OPD] of Sri Balaji Nursing Home, and A.N. Clinical Lab & Health Centre. The Sample size for the present study was 115 infant's mothers.The Non-Probability convenient sampling technique was used.

Section A – Demographic variable Performa

The socio demographic data consists of age of the mother, age of the infants level of education, marital status , religion, areas of residence, education of father and mother, occupational status of father and mother, and monthly income, number of family members.

Section B –Five point Likert scale

Five point likert-scale was used to assess health beliefs of vaccinations among infant's mothers. There are 14 questions. The components of health belief model includes perceived susceptibility, seriousness, benefits, barriers of vaccination.

Section C- Adherence to Vaccination

Three point likert scale was used to assess adherence of vaccination among infant. The eight vaccine was assessed by checking of immunization card.

Ethical Consideration:

- ❖ Confidentiality and anonymity of subjects was maintained

  A written consent was obtained from the participant regarding their willingness to participate in the study

- ❖ A written consent and Ethical Clearance was obtained from the A.C.S Medical College And Research Centre

Reliability of the Study Instrument

The reliability of the tool was elicited by Cronbach's Alpha reliability for Health belief $r = 0.83$ and Vaccination schedule $r = 0.80$

Sample size Calculation

Based on sample size calculation, it is estimated to have 95 samples, among which 20% of attrition was expected in this study. Therefore the sample size was 114. So the final sample size has been rounded to 115.

Data collection procedure:

Data was collected after getting permission from Head of the department of Child Health Nursing. Data collection period was from to 15-10-2018 to 19-11-2018. The ethical clearance was obtained from ethical committee. The study participants were selected and the purpose of the study was explained to them. Informed consent was obtained. The participants were selected using non probabilty convenience sampling technique by asking the mothers about their child age

After recruiting the participants f or the study, socio- demographic details were collected from the subjects. Data was collected at the outpatient department from Sri Balaji Nursing Home, Ramapuram and A.N. Clinical Lab & Health Centre, Mogappai Around 50 – 60 children visited the outpatient department every day. Before visiting the doctor, they were asked to sit in the waiting area. During their waiting time, the investigator selected the sample based on the inclusive criteria. The data was collected using the structured questionnaire to assess the perceived health beliefs on vaccination. Duration of data collection was 30 minutes for each participants. Data collection was obtained from five to 7 patients per day. The data collection procedure continued till the sample size reached 115. The investigator thanked the sample after data were collected. The investigator thanked the hospital authorities, doctors, nurses, and other staff for their co-operation and support.

HEALTH BELIEFS QUESTIONAIRE:

It was based on an existing questionnaire that was modified and it was found to be valid and reliable, which examined health beliefs about receiving vaccines. The Questionnaire consists of five sub-scales. Mothers were asked to rate the statements in all sub-scales on a five-point Likert scale (1=strongly disagree 5=strongly agree), and indicate the extent to which each statement is relevant in their opinion.

PERCEIVED BENEFITS:

Its refer to the advantages of recommended health behavior in prevention of vaccine preventable diseases. In the current study it was tested using astatement ("Vaccinations are very safe and effective to infant')

PERCEVIED SUSCEPTIBILITY:

Its refers to the likelihood that a mother believes that her child is in danger of becoming ill as a result of vaccination. Three vaccination-related statements were examined in this study (e.g"If infants are not vaccinated,it will increased the risk of certain disease")

PERCEIVED BARRIERS:

Its refer to costs (e.g., time, money) as well as psychological costs associated with behavior such as pain, anxiety, threat, and uncertainty involved in receiving the vaccine. In the current study five vaccination-related statements were presented (e.g" In general I don't believe in vaccination")

PERCEIVED SEVERITY:

Its refers to the likelihood that the mother believes who were not taking the infant for receiving the vaccination and they assumed that it will harm the infant. It was assessed with six vaccination-related statements (eg."I am afraid that giving vaccination, will.make my infant sick ").

PERCEIVED BARRIERS:

Its refer to costs (e.g., time, money) as well as psychological costs associated with behavior such as pain, anxiety, threat, and uncertainty involved in receiving the vaccine. In the current study five vaccination-related statements were presented (e.g" In general I don't believe in vaccination")

DATA ANALYSIS AND INTERPRETATION

The analysis is a process of organizing and synthesizing the data in such a way that the research questions can be answered and the hypotheses are tested.

This chapter deals with the analysis and interpretation of the data collected from 115 mothers of infants to explore mother's perceptions on Infant's vaccination including susceptibility, barriers, seriousness, benefits by addressing the reasons for declining rate of un- immunized infant and take measures to prevent vaccine preventable disease.

ORGANISATION OF THE DATA.

Section A: Description of the   demographic variables of mothers with infants

Section B: Assessment of level of perceived health belief, and adherence to vaccination schedule and vaccination behaviour of mothers of infants.

Section C: Relationship between perceived health belief and adherence to vaccination schedule among mothers of infants.

Section D: Association of level of perceived health belief and adherence to vaccietion schedule among mothers of infantswith the demographic variables

Table 1: Frequency and percentage distribution of demographic variables of mothers of infants

Demographic Variables	No.	%

Demographic Variables	No.	%
Age of mother		
20 - 25 years	16	13.91
26 - 30 years	57	49.57
31 - 34 years	42	36.52
Age of the infant		
13 - 16 months	36	31.30
17 - 20 months	35	30.43
21 - 24 months	44	38.26
Religion		
Hindu	18	15.65
Christian	90	78.26
Muslim	7	6.09
Others	0	0.00
Marital status		
Married	113	98.26
Widow	2	1.74
Divorced	0	0.00
Education of father		
No formal education	3	2.61
Primary education	3	2.61
Secondary education	26	22.61
Higher education	13	11.30
Graduate	70	60.87

The table 1 shows that maximum57(49.57%) were in the age group of 26 – 30 years, 44(38.26%) of infants were in the age group of 21 – 24 months, 90(78.26%) were Christians, 113(98.26%) were married, 70(60.87%) of fathers were graduates, 78(67.83%) of mothers were graduates, 114(99.13%) of fathers were employed, 88(76.52%) of mothers were unemployed, 60(52.17%) were residing in urban area, 68(59.13%) belonged to nuclear family, 46(40%) had four members in their family, 78(67.83%) had monthly family income of ?Rs.10,000, 66(57.39%) responded that their infant get sick often and 96(83.48%) had responded that their infants had no history of hospital.

ASSESSMENT THE PERCEIVED HEALTH BELIEF,AND ADHERENCE TO VACCINATION SCHEDULE AND VACCINATION BEHAVIOUR AMONG MOTHERS OF INFANTS

Level of Perceived Health Belief	Min -Max Score	Average (Standard Deviation)
Benefits	5.0-15.0	12.93 - 2.08
Susceptibility	4.0 - 15.0	10.21- 2.35
Severity	3.0 - 15.0	9.73 - 3.04
Barrier	9.0 - 25.0	19.92-3.96
Overall	**27.0 -70.0**	**2.79 - 8.60**

The table 2 shows that with regard to benefits, 99(86.09%) were strongly perceived, 13(11.3%) were moderately perceived and only 3(2.61%) were poorly perceived. With respect to susceptibility, 77(66.96%) were moderately perceived, 26(22.61%) were strongly perceived , 12(10.43%) were poorly perceived and the mean score was 12.93 ± 2.08 with minimum score of 5.0 and maximum score of 15.0. Considering the severity, 50(43.48%) were moderately perceived, 33(28.70%) were strongly perceived , 32(27.83%) were poorly perceived and the mean score was 9.73 ± 3.04 with minimum score of 3.0 and maximum score of 15.0. Regarding barrier, 84(73.04%) were strongly perceived, 24(20.87%) were moderately perceived and 7(6.09%) were poorly perceived and the mean score was 19.92 ± 3.96 with minimum score of 9.0 and maximum score of 25.0. The overall level of perceived health belief revealed that 60(52.17%) were strongly perceived, 51(44.35%) were moderately perceived , only 4(3.48%) were poorly perceived and the mean score was 52.79 ± 8.60 with minimum score of 27.0 and maximum score of 70.0

Table 3 Level of adherence to vaccination among mothers of infants

Level of Adherence to Vaccination	No.	%
Non-adhered (0 – 11)	0	0
Partially adhered (12 – 22)	15	13.04
Well adhered (23 – 32)	100	86.96

The table 3 depicts that 100(86.96%) were well adhered to vaccination and 15(13.04%) were partially adhered to vaccination among mothers of infants.

Table 4: Frequency and percentage distribution of level of vaccination behaviour pattern among mothers of infants

Vaccination behaviour pattern	No.	%
Hospital commonly used for infant's vaccination		
Government Hospital	32	27.83
Primary Health Centre	14	12.17
Private	69	60.00
Came to know about vaccination by		
From Hospital		
Doctor	68	51
Nurse	47	49%
Media (TV/Newspaper/ Radio)	0	0.00%

Others(Health leaflet)	0	0.00%
This method of information useful an vaccination		
Written Explanation	9	7.83
Oral Explanation	106	92.17
Had difficulty is getting vaccination to the infant		
Yes	16	13.91
No	99	86.09
Did your infant have any complications after vaccine administration?		
Yes	0	0.00
No	115	100
Did your infant had any side effects after vaccine administration?		
Yes	106	92.17
No	9	7.83
The common side effects seen in the infant after vaccinatiion		
Fever	82	71
Swelling	24	21
None	9	8

Table 4 shows that maximum 69(60%) used to take their infants for vaccination to private hospital, 68 (51%) came to know about vaccination through doctor 47 (49%) came to know about vaccination through nurse, 106(92.17%) collected information about vaccination orally, ,almost all 115 (100%) had not affected any complication after vaccination ,99(86.09%) had not faced any difficulty on getting vaccination to their infants and 106(92.17%) responded that their infants had side effects after vaccine administration , 82(71%) had fever and 24 (21%) had swelling and 9 (8%) had not side-effects.

The demographic variables age, religion, education of father and area of residence had shown statistically significant association with level of perceived health belief at p<0.05 level (**χ^2=11.668, d.f=4, p=0.020), (χ^2=10.839, d.f=4, p=0.028), (χ^2=15.929, d.f=8, p=0.043)** and (**χ^2=10.773, d.f=4, p=0.029**)and the other demographic variables had not shown statistically significant association with level of perceived health belief among mothers of infants and demographic variable number of family members had shown statistically significant association with level of adherence to vaccination at p<0.05 level (**χ^2=9.814, d.f=3, p=0.020)** and the other demographic variables had not shown statistically significant association with level of adherence to vaccination among mothers of infants.

DISCUSSION

The descriptive study was used to assess the perceived health beliefs, adherence to vaccination and behaviour of these mothers regarding vaccination of their infants attending out patient department, Sri Balaji Nursing Home, Ramapuram and A.N. Clinical Lab & Health Centre, Mogappair -77 Chennai

The first objective was to assess the perceived health beliefs among mothers' of infants regarding adherence to vaccination

The present study findings revealed that percentage of perceived health beliefs for the subscales showed that highest score for perceived health beliefs was strongly perceived 60(52.17%) followed by moderately perceived 51(44.35%), and poorly perceived 4(3.48%) (Table 2).A good number of participants that 100(86.96%) were well adhered to vaccination and 15(13.04%) were partially adhered to vaccination among mothers of infants(Table 3). The similar findings was reported by Soner Sertan Kara et..al, 2018. The study result was 881 (97.6%) childrens were up to date for all vaccinations by age .There were no unvaccinated children, but 22 (2.4%) were only partially immunized. The similar findings was reports by Anil B. Kuraneet..al 2018, disclose that results were 1303 (65.2%) were fully immunized,681(34%) were partially immunized, (0.8%) were un-immunized.

The second objective was to evaluate the behavior of mothers of infants regarding the practice of vaccination.

The present study revealed that shows that maximum 69(60%) used to take their infants for vaccination to private hospital, 68 (51%) came to know about vaccination through doctor 47 (49%) came to know about vaccination through nurse, 106(92.17%) collected information about vaccination orally, almost all 115 (100%) had not affected any complication after vaccination, 99(86.09%) had not faced any difficulty on getting vaccination to their infants and 106(92.17%) responded that their infants had side effects after vaccine administration , 82(71%) had fever and 24 (21%) had swelling and 9 (8%) had not side-effects. Ramawat P et..al 2018 conducted the cross sectional descriptive study of knowledge about immunization amongst mothers of children below 5 years of age . immunized which results showed difficullty to administer of vacccination such as busy in work, distance, forget next date for vaccination. Most of mother told that explained by Anganwadi workers. The reasons for incomplete vaccination were lack of awareness, knowledge, distance, cough, cold and others reasons like household work.

The third objective was to assess the relationship between health beliefs and vaccination adherence of mothers of infants

The present study revealed that significant fair moderately positive correlation between health beliefs and vaccination adherence of mothers of infants with the value of r = 0.517 and p<0.001 level (Table5). The similar findings was reported by Melissa B. Gilkey et .,al 2016 , which results disclosed vaccination confidence was positively associated with having received vaccines, including MMR, varicella and flu vaccines.

The fourth objective was to assess the relationship between health beliefs and vaccination adherence with selected demographic variables of mothers of infants

The present study revealed that the demographic variables age, religion, education of father and area of residence had shown statistically significant association with level of perceived health belief at p<0.05 level (χ^2=11.668, d.f=4, p=0.020), (χ^2=10.839, d.f=4, p=0.028), (χ^2=15.929, d.f=8, p=0.043)and(χ^2=10.773, d.f=4, p=0.029) and the other demographic variables had not shown statistically significant association with level of perceived health belief among mothers of infants and demographic variable number of family members had shown statistically significant association with level of adherence to vaccination at p<0.05 level (χ^2=9.814, d.f=3, p=0.020) and the other demographic variables had not shown statistically significant association with level of adherence to vaccination among mothers of infants. Obinna Oleribe et.,al 2017 conducted the study on Individual and socioeconomic factors associated with childhood immunization coverage in Nigeria using Health Beliefs Model Of. Immunization coverage was significantly associated with age, parental education, religion,status, and occupation were significantly associated with immunization coverage.

RECOMMENDATIONS

The study recommends the following for further research.A similar study can be conducted for a larger group

- "A Cohort study can be conducted to community and approaching mothers during pregnancy or at childbirth might increase adherence to health- behavior patterns with regard to vaccination of infants."
- "A Study to evaluate the parental perceptions of Childhood vaccination on Adherence to Vaccination using Health Beliefs Model

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Health Beliefs of vaccinations	Scoring	Interpretation
Strongly Agree	5	Total score: 70
Agree	4	Strongly Percevied:46 - 70
Neutral	3	Moderately Percevied:21 - 45
Strongly Disagree	2	Poorly Perceived: 0-20
Disagree	1	
Adherence to Vaccination		Total score: 32
Well adhered	2	Well adhered: 0-11
Partially	1	Partially Adhered:
Non-Adhered	0	Non-Adhered: 23-32
Health Beliefs of vaccinations	**Scoring**	**Interpretation**
Strongly Agree	5	Total score: 70
Agree	4	Strongly Percevied:46 - 70
Neutral	3	Moderately Percevied:21 - 45
Strongly Disagree	2	Poorly Perceived: 0-20
Disagree	1	
Adherence to Vaccination		Total score: 32
Well adhered	2	Well adhered: 0-11
Partially	1	Partially Adhered:
Non-Adhered	0	Non-Adhered: 23-32