

Parental Perception and Hesitancy About Routine Vaccination Versus COVID-19 Vaccination at a Selected Community Area in Raigarh (C.G.) – A Comparative Study

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Abstract: According to UNICEF (2019) Vaccines will help protect the child against diseases that can cause serious harm or death, especially in people with developing immune systems like infants. The Centers for Disease Control and Prevention (CDC) recommends vaccinations throughout life to protect against many infections. Vaccines are one of the most convenient and safest preventive care measures available. Vaccines contain either killed or weakened viruses, making it impossible to get the disease from the vaccine. Parental perception towards vaccination refers to their concerns about vaccine safety and other factors that prevent them from immunizing their child. **Objective:** 1) To assess the parental perception about routine vaccination versus Covid-19 vaccination at a selected community area in Raigarh (C.G.), 2) To assess the parental hesitancy about routine vaccination versus Covid – 19 vaccination at a selected community area in Raigarh (C.G.), 3) To compare the parental perception about routine vaccination versus Covid-19 vaccination at selected community area in Raigarh (C.G.), 4) To compare the parental hesitancy about routine vaccination versus Covid – 19 vaccination at selected a community area in Raigarh (C.G.), 5) To prepare & find the opinion of a pamphlet regarding information of routine vaccination and Covid – 19 vaccination at a selected community area in Raigarh (C.G.) **Hypothesis:** H1- There is a significance difference in parental perception between routine vaccination versus Covid-19 vaccination. H2- There is a significance difference in parental hesitancy between routine vaccination versus Covid-19 vaccination. The literature reviewed related to present study are organized and presented in the following headings. A) Studies related to Parent perception about the childhood routine immunization of their children, B) Studies related to Parent perception about Covid-19 vaccination of their children, C) Studies related to hesitancy towards routine immunization among parents, D) Studies related to hesitancy towards Covid-19 vaccination among parents. The conceptual framework of the present study was modified by the investigator based on Health Belief Model. The health belief model is a psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services. A Comparative research approach was undertaken for the present study. convenient sampling technique was used for

selection of Parents Final data collection was done on 12/10/22 to 19/10/22 at selected community area of Raigarh (C.G.) A self-structured questionnaire & checklist was prepared to compare the parental perception & hesitancy regarding routine vaccination & Covid-19 vaccination. The tool consists of 4 section – A, B, C & D. A comprised of socio demographic data, B comprised of self-structure questionnaire regarding parental perception divided into two parts. Section C comprised of vaccine hesitancy scale regarding Covid-19 vaccination and section D comprised opinionnaire regarding information related to routine vaccination & Covid-19 vaccination. The content validity was obtained from 5 expert and the reliability was obtained from Karl Pearson formula with $r=0.98$. Feasibility of the study was confirmed by pilot study which, was done at swastik vihar shreenagar khamtarai Raipur (C.G.). the main study was done on parents from laxmipur Raigarh (C.G.), the data was obtained was analyzed and interpreted in term of objectives and hypothesis of the study, descriptive and inferential statistics were used for data analysis. **Results:** 32(53.33%) of parents have positive perception and 28(46.67%) had negative perception towards routine vaccination whereas in Covid-19 vaccination 21(35%) had positive and 39(65%) had negative perception. 23(38.33%) parents are hesitant towards routine vaccination & 37 (61.67) are not hesitant whereas regarding Covid-19 vaccination 28 (46.67%) & 32 (53.33%) Parents are not hesitant. 59% of parents had the opinion that the pamphlet was very good and only (1.67%) said that it was good.

Keywords: parental, perception, hesitancy, routine vaccination, COVID-19 vaccination.

1. Introduction

According to WHO (2018) Immunization is a global health and development success story, saving millions of lives every year. Vaccines reduce risks of getting a disease by working with your body's natural defenses to build protection. When you get a vaccine, your immune system responds. UNICEF (2021) We now have vaccines to prevent more than 20 life-threatening diseases, helping people of all ages live longer, healthier lives. Immunization currently prevents 3.5-5 million deaths every

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year from diseases like diphtheria, tetanus, pertussis, influenza and measles. Global coverage of the third dose of diphtheria-tetanus-pertussis(DTP3) fell from 86 per cent in 2019 to 81 per cent in 2021– its lowest level since 2008. The latest WHO/UNICEF estimates of national immunization coverage (WUENIC) also show that 112 countries experienced stagnant or declining DTP3 coverage since 2019 with 62 of those countries declining by at least 5 percentage points. As a result, 25 million children were un or under-vaccinated in 2021 where more than 60 per cent live in just 10 countries (India, Nigeria, Indonesia, Ethiopia, Philippines, Democratic Republic of the Congo, Brazil, Pakistan, Angola, and Myanmar) and 18 million did not receive any vaccines (zero-dose children), an increase of 5 million from 2019. The FDA has also given emergency use authorization to a Novavax COVID-19 vaccine for people age 12 and older. This vaccine requires two shots, given three to eight weeks apart. Based on research submitted to the FDA, in children age 12 through 17, this vaccine is about 78% effective in preventing symptomatic COVID-19 illness. COVID-19 Vaccination of children in the age-group of 15-18 years to be started from 3rd January 2022. For such beneficiaries, vaccination option would be “Covaxin” only.

2. Material and Method

The technique for data collection was self-structured questionnaire and checklist.

A formal written permission was obtained from the authorities to conduct the study. Final data collection was done on 12/10/22 to 19/10/22 at selected area of Raigarh (C.G.)

The investigator first introduced herself to the respondent and explained the purpose of gathering information.

It was planned to collect the information from parents in selected area at Raigarh Chhattisgarh. "in order to get information regarding Parental perception & Vaccine Hesitancy The sample consisted of 60 subjects.

Per day in community setting, daily sample collection was 8 Parents, 12/10/22 to 19/10/22 data were collected in community setting.

- Convenient sampling technique was used for data collection.
- They were assured that their responses would be kept confidential for research purpose.

was interpreted using descriptive and inferential statistics. the findings have been organized and presented under the following sections:

Section-A: Frequency and percentage distribution of sociodemographic characteristics of the subjects

Section-B: Analysis of Parental perception regarding routine vaccine and Covid -19 vaccination.

- *Part I:* Item wise analysis of parental perception about the routine vaccination and Covid -19 vaccination.
- *Part II:* Item wise analysis of perception of parents regarding factors responsible for delay in childhood routine vaccination and Covid-19 vaccination of their children.
- *Part III:* Overall analysis of parental perception

regarding routine vaccine and Covid-19 vaccination.

Section-C: Analysis to compare parental hesitancy regarding routine vaccination and Covid-19 vaccination

- *Part-I:* Item wise analysis of parental hesitancy regarding routine vaccination.
- *Part-II:* Item wise analysis of parental hesitancy regarding Covid-19 vaccination.
- *Part-III:* Overall analysis of parental hesitancy regarding routine vaccination and Covid-19 vaccination.

Section-D: Comparison of parental perception between routine vaccination & Covid-19 vaccination using Mann-Whitney U test.

Section-E: Comparison of parental hesitancy between routine vaccination & Covid-19 vaccination using Mann-Whitney U test.

Section-F: Opinionnaire using frequency & percentage for pamphlet regarding information routine vaccination & covid-19 vaccination in children.

A. Distribution of subjects according to demographic variables using frequency and percentage

With respect to age of the informant, 58 (96.67%) informants were in the age group of more than 32 years and only 2 (3.33%) informants are in the age group of 28-32 years.

In terms of age of the child, shows that majority of children 40 (66.67%) belong to age group of 12-15 years and only 20(33.33%) children are in the age group of 16-18 years.

With regard to types of informant shows that most of the informants 36(60%) were mothers and only 24(40%) are father.

According to religion depicts that 54 (90%) of subjects are Hindus, 5 (8.33%) are Muslim, Other (Sikh) 1(1.67%)

In relation to marital status most of the subjects 58 (96.67%) were married and only 2(3.33%) were widow.

With regard to residential area depicts that all 60 (100 %) reside in urban area.

With respect to family structure depicts that most of the subjects 31 (51.67%) subjects belong to nuclear family and 29 (48.33%) belong to joint family.

With related to family monthly income depicts that maximum 25 (41.67%) families had family monthly income of more than Rs. 30,000, 12 (20%) families have monthly income between 15001-30000, 17(28.33%) families have monthly income is 6(10%) families have monthly income is less than 10000.

With respect to employment status of informer depicts that majority of informers 24 (40%) were housewives and 22 (36.67%) has Private job & 11(18.33%) has own business and 3 (5%) has Govt. job.

With regard to educational level of informants depicts that maximum 34 (56.67%) informants were graduates and above, 13 (21.67%) have Higher Secondary School education and 2 (3.33%) have primary school education & middle school education respectively and 9(15%) have high school education.

With respect to knowledge about childhood routine vaccination reveals that All 60 (100%) informants have previous knowledge about childhood routine vaccination.

With regard to source of information about childhood routine vaccination depicts that source of information about childhood routine vaccination of most of the mothers 25 (41.67%) is newspaper, 7 (11.67%) is radio & 2 (3.33%) is magazine and internet and 24(40%) is other source of information about childhood routine vaccination.

With respect to previous knowledge about Covid-19 vaccination reveals that All 60 (100%) informants have previous knowledge about Covid-19 vaccination.

With regard to source of information about Covid-19 vaccination depicts that source of information about Covid-19 vaccination of most of the informers 19(31.67%) is newspaper & 32(53.33%) is Internet, 2(3.33%) is magazine and 7(11.67%) is others source.

With respect to child's history of positive status of Covid-19 depicts that maximum 57 (95%) children have not suffered from Covid-19 and only 3 (5%) child suffered from covid-19.

With regard to informant's history of positive status of Covid-19 depicts that maximum 54 (90%) informants have Not suffered from Covid-19 and only 6 (10%) informants have suffered from covid-19.

With respect to status of vaccination against Covid-19 depicts that maximum 58 (96.67%) received vaccination against covid-19 and only 2 (3.33%) did not receive vaccination against covid-19.

With regard to no. of doses of Covid -19 vaccination depicts that maximum 33 (55%) receive 2nd dose vaccination against covid-19 and 25 (41.67%) receive 3rd dose vaccination against Covid-19 & 2(3.33%) receive 1st dose vaccination against Covid-19.

With respect to immunization status routine vaccines as per age depicts that maximum 60 (100%) have received routine immunization as per age.

With related to immunization status of Covid-19 vaccine depicts that maximum 44 (73.33%) receive Covid-19 immunization and 16 (26.67%) not receive Covid-19 immunization.

With regard to name of the Covid-19 vaccine reveals that all 44 (73.33%) have given covaxin for Covid-19 vaccination to their children.

With respect to the reason for not Covid-19 immunizing the child depicts that 7 (43.75%) informant have lack of knowledge ,5 (31.25) has other issues regarding Covid-19 immunization and, 2(12.5) have lack of interest.

B. Analysis of Parental perception regarding routine vaccine and Covid -19 vaccination.

Part-I: Item wise analysis of parental perception regarding routine vaccination

Table 1 shows item wise analysis of parental perception about routine vaccination. All 60(100%) each agree that the immunization services offered by the government are satisfactory, an awareness campaign about immunization is effective and active respectively whereas 58(96.67%) disagree that fear of temporary side effects is not a hurdle in the adoption of vaccination.

In regard to parental perception about Covid-19 vaccination,

all 60(100) % each agree that immunization services offered by the government are satisfactory, an awareness campaign about immunization is effective for the community respectively whereas 50(83.33) % says that disagree that the fear of temporary side effects is not a hurdle in the adoption of vaccination.

Part-II: Item wise analysis of perception of parents regarding factors responsible for delay in childhood routine vaccination and Covid-19 vaccination of their children.

Table 2 shows factors responsible for delay in childhood routine vaccine 25(41.67%) agree with unaffordability to buy newer vaccine, 23(38.33%) with non-cooperation of child & long waiting times respectively, 19(31.67%) agree, with unavailability of vaccine whereas 50(83.33%) disagree that the factor responsible for delay is lack of awareness regarding immunization timing & lack of access to immunization centers respectively.

In relation to factors responsible for delay in Covid-19 vaccination, 16(26.67%) agree with long waiting times, 14(23.33%) agree that lack of awareness regarding immunization timing, 13(21.67%) regarding unavailability of vaccine & non-cooperation of child for covid-19 vaccination respectively. 52(86.67%) disagree that the factor responsible for delay is lack of access to immunization centers & 47(78.33%) regarding unavailability of vaccine & non-cooperation of child for vaccination respectively.

Part-III: Overall analysis of Parental Hesitancy regarding routine vaccination and Covid -19 vaccination.

Table 3, Fig. 1, depicts that 32(53.33%) of parents have positive perception and 28(46.67%) had negative perception towards routine vaccination whereas in Covid-19 vaccination 21(35%) had positive and 39(65%) had negative perception.

C. Part-I: Item wise analysis of hesitancy scale about routine vaccination

Table 4 depicts that maximum 39(65%) informants agree that they are concerned of acquiring diseases from routine vaccination, 36(60%) informants agree that the multiple doses with schedule is inconvenient for them to vaccinate their child, 35(58.33%) agree that their religious group/family /friend prevent them to get routine vaccination to their child & they have to wait in queue for getting their child vaccinated respectively.

Maximum 37(61.67%) informants disagree that they have lack of trust in vaccine protection, 36(60%) informants disagree that they have to wait in queue for getting my child vaccinated, 31(51.67%) informants have lack of information about routine vaccination.

Part-II: Item wise analysis of hesitancy scale about Covid -19 vaccination

Table 5 shows that maximum 38 (63.33%) informants agree that they have lack of information regarding Covid-19 vaccination and Covid-19 vaccination is painful for their child respectively, 34(56.67%) are concerned about the side effects of Covid-19 vaccination. 32(53.33%) informants have skill to register online to receive Covid-19 vaccination and are concerned of acquiring Covid-19 from the vaccination for their

child respectively.

Maximum 36(60%) of parents disagree that multiple doses with schedule is inconvenient for them to vaccinate their child, 35(58.33%) disagree that their Child already had a Covid -19 infection, for 32(53.33%) disagree that it is difficult to get vaccine slot in preferred centre.

Table and Fig. 2, depicts that 23(38.33%) parents are hesitant towards routine vaccination & 37 (61.67) are not hesitant whereas regarding Covid-19 vaccination 28(46.67%) & 32(53.33%) Parents are not hesitant.

D. P Value (Mann-Whitney U Test) is use to compare the parental perception about covid-19 vaccination versus routine vaccine

Table shows that There is a significant difference between the perception of parents regarding routine vaccination in which the mean is 5.12 and the mean of Covid -19 vaccination is 4.45 & p value is Z=2.07, which is significant at P<0.05.

Since the Z value is more than 1.96 therefore it is significant.

Thus the research hypothesis H1 is accepted, that there is a significance difference in parental perception between routine Vaccination versus Covid-19 Vaccination.

Table 1
Parental hesitancy about vaccination

Vaccination	Hesitant (6-10)	Not Hesitant (0-5)	Total
Routine vaccination	23(38.33%)	37(61.67%)	60(100%)
Covid-19 vaccination	28(46.67%)	32(53.33%)	60(100%)

Table depicts that there is not significant difference between the hesitancy of parents regarding routine vaccine in which the mean is 5.22 and the mean of Covid -19 vaccination is 5.23 & p value is Z=0.10, which is not significant P<0.05

Data being non- normal mann-whitney U test is applied to test the significance of the difference in mean. The test shows in significant difference in mean (p>0.05).

Since the Z value is not more than 1.96 therefore it is not significant.

The research hypothesis H2 is rejected that There is a significance difference in parental hesitancy between routine Vaccination versus Covid-19 Vaccination.

Table shows that most of the parents had very good opinion regarding in the following areas,

- 59(98.33%) the pictures of the pamphlet are attractive
- Only 10(16.67%) had good opinion that it was interesting.

Table 2
Parental perception about vaccination

Positive (6-10)	Negative (0-5)	Total
32(53.33%)	28(46.67%)	60(100%)
21(35%)	39(65%)	60(100%)

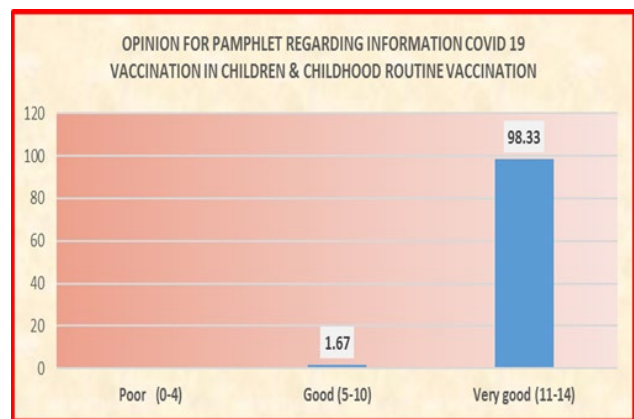
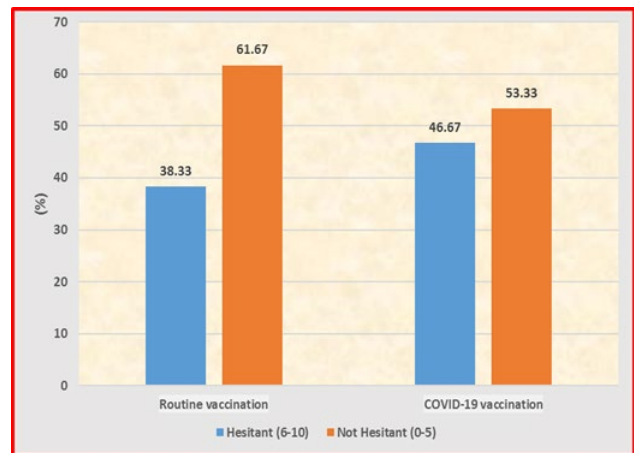
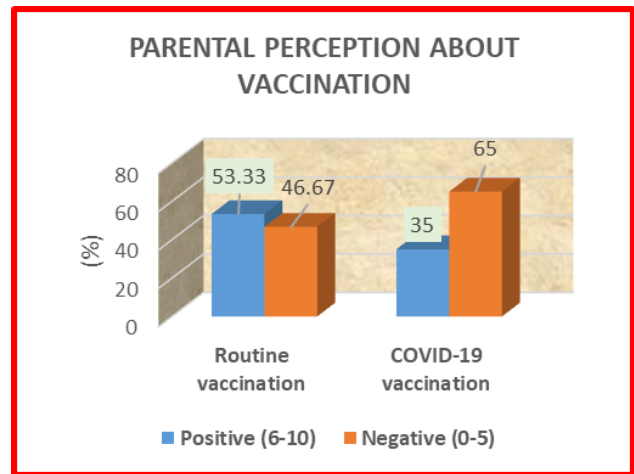


Table 3
Comparison of parental perception about COVID-19 vaccination versus routine vaccine

Vaccination	Max score	Mean	SD	P value (Mann-Whitney U test)
Routine vaccination	10	5.12	1.69	Z=2.07, P<0.05 S
COVID-19 vaccination	10	4.45	1.84	

Table 4
Comparison of parental hesitancy about COVID-19 vaccination versus routine vaccine

Comparison of parental hesitancy	Max score	Mean	SD	P value (Mann-Whitney U test)
Routine vaccination	10	5.22	1.64	Z=0.10, P>0.05 NS
COVID-19 vaccination	10	5.23	1.82	

Table 5

Opinion for pamphlet regarding information COVID-19 vaccination in children & childhood routine vaccination	Frequency (N)	Percentage (%)
Poor (0-4)	0	0
Good (5-10)	1	1.67
Very good (11-14)	59	98.33
Total	60	100

3. Discussion

Analysis of parental perception regarding routine vaccination and Covid -19 vaccination.

Part-I: Item wise analysis of parental perception regarding routine vaccination

Table shows item wise analysis of parental perception about routine vaccination. All 60(100%) each agree that the immunization services offered by the government are satisfactory, an awareness compaign about immunization is effective and active respectively whereas 58(96.67%) disagree that fear of temporary side effects is not a hurdle in the adoption of vaccination.

In regard to parental perception about Covid-19 vaccination, all 60(100) % each agree that immunization services offered by the government are satisfactory, an awareness compaign about immunization is effective for the community respectively whereas 50(83.33) % says that disagree that the fear of temporary side effects is not a hurdle in the adoption of vaccination.

Part-II: Item wise analysis of perception of parents regarding factors responsible for delay in childhood routine vaccination and Covid-19 vaccination of their children.

Table shows factors responsible for delay in childhood routine vaccine 25 (41.67%) agree with unaffordability to buy newer vaccine,23 (38.33%) with non-cooperation of child & long waiting times respectively, 19 (31.67%) agree, with unavailability of vaccine whereas 50(83.33%) disagree that the factor responsible for delay is lack of awareness regarding immunization timing & lack of access to immunization centers respectively.

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Part- II-Overall analysis of Parental Hesitancy regarding

routine vaccination and Covid -19 vaccination.

Table and Fig. depicts that 32(53.33%) of parents have positive perception and 28(46.67%) had negative perception towards routine vaccination whereas in Covid-19 vaccination 21(35%) had positive and 39(65%) had negative perception.

With findings of the study related to parental perception regarding routine vaccination, is supported by

Rabei, H (march 2019) et al conducted a study on Parental Perceptions, Beliefs and Attitudes towards Routine Childhood Vaccinations – United Arab Emirates Experience. An observational, cross-sectional study was approved by the institutional review board in accordance with the regulations of the Health Authority in Abu Dhabi (HAAD). Survey questionnaires consisting of 26 questions of qualitative and quantitative aspects were distributed to randomly selected parents across five different cities in United Arab Emirates. A total of 397 participants were included in our study. Parents have showed good perception of the effectiveness of vaccines as 90% agreed that vaccines are effective in preventing certain diseases. However, in regards to parents’ knowledge, 44% did not know that some vaccines prevent certain types of cancer. When looking at the rate of vaccination refusal in our study, we found that 10% of our population refuses to vaccinate their children. Also of note, one thirds of parents believed that vaccinations can cause serious side effects while 19% reported that they have not received sufficient information regarding vaccination from their child’s health care provider.

With findings of the study related to parental perception regarding Covid-19 vaccination, is supported by

Ayed A. Shati et al (2022 July) conducted a study on Perceptions of Parents towards COVID-19 Vaccination in Children, Aseer Region, Southwestern Saudi Arabia This cross-sectional study aims to assess the attitude and perception levels of parents toward COVID-19 vaccines for children aged 0–18 years in the Aseer region of Saudi Arabia. Out of a total of 1463 parents, 30.6% assumed that COVID-19 vaccination may be more dangerous for children than adults. Nearly 36.5% parents don’t have any concern about children’s vaccination. About 12.8% of children have not received the vaccination, 55% of parents have some sort of hesitation and 32.2% of parents did not hesitate before vaccinating their children against COVID-19. Only 15.4% of parents expect that the COVID-19 vaccine affects their child’s genes. About 23.4% parents strongly agreed and 35.1% agreed about the importance of getting their children vaccinated. About 22.1% of parents strongly agreed and 33.3% agreed regarding their willingness to get their children vaccinated to prevent Coronavirus disease. More than 80% of parents recommended rushing to receive the COVID-19 vaccine.

With findings of the study related to parental hesitancy regarding routine vaccination is supported by

Table depicts that maximum 39(65%) informants agree that they are concerned of acquiring diseases from routine vaccination,36(60%) informants agree that the multiple doses with schedule is inconvenient for them to vaccinate their child, 35(58.33%) agree that their religious group/family /friend prevent them to get routine vaccination to their child & they

have to wait in queue for getting their child vaccinated respectively.

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Table shows that maximum 38 (63.33%) informants agree that they have lack of information regarding Covid-19 vaccination and Covid-19 vaccination is painful for their child respectively, 34(56.67%) are concerned about the side effects of Covid-19 vaccination. 32(53.33%) informants have skill to register online to receive Covid-19 vaccination and are concerned of acquiring Covid-19 from the vaccination for their child respectively.

Maximum 36(60%) of parents disagree that multiple doses with schedule is inconvenient for them to vaccinate their child, 35(58.33%) disagree that their Child already had a Covid -19 infection, for 32(53.33%) disagree that it is difficult to get vaccine slot in preferred centre.

Table and Fig. depicts that 23(38.33%) parents are hesitant towards routine vaccination & 37 (61.67%) are not hesitant whereas regarding Covid-19 vaccination 28(46.67%) & 32(53.33%) Parents are not hesitant. With findings of the study, is supported by

Kimberly H. Nguyen et al (march 2022) conducted a study on Parental Vaccine Hesitancy and Association with Childhood Diphtheria, Tetanus Toxoid, and Acellular Pertussis; Measles, Mumps, and Rubella; Rotavirus; and Combined 7-Series Vaccination

This study assessed the association of parental vaccine hesitancy on child vaccination coverage with ≥ 4 doses of diphtheria, tetanus toxoid, and acellular pertussis vaccine; ≥ 1 dose of measles, mumps, and rubella vaccine; up-to-date rotavirus vaccine; and combined 7-vaccine series coverage for a sample of children aged 19–35 months using data from the 2018 and 2019 National Immunization Survey-Child (N=7,645). Almost a quarter of parents reported being vaccine hesitant, with the highest proportion of vaccine hesitancy among parents of children who are non-Hispanic Black (37.0%) or Hispanic (30.1%), mothers with a high school education or less (31.9%), and households living below the poverty level (35.6%). Childhood vaccination coverage for all vaccines was lower for children of hesitant than non-hesitant parents, and the population attributable fraction of hesitancy on under vaccination ranged from 15% to 25%, with the highest percentage for ≥ 1 dose of measles, mumps, and rubella vaccine. Parental vaccine hesitancy may contribute up to 25% of under vaccination among children aged 19–35 months.

With findings of the study related to parental hesitancy regarding routine vaccination is supported by

Jia Ming Low et al (october 2022) conducted a study on Predicting vaccine hesitancy among parents towards COVID-19 vaccination for their children in Singapore. An electronic survey conducted from November 2021 to March 2022. Six hundred and twenty-eight parents participated. 66.9% of parents were not vaccine hesitant. About a third (27.2%)

considered themselves somewhat vaccine hesitant. Fathers were more vaccine hesitant than mothers. Vaccine hesitancy was also associated with having a lower household income, unvaccinated parents, knowing someone with an adverse reaction to the Covid 19 vaccine and having a low level of trust in their child's doctor. There was no significant difference with high usage of social media between parents who were not vaccine hesitant vs. those who were vaccine hesitant. Despite high usage of social media, about two thirds (62.7%) of parents preferred print material to obtain COVID-19 related information. Parental trust in their child's doctor was the most significant factor in determining vaccine hesitancy amongst parents. When the variables of gender, household income status, vaccine status were further analyzed with a multinomial logistic regression model, vaccine hesitancy in a parent could be predicted with a 70% accuracy, and non-vaccine hesitancy with a 92.4% accuracy. Healthcare providers should continue to establish rapport amongst parents, in particular the group with a lower household income to encourage higher paediatric COVID-19 vaccine uptake as well as correct COVID-19 related vaccine misconceptions or vaccine hesitancy, if present.

4. Conclusion

This paper presented a comparative study on parental perception and hesitancy about routine vaccination versus COVID-19 vaccination at a selected community area in Raigarh (C.G.).

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