Vaccine Hesitancy Among Parents – A study in Thiruvananthapuram

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DECLARATION

I Mr. Adil Hakkim, hereby declare that this dissertation titled "**Vaccine Hesitancy among Parents – A study in Thiruvananthapuram"** is a record of genuine work done by me under the guidance of Fr. Saji J. S J and no part of this has been produced before any university for the award of degree, diploma certificate, to be the best of my knowledge and belief.

Thiruvananthapuram

22/08/2017 Adil Hakkim

CERTIFICATE OF APPROVAL

This is to certify that the work embodied in this dissertation entitled **"Vaccine Hesitancy among Parents - A study in Thiruvananthapuram"** has been carried out by Mr. Adil Hakkim, fourth semester student in Masters of Social Work under my supervision and guidance that is hereby approved for submission.

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ABSTRACT

A child's right to survive is the foremost right put forward by the UNCRC. And vaccination is globally recognized as one of the effective practices which protects the child from deadly diseases and helps in his/her survival. The state government provides free vaccination to children through India's Universal Immunization Programme and aims for 100% coverage and vaccination in the state to protect them from vaccine preventable deaths. But childhood vaccination is majorly influenced by parental attitude, knowledge and practice. Vaccination hesitant parents delay the acceptance, or refuse vaccination despite availability of vaccination services. Such an individual behavior is influenced by factors such as complacency, convenience and confidence. The psychosocial reasons for vaccine hesitancy are Knowledge about vaccination, past experiences with vaccination services, perceptions of importance of vaccination in maintaining health, recommendations of health professionals and use of complementary and alternative medicines, risk perception, trust, social pressure and moral or religious convictions of the individual.

It is in this background the study is being set and conducted. The undertaken qualitative study followed case study design and tried understanding the reasons why individual parents choose not to vaccinate their children. The various factors that influence the decision making of the unvaccinated parents and the psychosocial implications of such a decision has been probed from the five cases selected for study. The findings of the study were in coherence with literature. Vaccine hesitancy of parents was found to be influenced mostly by knowledge about vaccination, practice of CAM and social pressure.

Chapter 1

Introduction

Modern medicine has a very important role in everyday life of the twenty first century civilization. The scientific understanding of diseases, their causes, treatment methods etc. have unveiled a new perspective on health and illness around the world. One of the most hailed achievements of modern medicine is the invention of vaccines. For the past two centuries vaccines have protected populations from several deadly diseases, helped prevent disease outbreaks and deaths, eventually in the eradication of the disease. Vaccinations have been a very effective preventive step and through the immunization of vulnerable populations, it helped stop diseases such as diphtheria, whooping cough, meningitis, polio etc. which caused large number of deaths during the pre-vaccine era. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. The importance of immunization is so great that the American Center for Disease Control and Prevention has named it one of the "Ten Great Public Health Achievements in the 20th Century".

IMMUNIZATION

According to WHO-Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease. *(http://www.who.int/topics/immunization)*

Immunization is the process by which an individual's immune system becomes fortified against an agent known as the immunogen. When the immune system is exposed to molecules that are foreign to the body, called *non-self*, it will orchestrate an immune response, and it will also develop the ability to quickly respond to a subsequent encounter because of immunological memory. This is a function of the adaptive immune system. Therefore, by exposing an animal to an immunogen in a controlled way, its body can learn to protect itself: this is called **active immunization**. The most important elements of the immune system that are improved by

immunization are the T-cells, B-cells, and the antibodies B cells produce. Memory B-cells and memory T-cells are responsible for a swift response to a second encounter with a foreign molecule. **Passive immunization** is direct introduction of these elements into the body, instead of production of these elements by the body itself.

Immunization is done through various techniques, most commonly vaccination. Vaccines against microorganisms that cause diseases can prepare the body's immune system, thus helping to fight or prevent an infection. Immunizations are often widely stated as less risky and an easier way to become immune to a particular disease than risking a milder form of the disease itself. They are important for both adults and children as that they can protect people from the many diseases out there. Immunization not only protects children against deadly diseases but also helps in developing children's immune systems. Through the use of immunizations, some infections and diseases have almost completely been eradicated throughout the United States and the World. Major examples of vaccine eradicated diseases are smallpox and polio. Polio has been eliminated from the United States since 1979. Polio is still found in other parts of the world so certain people could still be at risk of getting it. This includes those people who have never had the vaccine, those who didn't receive all doses of the vaccine, or those traveling to areas of the world where polio is still prevalent. (https://en.wikipedia.org/wiki/Immunization)

PASSIVE AND ACTIVE IMMUNIZATION

Immunization can be achieved in an active or passive manner: vaccination is an active form of immunization.

Active immunization

Active immunization can occur naturally when a person comes in contact with, for example, a pathogenic microbe. The immune system will eventually create antibodies and other defenses against the microbe. The next time, the immune response against this microbe can be very efficient; this is the case in many of the childhood infections that a person only contracts once, but then becomes immune.

Artificial active immunization is where the microbe, or parts of it, are injected into the person before they are able to take it in naturally. If whole microbes are used, they are pre-treated. Live

attenuated vaccines have decreased pathogenicity. Their effectiveness depends on the immune system's ability to replicate and elicit a response similar to natural infection. It is usually effective with a single dose. Examples of live-attenuated vaccines include measles, mumps, rubella, MMR, yellow fever, varicella, rotavirus, and influenza.

Passive immunization

Passive immunization is where pre-synthesized elements of the immune system are transferred to a person so that the body does not need to produce these elements itself. Currently, antibodies care being used for passive immunization. This method of immunization begins to work very quickly, but it is short lasting, because the antibodies are naturally broken down, and if there are no B-cells to produce more antibodies, they will disappear. Passive immunization occurs physiologically, when antibodies are transferred from mother to fetus during pregnancy, to protect the fetus before and shortly after birth.

Artificial passive immunization is normally administered by injection and is used if there has been a recent outbreak of a particular disease or as an emergency treatment for toxicity, as in for tetanus. The antibodies can be produced in animals and is called "serum therapy," although there is a high chance of anaphylactic shock because of immunity against animal serum itself. Thus, humanized antibodies produced *in vitro* by cell culture are used instead if available.

VACCINES

A **vaccine** is a biological preparation that provides active acquired immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and keep a record of it so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters. Vaccines can be prophylactic i.e., to prevent or ameliorate the effects of a future infection by any natural or "wild" pathogen or therapeutic i.e., vaccines against diseases like cancer are being investigated. (https://en.wikipedia.org/wiki/Vaccine)

VACCINATION

The administration of vaccines is called vaccination. The effectiveness of vaccination has been widely studied and verified; for example, the influenza vaccine, the HPV vaccine, and the chicken pox vaccine. Vaccination is the most effective method of preventing infectious diseases. Widespread immunity due to vaccination is largely responsible for the worldwide eradication of smallpox and the restriction of diseases such as polio, measles, and tetanus from much of the world. (https://en.wikipedia.org/wiki/Vaccination)

VACCINE PREVENTABLE DISEASES

A *vaccine-preventable disease* is an infectious disease for which an effective preventive vaccine exists. If a person acquires a vaccine-preventable disease and dies from it, the death is considered a **vaccine-preventable death**.

Most common and serious vaccine-preventable diseases tracked by the World Health Organization (WHO) are: diphtheria, *Haemophilus influenzae* serotype b infection, hepatitis B, measles, meningitis, mumps, pertussis, poliomyelitis, rubella, tetanus, tuberculosis, and yellow fever. The World Health Organization (WHO) reports that licensed vaccines are currently available to prevent or contribute to the prevention and control of twenty-six vaccine-preventable infections.

In 2012, the World Health Organization estimated that vaccination prevents 2.5 million deaths each year. With 100% immunization, and 100% efficacy of the vaccines, one out of seven deaths among young children could be prevented, mostly in developing countries, making this an important global health issue. Four diseases were responsible for 98% of vaccine-preventable deaths: measles, *Haemophilusinfluenzae* serotype b, pertussis, and neonatal tetanus. The Immunization Surveillance, Assessment and Monitoring program of the WHO monitors and assesses the safety and effectiveness of programs and vaccines at reducing illness and deaths from diseases that could be prevented by vaccines.

Vaccine-preventable deaths are usually caused by a failure to obtain the vaccine in a timely manner. This may be due to financial constraints or to lack of access to the vaccine. A vaccine that is generally recommended may be medically inappropriate for a small number of

people due to severe allergies or a damaged immune system. In addition, a vaccine against a given disease may not be recommended for general use in a given country, or may be recommended only to certain populations, such as young children or older adults. Every country makes its own immunization recommendations, based on the diseases that are common in its area and its healthcare priorities. If a vaccine-preventable disease is uncommon in a country, then residents of that country are unlikely to receive a vaccine against it. For example, residents of Canada and the United States do not routinely receive vaccines against yellow fever, which leaves them vulnerable to infection if travelling to areas where risk of yellow fever is highest-endemic or transitional regions. (https://en.wikipedia.org/wiki/Vaccine-preventable_diseases)

The WHO lists 26 diseases for which vaccines are available. (http://www.who.int/immunization/diseases)

No.	Diseases	No.	Diseases	No.	Diseases	No.	Diseases
1.	Cholera	**8.**	Human papillomavirus (HPV)	**15.**	Pertussis	**22.**	Tick-borne encephalitis
2.	Dengue	**9.**	Influenza	**16.**	Pneumococcal disease	**23.**	Tuberculosis
3.	Diphtheria	**10.**	Japanese encephalitis	**17.**	Poliomyelitis	**24.**	Typhoid
4.	Hepatitis A	**11.**	Malaria	**18.**	Rabies	**25.**	Varicella
5.	Hepatitis B	**12.**	Measles	**19.**	Rotavirus	**26.**	Yellow Fever
6.	Hepatitis E	**13.**	Meningococcal meningitis	**20.**	Rubella		
7.	*Haemophilus influenzae* type b (Hib)	**14.**	Mumps	**21.**	Tetanus		

Other vaccine-preventable diseases, not on WHO-list

There are also some vaccine-preventable diseases, which are not on the WHO-list, probably either since the vaccine is not very good according to present standards, or the disease is not any longer a threat. (Anthrax, Plague, Q fever, Smallpox)

UNIVERSAL IMMUNISATION PROGRAMME

Universal Immunization Programme (UIP) is a vaccination program launched by the Government of India in 1985. The success of smallpox eradication in the 1970s brought attention to the immunization program globally as well as in India. The Expanded Program on Immunization (EPI), a program for immunizing all children during the first year of life with DPT, OPV, BCG and typhoid–paratyphoid fever vaccines was launched in 1978. In 1985, the name of EPI was changed to the Universal Immunization Program (UIP) .It became a part of Child Survival and Safe Motherhood Programme in 1992 and is currently one of the key areas under National Rural Health Mission (NRHM) since 2005.

The program now consists of vaccination for 12 diseases- tuberculosis, diphtheria, pertussis (whooping cough), tetanus, poliomyelitis, measles, Hepatitis B, Diarrhoea, Japanese Encephalitis, rubella, Pneumonia (Heamophilus Influenza Type B) and Pneumococcal diseases (Pneumococcal Pneumonia and Meningitis). Hepatitis B and Pneumococcal diseases were added to the UIP in 2007 and 2017 respectively. *(https://en.wikipedia.org/wiki/Universal_Immunization_Programme)*

India's Universal Immunisation Programme is one of the largest in the world in terms of quantities of vaccine used, the number of beneficiaries, the number of Immunisation session organised, the geographical spread and diversity of areas covered. It caters to nearly 27 million infants and 30 million pregnant women annually free of cost. There is a strong political commitment in the country for achieving universal immunization coverage and for the eradication and elimination of the targeted diseases. As a key element of the national child survival strategy, UIP has contributed significantly to reducing mortality and morbidity due to vaccine-preventable diseases and the infant mortality rate over the last decade. While surveillance information for specific VPDs is limited, the steady fall of IMR from 123 to 50 deaths per 1000 live-births does in part reflect the impact of the UIP. *(https://www.nhp.gov.in/universal-immunization-programme-uip_pg)*

The stated objectives of UIP are to:

- Rapidly increase immunization coverage

- Improve the quality of services
- Establish a reliable cold chain system to the health facility level
- Introduce a district-wise system for monitoring of performance
- Achieve self-sufficiency in vaccine production

The other additions in UIP through the way are inactivated polio vaccine (IPV), rotavirus vaccine (RVV), Measles-Rubella vaccine (MR). Four new vaccines have been introduced into the UIP, including injectable polio vaccine, an adult vaccine against Japanese Encephalitis and Pneumococcal Conjugate Vaccine.

Vaccines against rotavirus, rubella and polio (injectable) will help the country meet its Millennium Development Goal 4s target that include reducing child mortality by two-thirds by 2015, besides meeting global polio eradication targets. The recommendations to introduce these new vaccines have been made after numerous scientific studies and comprehensive deliberations by the National Technical Advisory Group of India (NTAGI), the country's apex scientific advisory body on immunisation.

The goal of the current comprehensive multiyear plan for 2013-2017 is to reduce mortality and morbidity due to vaccine preventable diseases through high quality immunization programs. Its key objectives are to:

- Improve program service delivery for equitable and efficient immunization services in all districts;
- Increase demand and reduce barriers for people to access immunization services through improved advocacy at all levels and social mobilization;
- Strengthen and maintain robust surveillance system for Vaccine Preventable Diseases (VPDs) and Adverse Events Following Immunization (AEFI);
- Introduce and expand the use of new and underutilized vaccines and technology in UIP;
- Strengthen health system for the immunization program; and
- Contribute to global polio eradication and the elimination of measles, maternal and neonatal tetanus. *(http://www.itsu.org.in/about-UIP-in-india)*

The various other components of the UIP are Policy & Strategy, Cold chain, vaccines and logistics, Injection safety and waste disposal, Adverse Events Following Immunization (AEFI), Strategic communication, Training and Monitoring and evaluation

National Immunisation Schedule

Sl. No.	Vaccine and its Presentation	Protection	Route	No. of doses	Vaccination Schedule
1.	BCCG (Bacillus Calmette Guerin)-Lyophilized Vaccine	Tuberculosis	Intra-dermal	1	at birth (upto 1 year if not given earlier)
2.	OPV (Oral Polio Vaccine)-Liquid Vaccine	Poliomyelitis	Oral	5	Birth dose for institutional deliveries, Primary three doses at 6, 10 & 14 week and one booster dose at 16-24 month of age. Given orally
3.	Hepatitis B-Liquid Vaccine	Hepatitis B	Intra-muscular	4	Birth dose (within 24 hours) for institutional deliveries, primary three doses at 6, 10 & 14 week
4.	DPT (Diphtheria, Pertussis and Tetanus Toxoid)-Liquid Vaccine	Diphtheria, Pertussis and Tetanus	Intra-muscular	5	Three doses at 6, 10 and 14 week and two booster dose at 16-24 month and 5-6 years of age
5.	Measles-Lyophilized Vaccine	Measles	Sub-cutaneous	2	9-12 months of age and 2nd dose at 16-24 months
6.	TT (Tetanus Toxoid)-Liquid Vaccine	Tetanus	Intra-muscular	2 2	10 years and 16 years of age For pregnant woman, two doses given (one dose if previously vaccinated withing 3 years)
7	JE vaccination (in selected high disease burden districts)-Lyophilized vaccine	Japanese Encephalitis (Brain fever)	Sub-cutaneous	2	9-12 months of age and 2nd dose at 16-24 months (6 month after vaccination drive)

8	**Hib (given as pentavalent containing Hib+DPT+Hep B) (in 8 states)-Liquid vaccine**	**Hib Pneumonia and Hib meningitis**	**Intra-muscular**	**3**	**6, 10 & 14 weeks of age**

Under UIP, GoI is providing vaccination to prevent seven vaccine preventable diseases, Diphtheria, Pertussis, Tetanus, Polio, Measles, Hepatitis B & Tuberculosis.

MISSION INDRADHANUSH

Launched on 25th December, 2014, this mission seeks to drive towards 90% full immunization coverage of India and sustain the same by year 2020. Vaccination is being provided against prevent eight vaccine preventable diseases nationally, i.e. Diphtheria, Pertussis, Tetanus, Polio, Measles, severe form of Childhood Tuberculosis and Hepatitis B and meningitis & pneumonia caused by Haemophilus influenza type B; and against Rotavirus Diarrhea and Japanese Encephalitis in selected states and districts respectively. During each phase of Mission Indradhanush, four intensified drives of 7 days each were held every month to cover left-out and missed-out children in the high focus districts. During the three phases of Mission Indradhanush, 497 districts across 35 states/UTs were covered. During these phases, more than 2.1 crore children were reached of which 55 lakh children were fully immunized. In addition, 55.9 lakh pregnant women were also vaccinated with Tetanus toxoid. The platform of Mission Indradhanush was also utilized for distributing 52.2 lakh ORS packets and 183.1 lakh Zinc tablets to children. 4th phase of Mission Indradhanush commenced on 7th February' 2017.

WHY CHILDREN NEED TO BE IMMUNIZED

The American Centre for Disease Control and Prevention states five important reasons why one should immunize their children.(http://www.cdc.gov/vaccines)

- Immunizations can save the child's life.
- Vaccination is very safe and effective.
- Immunization protects others you care about.
- Immunizations can save family time and money.
- Immunization protects future generations.

REASONS TO NOT IMMUNIZE CHILDREN

Immunizations are not generally recommended in certain situations by healthcare providers.

- The child has a high fever
- The child has had a bad reaction to another immunization
- The child has had a severe reaction after eating egg
- Has had convulsion (fits) in the past
- Has had, or is having, treatment for cancer
- The child has any illness which affects the immune system, eg. HIV or AIDS
- Taking any medicine which affects the immune system, eg. Immune suppressants or high-dose steroids.

1.1 STATEMENT OF THE PROBLEM

Immunization is a valuable tool for protecting health, enhancing economic security and political stability and saving lives. Over the past 20 years, immunization has prevented approximately 20 million deaths from vaccine preventable infections. India's UIP has contributed significantly to reducing mortality and morbidity due to vaccine-preventable diseases and the infant mortality rate over the last decade. The steady fall of IMR from 123 to 50 deaths per 1000 live-births does in part reflect the impact of the UIP and its vigorous vaccine drives and geographical coverage. Among all the states in India, Kerala ranks the highest in HDI and several other health indices such as life expectancy, Maternal Mortality Rate and Infant Mortality Rate. The IMR of the state even matches the UN standards.

In spite of these achievements, several children lost their lives to VPDs such as Diphtheria, Measles in Kerala. The news reports highlights that the causes of these deaths to be unvaccinated cases of vaccine preventable deaths even thou reports are challenged with conflicting information as to the real cause of the deaths and vaccination status of the children. According to the health departments report 4773 children under the age of one, born during 2015-2016 has not been immunised. Out of which the highest, 2044 children belong

to Malappuram district while Thiruvananthapuram has 257 unvaccinated cases. The number of partially vaccinated cases in Malappuram are also the highest in the state at 18716 while Thiruvananthapuram has1758. (*Mathrubhumi May 22, 2017*)

Reports suggest that all unvaccinated cases are closely followed up by the health department but it is the unwillingness of the parents to immunize their children which challenges the efforts of the state. Parental decision making are an important determinant of childhood immunization. But unfortunately vaccination drives are not welcome in various parts and communities in Kerala. Individuals who decide not to immunize their children end up in debates with the health department and the state government machineries. Various pages and posts on social media such as Facebook and YouTube clearly show a growing concern and opposition towards the cause of childhood vaccination. This trend in general has two sides, one which is vaccine accepting and promoting whereas another which opposes and rejects vaccines.

1.2 SIGNIFICANCE OF THE STUDY

A child's right to survive is the foremost right put forward by the UNCRC. And vaccination is globally recognized as one of the effective practices which protects the child from deadly diseases and helps in his/her survival. The state government provides free vaccination to children through India's Universal Immunization Programme and aims for 100% coverage and vaccination in the state to protect them from vaccine preventable deaths. In spite of these efforts, deaths due to once eradicated VPD outbreaks are occurring in parts of Malappuram, Kasargod and Kozhikode. The health department identifies the parents as being responsible for the death the children, claiming that, had they been vaccinated properly the lives of the children could have been saved and the outbreaks of diseases once eradicated could have been stopped. While saying no to immunization is generally considered a taboo in our society, the numbers of unvaccinated children in the state as per the health department's reports clearly depicts the choice made by parents.

It is in this background the study is being set and conducted. The study envisages understanding the reasons why parents choose not to vaccinate their children. The various factors that influence the decision making of the unvaccinated parents and the psychosocial

implication of such a decision is to be probed. Thou many researches have been conducted in the areas of immunization, immunisation programmes and the Knowledge, Attitude and Practice (KAP) of parents regarding immunization, most of them are quantitative in nature and results are limited to numbers and statistics. Therefore such a qualitative study will be able to record the intricacies of the psycho-social aspects of parental hesitation towards vaccination. Childhood immunisation is one field having a broad scope for social work interventions in the areas of health communication, health promotion, behavioral change communication etc., therefore a qualitative study will help in analyzing various dimensions to the problem as well as identifying newer dimensions.

1.3 RESEARCH QUESTIONS

General Research Question

- What is the nature of vaccine hesitancy among parents based in Thiruvananthapuram?

Specific Research Questions

- What are the psychosocial implications of vaccine hesitancy among parents?
- What are the factors influencing vaccine hesitancy in parents-personal, religious, political, media etc.?

1.4 DEFINITION OF THE CONCEPTS

- **VACCINE**

Theoretical

A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism, and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins (WHO)

Operational

The vaccines listed under the National Immunisation Schedule of India of the Universal Immunisation Programme.

- **IMMUNISATION (VACCINATION)**

Theoretical

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease. [WHO]

Operational

Immunisation by the administration of vaccines listed under the National Immunisation Schedule of India of the Universal Immunisation Programme.

- **VACCINE HESITANCY**

Theoretical

Vaccine hesitancy refers to a delay in acceptance or refusal of vaccination despite availability of vaccination services. Vaccine hesitancy is complex and context specific, varying across time, place, and vaccines. It is influenced by factors such as complacency, convenience and confidence.

Operational

Vaccine hesitancy is the partial or complete refusal of vaccination despite the availability of vaccination services.

CHAPTER 2

REVIEW OF LITERATURE

2.1 INTRODUCTION

Review of literature has utmost importance in every research, especially in the field of social research. This chapter includes a brief review about various studies and literature on vaccines, childhood immunisation and vaccine hesitancy. Myths surrounding vaccination and vaccination controversies in Kerala are presented in the chapter. The theoretical models and framework supporting the topic is also illustrated as it establishes the framework of the study.

2.2 REVIEWS

Vaccines and Vaccination

The terms *vaccine* and *vaccination* are derived from *Variolaevaccinae* (smallpox of the cow), the term used by Edward Jenner to denote cowpox. He used it in 1798 in the long title of his "*Inquiry into the...Variolaevaccinae...known..as...the Cow Pox"*, in which he described the protective effect of cowpox against smallpox. In 1881, to honor Jenner, Louis Pasteur proposed that the terms should be extended to cover the new protective inoculations then being developed.

A vaccine is a biological preparation that provides active acquired immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and keep a record of it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters. The administration of vaccines is called vaccination. *(http://research.omicsgroup.org/index.php/Vaccine)*

Vaccines are considered to be one of the greatest achievements of public health. Vaccination programs around the world have hugely contributed to the prevention of a

number of infectious diseases and conditions and have helped in the decline of mortality and morbidity linked to these diseases. It is the administration of vaccines that is credited for the control and eradication of various deadly diseases worldwide such as polio and smallpox. The success of vaccines is in the significant reduction of the prevalence and incidence of vaccine-preventable diseases (VPD). (Park and Park, 2009)

Vaccine effectiveness refers to the protection conferred by immunisation in a defined population. It measures both direct (vaccine-induced) and indirect (population-related) protection. The effectiveness of a vaccine is proportional to its efficacy but is also affected by vaccine coverage, access to health centres, costs and other factors not directly related to the vaccine itself.

According to Mark et al., (2016) four types of effects can be observed following immunisation: direct, indirect, total, and overall. The direct effect is the reduction in the probability of developing the disease, which is determined by comparing vaccinated and unvaccinated persons belonging to the same population and exposed to the same immunisation programme, in order to eliminate programme-specific effects. The indirect effect is the difference between the outcome in an unvaccinated individual in a population where the immunization programme is in place, and what the outcome would have been in the same individual in a comparable population without the immunisation programme. To estimate the indirect, total and overall effects, the comparison is made between the vaccinated population (which will include both vaccinated and unvaccinated) and a reference population that contains only unvaccinated people. In other words, it is how much an immunisation programme reduces the risk of disease for an individual who did not receive the vaccine. This population-level effect resulting from reduced transmission of the infection is called herd protection. The magnitude of the indirect effect essentially depends on the immunity of the population, and on other factors such as the nature of the immunity provided, the transmissibility and pattern of transmission of the infectious agent. The total effect of immunisation is the sum of the direct vaccinated and being in a population with an immunization programme. The overall effect is the effect of the immunization programme in the entire population that includes vaccinated and unvaccinated individuals.

Alberta et al., (2016) views vaccines as different from most medicines in that they are administered to large and mostly healthy populations including infants and children, so there is a low tolerance for potential risks or side effects. In addition, the long-term benefits of immunisation in reducing or eliminating infectious diseases may induce complacency due to the absence of cases.

Modern vaccines are safe and effective. However, none is perfectly safe and none is perfectly effective. In developing vaccines, the goal is to maximize effectiveness and minimize the risk of adverse events. The decision to use a vaccine reflects a thorough evaluation of the balance between the benefits and risks of vaccination. This balance may change over time (because of changing incidence of disease, increased knowledge about adverse effects, or introduction of improved vaccines) and also leads to a change in vaccination policy.(Noni et al., 2015)

Vaccine Hesitancy

Vaccine hesitancy is an individual behavior influenced by a range of factors, such as knowledge or past experiences. Vaccine hesitancy is also the result of broader influences and should always be looked at in the historical, political and socio-cultural context in which vaccination occurs.

The SAGE on Immunisation defined vaccine hesitancy. "Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of vaccination services. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence."

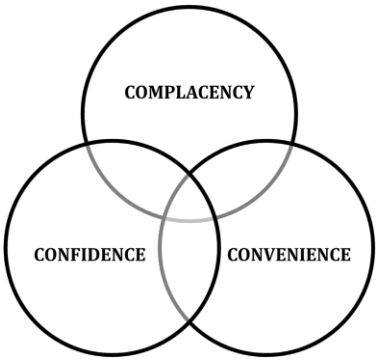

Fig.1. 3C Model of Vacinne Hesitancy

The "3 Cs" model, confidence is defined as trust in (i) the effectiveness and safety of vaccines; (ii) the system that delivers them, including the reliability and competence of the health services and health professionals and (iii) the motivations of policy-makers who decide on the needed vaccines.

People who do not want immunizations represent a small fraction of the total population. However, they may have significant epidemiologic impact. Reasons for lack of support for immunization include ignorance, fear, contraindication, general opposition based on religion or philosophy, or "informed" opposition. The category of "informed" opposition includes those who have decided, based on reliable information, that the risks of immunization outweigh the benefits in their particular case. It also includes "misinformed" opposition arising from acceptance of unproven allegations about vaccine safety or efficacy.

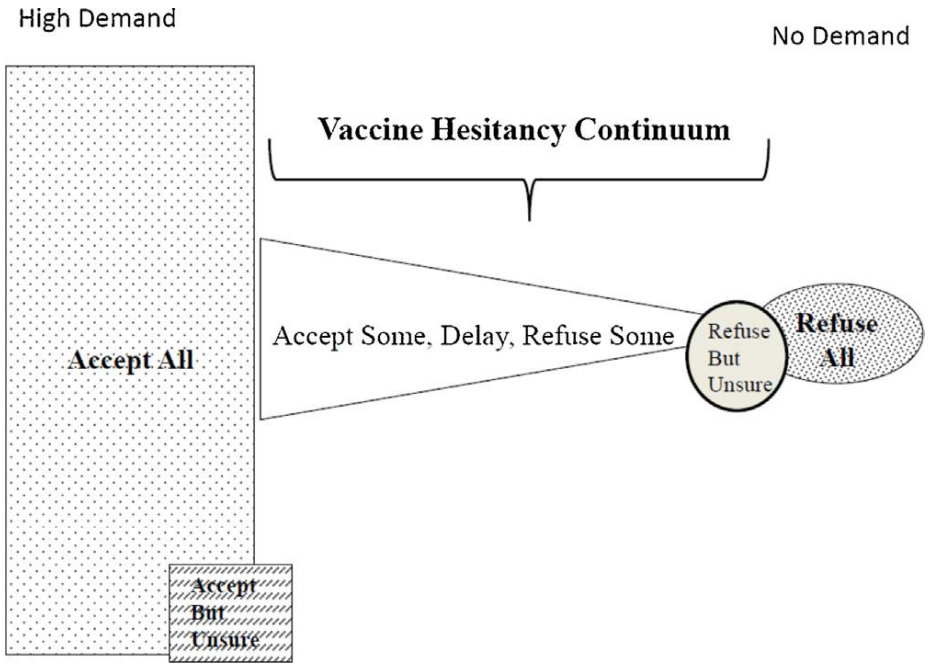

Fig. 2. The continuum of vaccine hesitancy between full acceptance and outright refusal of all vaccines.

Determinants of vaccine hesitancy

The WHO-SAGE working group developed the Vaccine Hesitancy Determinants Matrix with factors grouped in three categories: contextual, individual and group and vaccine/vaccination-specific influences

Fig.3. Vaccine Hesitancy Determinants Matrix

Models of vaccine acceptance and resistance focusing on parental decision making

Nichter (1995) has differentiated *active demand for* vaccinations-adherence by an informed public, from *passive acceptance of* vaccinations-compliance by a public which yields to recommendations and social pressure. Looking at responses to 44 questions (related to, for example, belief in vaccination and vaccine safety, interest and involvement in health issues, influence of family and friends on vaccination decisions, etc.), Gust and collaborators (2005) have identified five types of parental attitudes regarding vaccination, in decreasingly positive order: the "immunization advocates," the "go alongs to get alongs," the "health advocates," the "fence-sitters" and the "worrieds." Keane and collaborators (2005) have distinguished four parent profiles: the "vaccine believer" parents who were convinced of the benefits of vaccination, the "cautious" parents emotionally involved with their child and who have an hard time watching them being vaccinated, the "relaxed" parents who were characterized by some skepticism

about vaccines and the "unconvinced" parents who distrusted vaccinations and vaccination policy. Finally, based on a combination of mothers' actions and attitudes, Benin and collaborators (2006) have categorized the participants of their study into four categories: the "accepters" who agreed with or did not question vaccination, the "vaccine-hesitant" who accepted vaccination but had significant concerns about vaccinating their infants, the "late vaccinators" who purposely delayed vaccinating or chose only some vaccines and the "rejecters" who completely rejected vaccination.

Conceptual model of Vaccine Hesitancy

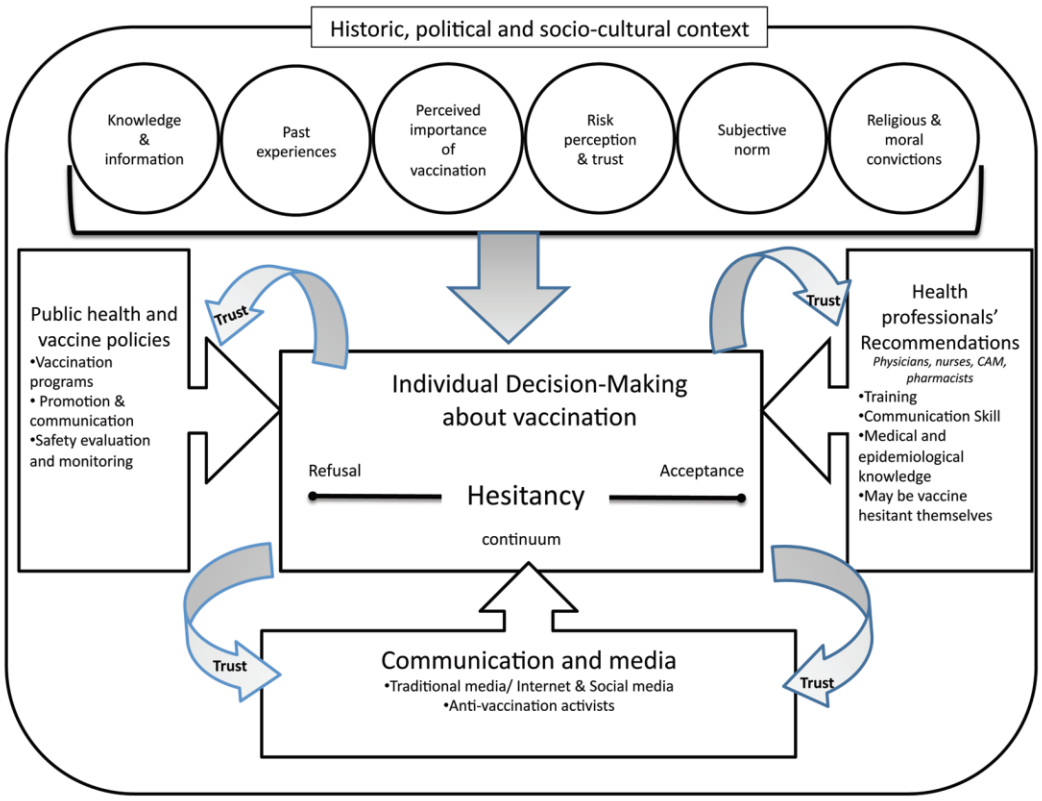

Fig. 4 Conceptual model of Vaccine Hesitancy

(http://www.usherbrooke.ca/depsciences-sante-communautaire/fileadmin/sites/dep-sciencessante-communautaire/documents/HesitationVaccination/AfficheMG-anglais.pdf)

Vaccination controversies

Dr. Andrew Wakefield's 1998 study, linking the MMR vaccine to Autism, was pulled from the medical journal *Lancet* due to falsified data and his findings discredited as the study was found invalid. He lost his license to practice medicine. This study and findings created a wave of controversy regarding the safety and risks of vaccines which is still cited today.

The deaths due to VPDs in the district of Malappuram in 2015 and 2016 had invited controversies claiming the deaths were unvaccinated children. This was followed by a massive immunization drive by the health department caused panic in the region.

Indian Journal of Medical Ethics raised concerns to the Government of India, regarding the deaths of children following vaccinations, the government said they don't monitor deaths, but monitor all adverse events following immunisation (AEFI). Adverse events include deaths, clustering and hospitalisation, and we monitor all of these, not just deaths specifically. Indian Journal of Medical Ethics, where two doctors drew attention to the cases of AEFI reported between 2012 and 2016 – out of the 134 cases that India reported, 78 babies survived hospitalisation while 58 died. The causes of deaths among 96% of children following vaccination were listed by India as being "unclassifiable" or "coincidental due to something other than vaccine". The doctors found that not even one of these cases was classified as a vaccine-product related reaction. The larger issue that the authors raise is a global one – they say there is a problem with the WHO's philosophy on post-vaccination since the WHO changed its classification of AEFI. They have asked the WHO to revise their classification as well. From the authors' analysis, the WHO's new classification and definitions imply that no death can result from vaccination, and if any death occurs, it is "coincidental" and not due to the vaccine. *(https://thewire.in/155353/dont-monitor-deaths-monitor-adverse-events-says-govt-deaths-following-vaccination/)*

The Government of Kerala's decision to make vaccination compulsory before school admissions made a controversy. However the Kerala State Commission for Protection of

Child Rights (KeSCPCR) and Humans Rights Commission intervened and reversed the decision.

Anti-Vaccination movement

Since the introduction of the first vaccine, there has been opposition to vaccination. In the 19th century, despite clear evidence of benefit, routine inoculation with cowpox to protect people against smallpox was hindered by a burgeoning anti-vaccination movement. The result was ongoing smallpox outbreaks and needless deaths.

Since the 18th century, fear and mistrust have arisen every time a new vaccine has been introduced. Anti-vaccine thinking receded in importance between the 1940s and the early 1980s because of three trends: a boom in vaccine science, discovery, and manufacture; public awareness of widespread outbreaks of infectious diseases (measles, mumps, rubella, pertussis, polio, and others) and the desire to protect children from these highly prevalent ills; and a baby boom, accompanied by increasing levels of education and wealth.

Countries that dropped routine pertussis vaccination in the 1970s and 1980s then suffered 10 to 100 times the pertussis incidence of countries that maintained high immunization rates; ultimately, the countries that had eliminated their pertussis vaccination programs reinstated them.

The 1998 publication of an article, recently retracted by the *Lancet*, by Wakefield et al.3 created a worldwide controversy over the measles–mumps–rubella (MMR) vaccine by claiming that it played a causative role in autism. This claim led to decreased use of MMR vaccine in Britain, Ireland, the United States, and other countries.

In the United States, vaccine manufacturers faced an onslaught of lawsuits, which led the majority of them to cease vaccine production. These losses prompted the development of new programs, such as the Vaccine Injury Compensation Program (VICP), in an attempt to keep manufacturers in the U.S. market.

Today, the spectrum of anti-vaccination activists ranges from people who are simply ignorant about science (or "innumerate" -unable to understand and incorporate concepts

of risk and probability into science-grounded decision making) to a radical fringe element who use deliberate mistruths, intimidation, falsified data, and threats of violence in efforts to prevent the use of vaccines and to silence critics. Anti-vaccination activists tend toward complete mistrust of government and manufacturers, conspiratorial thinking, denialism, low cognitive complexity in thinking patterns, reasoning flaws, and a habit of substituting emotional anecdotes for data.5 Their efforts have had disruptive and costly effects, including damage to individual and community well-being from outbreaks of previously controlled diseases, withdrawal of vaccine manufacturers from the market, compromising of national security (in the case of anthrax and smallpox vaccines), and lost productivity.

People who do not want immunisations represent a small fraction of the total population; however they may have significant epidemiological impact. Reasons for lack of support for immunisation includes ignorance, fear, contraindication, general opposition based on religion or philosophy, informed opposition and misinformed opposition. The category of informed opposition includes those who have decided base on reliable information that the risks of immunization outweigh the benefits in their particular case. Misinformed opposition-acceptance of unproven allegations about vaccine safety or efficacy caused by media accounts of alleged adverse events caused by vaccines.

The H1N1 influenza pandemic of 2009 and 2010 revealed a strong public fear of vaccination, stoked by anti-vaccination activists. In the United States, 70 million doses of vaccine were wasted, although there was no evidence of harm from vaccination. Meanwhile, even though more than a dozen studies have demonstrated an absence of harm from MMR vaccination, Wakefield and his supporters continue to steer the public away from the vaccine. As a result, a generation of parents and their children has grown up afraid of vaccines, and the resulting outbreaks of measles and mumps have damaged and destroyed young lives.

Anti-vaccination movement on the Internet

The most influential medium for parental beliefs about immunizations seems to be Internet. Approximately 74% of Americans have Internet access. In 2006, 16% of users

searched online for information on immunizations or vaccinations (Marian, 2012). Over half (52%) of users believe ‘‘almost all’’ or ‘‘most’’ information on health sites are credible, yet the availability of inaccurate and deceptive information online has labeled the Internet a ‘‘modern Pandora’s box’’. Kata A. analyzed the arguments proffered on anti-vaccination websites to determine the extent of misinformation present, and to examine discourses used to support vaccination objections. Most common arguments were focused on: (1) safety and effectiveness – vaccines: contain poisons, cause diseases of unknown origin, erode immunity; (2) alternative medicine – promotion of treatments superior to vaccination (e.g. homeopathy) and ‘‘natural’’ approaches (chickenpox party); (3) civil liberties; (4) conspiracy theories; (5) morality and religion – vaccination is against God’s will. Misinformation and falsehoods on those websites were also prevalent. There were outdates sources, misinterpretations, self-referencing, unsupported statements noted.

Theoretical models

The term “Vaccine hesitancy” is increasingly used in the investigations of demand-side determinants of vaccinations by recognizing the importance of understanding and engaging those who are delaying vaccination, accepting only some vaccines, or who are yet undecided, but reluctant. Rather than in investigations which results in polarized framing of pro-vaccine and anti-vaccine groups. (Larson, 2013)

According to Larson vaccine acceptance is determined by a range of factors, from structural issues of supply, costs and access to services, as well as the more demand-side determinants. The author sees vaccine hesitancy is a state of indecision which is difficult to measure, but the stage of indecision being a critical time to engage and support the decision-making process towards vaccine confidence and vaccine acceptance. And stresses that pressure to vaccinate can be counter-productive. This article suggests modes of investigating the determinants of vaccine confidence and levers of vaccine acceptance toward better engagement and dialogue early in the process of decision-making. Pressure to vaccinate can be counter-productive. Listening and dialog can support individual decision-making and more effectively inform the public health community of the issues

and concerns influencing vaccine hesitancy. Williams (2014) observed that parental refusal or delay of childhood vaccines is increasing.

Vaccine hesitancy is an emerging term in the socio-medical literature which describes an approach to vaccine decision making. It recognizes that there is a continuum between full acceptance and outright refusal of some or all vaccines and challenges the previous understanding of individuals or groups, as being either anti-vaccine or pro-vaccine. The causes of vaccine hesitancy can be described by the epidemiological triad i.e. the complex interaction of environmental- (i.e. external), agent- (i.e. vaccine) and host (or parent) - specific factors. Kumar et al., (2016)

Vaccine Hesitancy has been defined as a set of beliefs, attitudes, or behaviors, or some combination of them, shared by a large and heterogeneous portion of the population and including people who exhibit reluctant conformism (they may either decline a vaccine, delay it or accept it despite their doubts) and vaccine-specific behaviors. Vaccine Hesitancy as a kind of decision-making process that depends on people's level of commitment to healthism/risk culture and on their level of confidence in the health authorities and mainstream medicine. (Peretti-Watel, 2015)

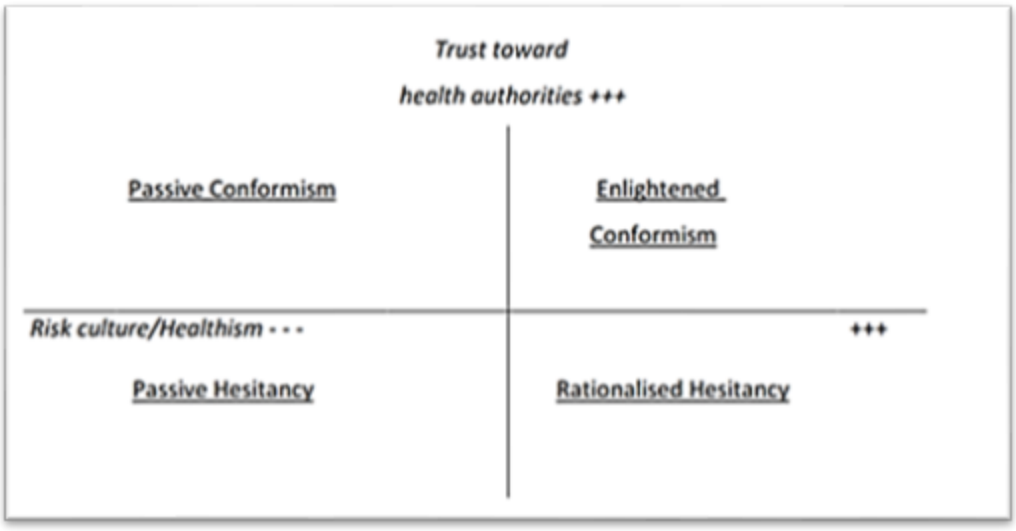

Fig. 5. Vaccine hesitancy in a 2 dimension map (Peretti-Watel, 2015)
(Commitment to risk culture / healthism (horizontal axis) and distrust/trust toward health authorities (vertical axis)

As specified above, considering vaccine hesitancy a decision-making process helps to distinguish two very different kinds of VH: first, that of people with poor knowledge of and indifference to vaccination issues, and erratic vaccination behaviours, and, second hand, that of people who are very interested and committed to vaccination issues, prone to information seeking and long and balanced decision-making. From a psychological point of view, this axis echoes the notion of locus of control: some people believe that they can control events related to their life (internal locus of control), while others endorse a more fatalistic attitude, tending to believe that their life is driven by forces outside themselves (others, fate or luck: external locus of control).

Factors influencing vaccine hesitancy

Dube et al., (2013) in his review paper on vaccine hesitancy identifies the major potential causes from various social science researches. The causes have to be seen in its historical, political and socio-cultural context. The various psychosocial factors identified by the author affecting vaccine acceptance at the individual level were

a) Knowledge/Information about vaccination
b) Past experiences with vaccination services
c) Perceptions of the importance of vaccination in maintaining health
d) Health professionals recommendations and use of Complementary and Alternative Medicine (CAM)
e) Risk Perceptions
f) Trust
g) Subjective norm, social pressure and social responsibility.
h) Moral or religious convictions

Role of Media and Communication

Many scientific studies have demonstrated the negative influence of media controversies on vaccine uptake. The internet has become an essential source of information. Studies reviewing the content of websites or social networks concerning vaccination have shown that information is of variable quality and that inexact or negative content is predominant. (Zimmerman et al., 2005)

The Role of Public Health and Vaccine Policies

In the US, the number of vaccines included in the publicly funded vaccination program for children from birth to 18 y of age has more than tripled between 1990 and 2012. In order to achieve high vaccine coverage, some countries have introduced laws to require children to be vaccinated before school entry. Policies that mandate vaccination have always been controversial. Parents who disapproved of compulsory vaccination were significantly more likely to hold negative beliefs regarding the safety of vaccines and their utility to protect their child's health. (Kennedy et al, 2005)

The Role of Health Professionals

Health professionals are generally strong supporters of vaccination. However, some of them could be categorized as vaccine hesitant. The complexity of the vaccine schedule and the rapid development in vaccinology could be a barrier for health professionals who have to keep up to date and who may not feel comfortable discussing vaccination with patients. (Harris et al, 2004)

Individual Decision-Making Process

Studies are mostly focused on parental decision-making regarding different childhood vaccines. An overwhelming majority of studies looking at determinants of vaccine acceptance have been conducted among parents, mainly because most vaccines are targeted at children and adolescents. Although individual vaccine decision-making varies according to socio-cultural context, social circumstances and personal experience, similarities in individual determinants of vaccination acceptance or refusal can be found (Brown et al, 2010)

Addressing Vaccine Hesitancy

Researchers are beginning to evaluate various approaches to address the concerns of "vaccine-hesitant" parents, but few studies have evaluated the effect of interventions on timely vaccine uptake. Several models for communicating with vaccine-hesitant parents have been reported for healthcare providers; however, the effectiveness and utility of these strategies has not been quantified (Williams, 2014). Glen et al., (2015) illustrated

the use of commercial and social marketing principles and strategies to tackle vaccine hesitancy. The author discussed vaccine specific as well as population specific strategies.

"The increasing numbers of vaccine-hesitant parents poses a threat to personal and public health through a resurgence of vaccine-preventable diseases. When designing interventions, understanding the factors underlying vaccine-hesitant parents' fears is a necessary step towards overcoming them. Educational interventions appear more successful when combined with personal interactions. Health providers are the most important influence on parental vaccine decisions and interventions that facilitate effective parent-provider communication around this issue is desired" (Healy, 2014)

Scott (2000) recommended an eight-step approach to respond to parents unsure about immunization, 1. Listen, Evaluate, and Categorize; 2. Recognize Legitimate Concerns; 3. Provide Context; 4. Refute Misinformation; 5. Provide Valid Information; 6. Recognize that it is the Parents' Decision; 7. Educate About Potential Consequences and 8. Make a Clear Recommendation.

Chris and David (2004) observed that voluntary vaccination policies for childhood diseases presented parents with a subtle challenge. Since a sufficient proportion of the population is already immune, either naturally or by vaccination, then even the slightest risk associated with vaccination will outweigh the risk from infection. "As a result, individual self-interest might preclude complete eradication of a vaccine-preventable disease". The authors with the help of game theory elicited new insights that helped to explain human decision-making with respect to vaccination. "Increases in perceived vaccine risk will tend to induce larger declines in vaccine uptake for pathogens that cause more secondary infections (such as measles and pertussis). After a "vaccine scare", even if perceived vaccine risk is greatly reduced, it will be relatively difficult to restore "pre-scare" vaccine coverage levels.

Chris and David (2004) found that in deciding whether to vaccinate their children, parents consider the risk of morbidity from vaccination, the probability that their child will become infected, and the risk of morbidity from such an infection. The decisions of individual parents are indirectly influenced by the decisions of all other parents, because

the sum of these decisions yields the vaccine coverage levels in the population and hence the course of epidemics.

Kumar et al., (2016) stated that the behaviors responsible for vaccine hesitancy can be related to confidence, convenience and complacency. Many experts are of the view that it is best to counter vaccine hesitancy at the population level. They believe that it can be done by introducing more transparency into policy decision-making before immunization programs, providing up-to-date information to the public and health providers about the rigorous procedures undertaken before introduction of new vaccines, and through diversified post-marketing surveillance of vaccine-related events. Kumar et al., (2016)

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the methodology employed in the study. It begins with the title of the study which is followed by the explanations about the methodology adopted. It includes description about research design, sample design, sources of data, tools for data collection, division of chapters, limitations of the study and end with conclusion.

3.2 TITLE OF THE STUDY

Vaccine Hesitancy Among Parents - A study in Thiruvananthapuram

3.3 RESEARCH DESIGN

The research design chosen for the study is Case Study Design. This design allows the researcher to make an in depth qualitative analysis of individual cases focusing on the psychosocial aspects of the respondents in the study.

3.4 SOURCES OF DATA

Primary and secondary data were collected for the study.

- **The primary data** was collected from five cases of vaccine hesitant parents in Thiruvananthapuram. Each case is the respondent who is either the father or the mother.
- **The secondary data** was collected from books, journals, magazines, newspapers and other web sources (websites, online journals, etc)

3.5 TOOLS OF DATA COLLECTION

Self-prepared interview guide was used as the tool for data collection. The interview guide prepared according to the theme of the study and research objectives were used to conduct unstructured interviews with the respondents.

3.6 DATA COLLECTION

Snowball sampling was used to find cases for the study. The cases were identified and contact details were collected from respondents interviewed for the study and others interviewed as part of a pilot study. The selected parents are either fathers or mothers who have only partially vaccinated their children or have not at all vaccinated their children.

For three of the cases the researcher took an appointment with the respondent and interviewed them directly. The other three cases were interviewed over the phone after taking an appointment from the respondents. In both cases the researcher established a rapport with the respondents and introduced the objective of the research hence the topic is one which could invite suspicion of the respondent and also preferred to kept confidential by the respondent due to taboo and stigma surrounding the issue of non-vaccination. Hence the researcher also assured the confidentiality of the respondents to ensure the ethical considerations in the research. The researcher was also able to identify new relevant themes to the study during the data collection and was also able to elicit the emotions of the respondents. The interview was recorded with the consent of the respondents later to be transcribed.

3.7 DATA ANALYSIS

The recorded interviews were transcribed into five cases and the analysis was carried out logically. The cases were qualitatively analyzed based on the themes identified and in coherence to the research objectives.

3.8 CHAPTERISATION

The research was divided into 6 chapters to do the study in a systematic way. The divisions of the chapters were in the following manner.

- **Chapter 1- *Introduction*:** This chapter gives an introduction to the topic being studied and includes the statement of the problem, significance/relevance of the study, the research questions and theoretical and operational definitions of the concepts used in the study.
- **Chapter 2- *Literature Review***: This chapter detailes the various literature reviewed related to the study undertaken. The literature review logically analyses the published materials-national and internatonal (articles, journals, websites, newspapers, magazines etc)
- **Chapter 3- *Methodology***: This chapter illustrates the methodology adopted for the study. The research design, sampling, sources of data, and tools for data collection, data analysis and the limitations of the study are described.
- **Chapter 4- *Case presentations***: The five cases collected in the study are presented in detail in this chapter. The cases are written as narrative case presentations.
- **Chapter 5- *Data analysis and interpretations***: This chapter includes the general profile of the respondents and the thematic analysis of the data collected.
- **Chapter 6- *Findings and Discussion:*** The chapter presents the research findings and discusses it with reference to the literature review.

3.9 LIMITATIONS OF THE STUDY

One of the major limitations of the study according to the researcher is the scope of the study which is limited to thee parents as samples and the location Thiruvananthapuram. The number of cases even thou are only five, the researcher has tried to include cases as representative as possible given the scope of the research. The research topic is one which can studied both qualitatively and quantitatively but the researcher chose to stick with qualitative method. Two of the respondents are not presently residing in Trivandrum

but has only recently relocated to other districts and their experience with vaccination their children was based in Thiruvananthapuram.

3.10 CONCLUSION

The researcher had adopted an appropriate methodology for conducting the research. Thou there were limitations in the method, design and data collection, the cases identified were greatly relevant and in depth interview helped elicit good data. The researcher succeeded in being unbiased during data collection and has ensured ethical practice in the conduct of research.

CHAPTER 4

CASE PRESENTATIONS

4.1 INTRODUCTION

The key themes of the study ventures around

1) The basic profile of the family-Family structure, religion, education, occupation of members etc.
2) The vaccination status of the children in the family
3) Families' experience with vaccination and concerns.
4) The parental attitude towards vaccination.
5) Perception regarding health and wellness
6) Consequences of vaccination hesitancy.

4.2 CASE PRESENTATIONS

CASE A

The case was identified by the researcher through a Non-Governmental Organization that works in the field of Complementary and Alternative Medicines and Therapies. The respondent is a father of 65 years of age. He is a writer and well known personality in the field of Child Welfare and Mass Media. And the mother is 60 years old. The two children are a son and daughter of the ages 31 and 26 respectively. The grandchildren of ages 3 and 1 belong to the son and daughter respectively. The family follows Hinduism as a religion.

The researcher had taken an appointment for the interview and went to the house of the respondent. The researcher was welcomed warmly due to the prior acquaintance through the NGO and could establish rapport very quickly. Then the respondent was told about the researcher's area of study and the objectives of the research. The researcher had already gained information that the respondent has not vaccinated their children. Therefore the researcher had to confirm the information and asked about the vaccination status of the children. The respondent replied.

"My son has not been given any vaccines but my daughter, the second child was given some vaccines soon after her birth at the hospital. We only came to know about it after she was give immunization. But after that we did not take any vaccines for her thou the doctor asked us to bring her the next time."

Choosing the Natural Life

From 1985 onwards the respondent had been attending naturopathy classes conducted by the renowned *acharya* of Naturopathy C.R.R. Varma at Gandhi Bhavan. During a discussion, a concept introduced in the class stating that *"if one leads a healthy and natural life, they do not require any artificially induced immunity since the body's innate immunity would be enough"* The respondent married in 1985 and had his first child the next year in 1986.

"We were confused regarding taking a decision then, but we took a bold decision not to immunize our children."

According to the respondent no consequences were experienced so far because of their bold decision not to vaccinate their children. He said *"our children did not catch any diseases or were affected by even those common childhood diseases that usually trouble most children. Since I decided not to immunize my two children they never had to suffer any kind of hospitalizable diseases so far."* The researcher asked what would be the reason according to the respondent, *"We chose a nature based life then. We changed our food habits completely and became vegetarians. We adjusted our diets accordingly."*

The Third Generation

He continued to speak about the children. Both the children have not had any serious health problem so far and that both of them are married and have their own children too. When asked about the vaccination status of the grandchildren

"Their children have been given vaccination. That was not for us to decide as the parents had the complete freedom to decide for themselves. The parents might have had their own fears and

concerns. I had not intervened in that since only in our children's case we have the freedom, once they have their children; it's their families' decision. They are a separate family now."

The grandchildren were vaccinated as there was family pressure from the side of the in laws. Even thou the respondent's children were convinced about not being vaccinated and its effects from their own life, they had decided to vaccinate their children due to the social pressure hey faced. They still say that *"we haven't been vaccinated, still…"*

Saying No to Immunisation

"In naturopathy we learn that if we live close to nature, our own body creates its own immunity. The body has such a capacity. What affects our immunity are the unnatural practices and lifestyles we follow. That is when our immunity is destroyed. If we understand that concept and live a natural life, we can develop our own immunity."

The researcher enquired about the scientific basis of these concepts. To which the respondent said that *"science is relative and our own experiences are the greatest science".* He agrees that in the event of losing our immunity or catching a disease one might need to get treatment. But he is not convinced in case vaccines or their science.

But as a person following *Prakruthi Jeevanam* he was convinced we don't need immunization and strongly believes that we need to develop our body's inbuilt natural immunity and not to destroy it through our wrong lifestyle choices. When one follows bad food habits and lifestyles naturally the body succumbs to diseases needing further treatment out of it. He said he is convinced of the scientific reasons for his choice.

"Since this is what I have understood, experienced and believe, I don't think vaccinations are necessary, anything else being told by doctors might be false arguments."

Skeptical about vaccines

The parent then started presenting various arguments to justify his doubt regarding vaccinations. Maybe during a time when vaccinations were very popular for its effectiveness, there might well have been other reasons for child deaths such as prenatal or pregnancy issues, their lifestyles and consequences, maybe these vaccines were found to address those issues. There are incidences where children who have been vaccinated against polio, being infected with polio within hours. "We have seen paralyzed children. So many such cases have been reported." He asked that when polio vaccination is being taken, even then one among a lakh can be affected, what is the science in it? If it's completely safe even that one in a lakh shouldn't be occurring. Since that happens, isn't it because we inject something which the body doesn't need. Somebody living in an unhealthy situation, might have a weaker immune system, for them it might be an invention to increase their immunity, like in colony countries. The science of *Pakruthi Jeevanam* says if we lead a healthy lifestyle we don't need these.

When asked his opinion regarding the unvaccinated cases of child deaths in the news, the respondent replied

> *"The deaths might not be only due to not vaccinating, it could be due to their lifestyle problems. In that case effectiveness of vaccines can be justified; I am not completely rejecting it. But as a person following Pakruthi Jeevanam, I have understood it is not needed, as far as i am concerned my experience has proved likewise"*

The respondent added that the commercial aspect to immunization was another reason for rejecting vaccines. *"Today multinational corporates are making the whole world their market to sell their vaccinations. It's their strategy of creating a global movement to make vaccinations compulsory. This idea is still prevalent as it was prevalent those old days. But today people are taking immunizations only due to fear. They are being scared from all sides saying that their child will succumb to diseases. Parents cannot turn a blind eye towards their children's health, even if they don't care about their own health. They will take immediate action for their children"*

Walking the talk

The researcher asked if the respondent faced any social pressure or peer pressure while taking the decision not to vaccinate their children. He said that he faced so much of pressure but since he was convinced he ignored the pressure. The responded was asked if he shares his views on vaccination with others

> *"Yes, I have shared this concept with others and also during "Prakruthi Jeevana" classes or programmers I share the same."*

The respondent has three sisters as siblings and none of them has been vaccinated or taken vaccination of rhtir children and has not had any health issues. *"Even thou we do not follow natural life 100%, but the change in lifestyle has improved our immunity subsequently so that we do not need any artificial immunity"* he added.

Other systems of medicines practiced

> *"Naturopathy is not a 100% solution for all diseases! Sometimes we have difficulties due to diseases, due to many reasons such as nature of our work, travelling and so on; we won't be able to follow Naturopathy. In such situations I follow homeopathy. If diseases or symptoms are present, a natural lifestyle along with homeopathy gives an immunity boost in my experience."*

The respondent also practices acupressure and acupuncture as it is not practical to follow Naturopathy all the time. Therefore treatments and therapies with minimal side effects and consequences are preferred.

Opinion on present system of Immunisation

The respondent is of the opinion that immunisations should not be forced on people and asks why they are being forced. At the same time he says that the topic of immunisation is a risky one and as he has not made any scientific enquiry or research to comment on it with authority. *"I can't comment on that with authority as I am not a doctor"* he said.

According to him, it's an individual choice which should come from the individual's conviction. *"The Government is not giving any guarantee on the life or health of the people. They admit it's not 100% foolproof, as some might still get the disease. That might have its scientific reasons but still is not fully convincing. Even saying only one in a lakh can get the disease if vaccinated means it's not foolproof."*

The researcher asked the respondents take on compulsory vaccinations which are a contemporary issue surrounding immunization in Kerala. He responded saying

> *"Since childhood immunisations are something we do without the consent of the child, we are also responsible for the side effects it causes. Even in America where vaccines were invented, they haven't included compulsory immunization in any of their acts. There are no legal provisions to take action against parents in the democratic system. Nobody can insist that we should have drugs or medicines."*

He was asked of any known provisions for compensations or legal redressal mechanisms for vaccine related problems *"I am not aware of any such information as I have not tried to study that area. But I have seen the news of such cases being given compensation by the government in the newspapers."*

The respondent shared a last point stressing on the legal angle of a contrasting situation "denying treatment to a diseased child thou is against the law and is considered an offense under the clause 'cruelty towards child' "

CASE B

This case was referred by the doctor of Primary Health Centre (PHC) as the respondent lived in the area to which the PHC belonged. The respondent is a 38 year old father who is an Imam at a mosque in Thiruvananthapuram district. The Imam's family consists of

the mother (29) who is a homemaker and three children, a girl of 9 years, a girl of 6 years and a boy of 1 year. The father's educational level is "SSLC passed". The respondent was introduced by the doctor saying that he was not willing to get the children vaccinated. This case has been selected as being one which the District Child Protection Officer had intervened.

The researcher collected the number if the respondent from the doctor at the PHC and called to take an appointment with the respondent. On the phone, the respondent seemed slightly hostile at first and asked many questions as to the purpose, nature and objective of the study. The researcher's replies did not completely convince the respondent still he agreed to give an interview. The researcher collected the address which was different from the address got from the doctor and went to the house of the respondent. After a brief self-introduction, the researcher got a reluctant consent of the respondent to record the interview reluctantly. The researcher ensured all good intentions for the interview and proceeded as the respondent had limited time and soon had to go to the mosque.

The vaccination status

The researcher enquired about the vaccination status of the children, the father said that both the youngest children were vaccinated at the hospital soon after birth, while the eldest wasn't vaccinated. When asked why it was like that, the father replied

> *"The youngest two children were born in a government hospital; there they consider having some special authority to provide vaccination to the child without our consent. We weren't informed about the vaccination. I came to know only after they had given the vaccination. Whereas in the private hospitals they do it with our consent only, this is why the eldest child wasn't vaccinated"*

No vaccination was given after that to any of them. Not even pulse polio drops were given afterwards. The researcher asked what the reason for such a decision was, the father replied

"My niece had suffered from physical health problems after vaccination. We have seen it. So many other cases too I know with problems after being vaccinated."

The social pressure

The father was very short with his replies. Therefore the researcher asked whether they faced any problems as the aftermath of their decision not to vaccinate the children. The father after a moment of thought replied sadly

"We had to face so much of pressure from many sides. But now since I have resigned and moved to another place, things have changed. Where I used to work, the person were accepting of vaccines, takes them and also considers it dangerous not to take them, as if something might happen to them if they do not take vaccines. I faced a lot of pressure being a parent opposed to vaccination in that place. I went through lot of psychological stress, not only me my whole family too. To the extent I even thought of complaining to the authorities."

He admitted that he was pressured by Govt hospital staff, the doctors and the nurses there as well as the staff from the health department. *"They even verbally abused my wife and bad mouthed about her to others."*

Standoff with the system

The second child (6 year old girl) used to go the *anganwadi*. The ASHA once verbally abused her mother and insulted the mother in front of the small child in a very abusive language. The child went home and informed the father as she was old enough to understand that. The ASHA and nurses from other places had visited the house on several occasions. When asked how he handled the situation, he replied *"I told them that as a parent we have the right to decide whether to give our child this vaccination or not. And asked them to kindly stop bothering us regarding this. Then doctors and higher*

authorities started to come. Even they made very prominent "Ustads" to phone and compel me. That is the extreme they went to."

"Why do they pressure this much for vaccinations?" He asked in a skeptical tone. According to the respondent, the health workers conveniently ignore his bedridden ill neighbors and environmental sanitation issues but can't let go off the issue of his children's vaccination. He did not understand why they pressured so much and also doubted their intentions. *"I had so much of protest and was even ready to make a complaint"* he said. *"We are not sure what vaccines are given to the children and the doctors have also failed to explain the effects of vaccination. Therefore we have the right to decide not to vaccinate our children"* he added.

> *"I even had to shift our house and move away from there due to this pressure. Not the only reason but this was a major reason."*

Disguised Child Abuse

The ASHA even threatened the small kids of the respondent saying that they will have the police arrest their father if they don't get vaccinated, which scared them. After that they got so scared and cried whenever vehicles passed thinking it is the police coming to arrest their father.

The researcher then asked the respondent the reason for his opposition to vaccinations expecting a detailed reply. He replied

> *"I am of the opinion that vaccinations are not effective and have only adverse effects. I have evidences for that and have spoken to people regarding this. Even if people are convinced they pretend otherwise since they are pro-vaccine."*

When asked how he developed such an impression about vaccines, he said *"people who were vaccinated suffer paralysis and other problems. Like my friend's child lost his arm movements after such a vaccination. Then if we take them to the hospital the doctors would say it is not because of these vaccinations. At the same time there are no other reasons other than that. The children get feverish after vaccination and followed by*

which they show physical problems. But the doctors won't admit it. This is the main reason why I decided not to get my children vaccinated. Most of our family members are against vaccination after my nieces experience with vaccination. Most of us in the family don't give vaccinations to our children."

It has been around 15 years since the respondent had lost his trust towards vaccinations. The respondent later got RTIs and found out that no laws exists which states that vaccination are mandatory for children. He told the health workers the same. *"But i still don't understand why there are torturing us like this"* the responded said making his frustration clear through his tone.

Unvaccinated health status

The researcher enquired about the health status of the children presently.

> *"Due to God's grace, my unvaccinated children are much healthier than most vaccinated children around. There is no doubt about that. We try to bring up our children in spiritual way. Even a neighbor lady told my wife that, in spite of having taken all sorts of vaccines for their children, they are very disease prone all the time. While our children have no such health problems"*

When asked if the respondent has any fears of not vaccinating or any doubts when making the decision not to vaccinate the children, he said that there were no such fears or doubts. All these claims about vaccinations are just false claims. *"In that case I have to ask, why we have so many new diseases now which were not prevalent before, nobody has medicines or preventive medicines for that. What about the case of deaths due to dengue. When my wife was taken to the hospital due to dengue, the doctors told us there is no treatment for dengue. Which is why I say these vaccination claims are false."*

Other systems of medicines practiced?

The researcher asked about the other systems of medicines and treatments that the family uses.

"When there are some small common health issues like fever or the sort, we resort to Ayurveda. I am more interested in Ayurveda since they don't have side effects. Have also taken homeopathy medicines. It's not that we completely reject English medicines, if there are illnesses, we should surely treat it; and that's how our religion teaches us. But we do not support taking preventive measures to stop the disease before getting ill. Prophetopathy is another one, not very common but is being taught and also recognized by IAMS and government recognized courses are being given."

When enquired what prophetopathy is, he said that its prophet's medicine, the treatments taught by the prophet. *"We use it for our children and have no side effects and also is highly effective."*

When asked where they get their information regarding vaccination from. He replied tha his acquitances and friends send him vaccine information through Whatsapp. Ayurveda doctor friends share information.

CASE C

This case was referred by the doctor from the PHC in the locality where the respondent is residing. The doctor had told the researcher that the respondent was not willing to vaccinate his children. The contact details were collected from the doctor and the researcher called the 38 year old father from Thiruvananthapuram district and introduced and took an appointment for the interview. The researcher went to the house of the respondent. He was welcoming and enquired every detail of the study being conducted by the researcher. He asked how the researcher got his contact and did not seem pleased to know that the number was given by the doctor from the PHC.

The respondent is a 38 year old father who is also the pastor of the church in the locality. The family of the respondent includes the wife (34 years) who is a homemaker and two daughters of 6 and 7 years. The respondent himself is a history graduate and had a degree in theology too.

The allergic baby

The researcher asked the respondent the reason for why he decided not to vaccinate his children. The respondent said that it was due to a peculiar condition of his daughters, the reason why he opposed giving them any vaccines. My first child of the pastor was born an early morning in a private hospital and was given vaccinations soon after birth. After that she got rashes all over her body. The whole day the baby cried, the parents did not know why. And then for the next 3 months, she cried so much that the pastor who was working in Pune at that time could hear the baby cry whenever he used to call his wife who would also be in tears due to the baby's nonstop cry. They took her to a government pediatrician's clinic then where they went for vaccination follow-ups. *"He told us that in the present condition of the child, vaccination is not to done. If there are any other problematic conditions vaccination should be avoided or should not be given, that is what I have heard"* he said. The doctor had advised them not to give the baby vaccines since she had rashes over her body which was noticed since birth. The rashes increased in severity with the atmospheric temperature and also if the baby used any synthetic materials clothes. After that whenever they went for vaccinations, the doctor postponed it citing various reasons.

When the child had fever the respondent started consulting homeopathy doctors, since homeopathy is generally effective for fever in children according to him.

> *"That is when the government homeopathy doctor told us that the child has a peculiar condition of "soft skin" and should not be given vaccines. And that whichever homeopathy doctors we take her to, they will say the same and would even hesitate to give her homeopathic medicines due to the possibility of allergic responses."*

The doctors said that the condition would last till 6-7 years of age. After that they started consulting only homeopathy.

> *"Once or twice when the child had fever we gave her paracetamol, she would develop rashes from head to toe and would cry the whole night. Those were sleepless nights for me. That was her response to English medicines. So we were reluctant to give her allopathic medicines and also did not give her any vaccines thereafter. Even pulse polio we did not give because of the same reason."*

The child even had allergic reactions to egg and chicken. She developed severe rashes after being given egg once. The respondent further described *"We did not know why at first but after that the same repeated after a second time she was given egg, we stopped giving eggs and chicken thereafter. The homeopathy doctors said not to give her eggs and that she will be fine when she grows up."*

When the system turns indifferent

Once a health inspector came to the house and insisted that the child to be given pulse polio drops. The respondent tried to explain to him the child's allergic condition, but the health inspector did not heed his request and without the parents' consent or permission went to the child's room and administered the pulse polio drops in the sleeping child's mouth. This was when she was 2.5 years old.

> *"After that she again developed severe rashes and her lips and face swelled up. I really thought of moving the court against the doctor. And only because I am a religious person and I felt that they would twist the facts and make this easily look like a religious issue. My community already has such an image in the society. This is the main reason why I still haven't said a "no" and am ready to cooperate with vaccinations. Because of the possibilities that some people might interpret this as a religious decision is why I put up with that health workers action, not resorting to any legal*

proceedings. After that incident our fear of allopathic medicines increased."

The researcher asked how the child got better after that; the respondent said that they did not do anything particular. They did not take any medicines. "We as a community believe in the power of prayer hence we prayed for our child's recovery. Our child got better."

Then the doctor compelled the respondent to get his child vaccinated. I told him *"According to the government's policy, if 10,000 children are vaccinated and maybe 9999 are saved they consider it a success of their policy and program. But if unfortunately that one child is ours, it's our great loss, only ours forever. The vaccine manufacturers, providers, the doctors or the government does not give a 100% assurance that vaccinations are safe or 100% protection from the disease, do they?*

It was not that the respondent was against vaccines or did not want them for his daughters. But the peculiar condition of his daughter made him take the decision not to. He said *"I could have easily lied to the health workers that my children had been vaccinated and that I lost the vaccination card of the child. But I chose to honestly address the issue and explained the child's allergic condition to them."* They informed the doctor and he came and spoke to them and compelled them. The doctor told the parents that the district has been completely covered and in the panchayath, the respondent's children were the only exception. The respondent remembered his words *"I told him, I do not want to stand against the interest of the health department and agreed to let them vaccinate my younger child and not my older child."*

No partiality in vaccination

The younger daughter has not been vaccinated, not due to any particular reasons. Since the older child has not been vaccinated the parent decided not to vaccinate the younger child too. "I did not want to show that kind of a partiality towards them" said the father with a concerned tone. The younger child did not have any particular problems and was given only homeopathy since they used to consult only homeopathy after the first child's experience. The next day a group of 6-7 people came to the house including the health inspector, nurse and doctor. They video recorded the video of vaccination of the child.

When the researcher asked what vaccination was given, the father thought of some time and said *"some penta (pentavalent) was given to the child administered on her thighs. The first course of the vaccine was given. Therefore if they say I am opposed to vaccinations, which would be wrong. Because afterwards they gave me a reference letter to SAT hospital, and in that they have stated that I refused to give vaccinations. I told the doctor that it is not true and might create a misunderstanding when they go to the hospital."*

That evening when the younger child was vaccinated, she developed severe rashes. And started crying and showing signs that she was feeling uncomfortable. That night the nurse who came was informed and she referred to the doctor. He prescribed some medicine and ointment. There was not much improvement and the next day her face and body swelled up. The PHC nurse had observed this and reported the stages of the reaction to the health department. *"Following this the doctor itself said not to take vaccination. We did not take after that."*

Vaccine information

> *"I am a sensible person and have sought information and asked many people about vaccinations this is what I have come to know, vaccinations are products carrying an minute amount of the disease causing agent or the virus itself and that is being injected into the body. And antibodies are formed in the body and we gain immunity towards the disease. Otherwise which we will be susceptible to the idea since the body's innate immunity won't be able to fight the disease. But I do not know if its right or wrong since am not a medical science person."*

Researcher asked the respondent about the sources of his vaccine information. He tried to explain his knowledge about the way vaccination works but was not sure about the information he shared.

> *"I do not know much regarding vaccinations. Until then I did not know about the risks benefits about vaccination. After that I did a*

bit of personal research on the internet and YouTube and came to see many cases and reports of adverse effects due to vaccinations. I do not know if it's fake or real. Not that I consider all that information reliable. Many homeopathy doctors advised me against vaccinations. It does not mean that I was convinced and strictly said no to vaccines. I have heard that vaccinations are strictly recommended until 5 years of age. If that is the case, both my children are over 5. But should I be taking any more risks with my children's life since I have already had a few bad experiences? The experience is same as the idiom, a scalded cat fears even cold water."

The community

The researcher then enquired about the response of the community when the family had such experiences with vaccinations.

"I am a pastor off a church with around 40 families. All of them know my ill experience with vaccinating my girls. Even if I want to vaccinate them, they won't allow me to. For the government my child might not be a big concern, but as a parent my child is big concern for me."

To the researcher's question, *"has there been any resistance to vaccination in the church or the community?"* The pastor replied *"if that is the case, shouldn't all of them reject vaccinations? But all of them have vaccinated their children with the exception of only my children."*

Making peace with the system

The researcher asked if that was that the end of the problems the respondent faced with vaccination. He replied

"No. So many people from various departments contacted us. I was contacted by people from the panchayath, block panchayath,

zilla panchayath and even the DCPO approached me. He spoke to me very politely but I was very deeply hurt by the incident. I was under the impression that only when a child is abused, starved, neglected or needs protection, the child services come in. But when they approached me following the reports, I was deeply hurt since it was as if I was abusing my children. But I understand that he too had compulsions from higher authorities and had to do his duty."

According to the respondent, in such scenarios the system and officials considers them as somebody who doesn't go with policy's and opposes it or standing against development which is very painful and stressful for the individual. Doctors have even threatened them that they would be forced to proceed to take stronger measures to get the children vaccinated. *"We are not against the system or the government's policies. But they make us feel like as if we have committed some crime and we are criminals."* Another doctor even threatened them that he will file a case against the parents for *"Raajyadroham"*.

"Is it my fault that God has created my child in a way she does have allergic responses to medicines and vaccinations? How does that become raajyadroham?" All this caused the respondent pain and he wishes if they could have just considered the issue from a parent's angle or point of view.

He continued *"Now I don't think the government can be trusted. The government has a basic policy. They will go to any end to implement that. And they won't consider the case of an individual when they execute the program in a large scale. I don't think they would make an objective study of the individual's case. Each official are under the pressure of their higher authorities and they will only strive to get a good remark in their service book."*

The respondent wants to take his child for further tests and consultations to the medical college but could not due to his personal problems such as the recent death of his father, a vehicle accident he met with and from which he still haven't recovered and also the responsibilities of the church.

Vaccine fear versus vaccine acceptance

Initially the respondent had a fear when taking the decision to give his younger daughter pulse polio drops because of the bad experiences with vaccination. *"Effects (benefits) of vaccinations are assumptions that we learn to trust. The younger child was given pulse polio since she did not exhibit allergic reactions to the drops"* He said.

> *"My personal experience is the only reason for me saying no to vaccination for my children. I am willing to risk my child's life without taking vaccines rather than losing them to vaccines. Anymore hazards following vaccination will be a much bigger regret as a parent than choosing not to vaccinate them."*

Suggestions from an upset parent

> *"My suggestion is that when the children are over 18 and if they need to go abroad, certain vaccinations are mandatory, they have the right and complete freedom to decide whether to take it as they wish."*

The doctors have told the respondent that the allergic reactions may stop once the children are a little older and grown up. Until then he wishes not to be compelled to vaccinate his children. *"There is no one who wishes my child's wellbeing more than I do in this matter"* He concluded.

CASE D

This case was referred by a Thiruvananthapuram Childline worker and the respondent was introduced as a parent who is also an anti-vaccination activist. The researcher collected the contact details of the respondent and took an appointment with the respondent to interview him over the phone. The researcher was able to quickly establish rapport with the respondent.

The parent interviewed is a 39 year old father. The respondent who is an electrical diploma holder is a freelancer trainer who takes classes on organic farming, small scale income generation programmers, lifestyle diseases and health awareness etc. The family consists of the mother (38 years) who is a nurse by training and their four children-Boy (12), Boy (9), Girl (6) and Boy (3).

The vaccination status of the children was enquired by the researcher initially. The eldest two children have been vaccinated until 2010. The third child had been given vaccine some three times total after birth. And the last child, the youngest have been only given the vaccination they provide soon after birth, said the respondent.

Pro-vaccine to anti-vaccine transition

The researcher asked the respondents experience with vaccinations as a parent knowing that he was against vaccination. But the reply surprised the researcher

> *"I was a pro-vaccine activist once. I have written and directed street plays to spread awareness on polio vaccination as per the request of the health inspector and was given funds by the health department. We did the street plays in around 40 places in the district."*

The researcher asked about the reason and background of the respondents transition from a pro-vaccine activist to an anti-vaccine activist.

> *"By 2009 I developed an interest towards Naturopathy. And my further reading and studies on that topic revealed the dangers of vaccination to me. Even thou I have had heard it many times I did not have the courage to say no to vaccinations. I couldn't take a risk with the life of my children. My wife being a B.Sc. nursing graduate, we thought thoroughly about it but continued with vaccination since we did not have the courage then to say no to it. Then I came across people who oppose and do not take vaccines,*

literature and studies on the ill effects of vaccination. We first rejected pulse polio vaccines, realizing the side effects it causes."

Major lifestyle changes

During 2009-2010 the family started to make big lifestyle changes and changes in food habits. Until then their lifestyle was somewhat modern and thewir food habits were like everybody else's. The respondent described the change in their overall lifestyle *"We used to eat bakery items, fried foods etc. but after 2009 I turned to organic foods. We used to make our own organic vegetables and limited artificial and market products in our diet. The results of those changes could also be seen in the health of our children."*

The changes in lifestyle were accompanied by other changes such as using traditional and herbal treatments for illnesses and not going to the hospital. Soon the respondent decided to stop vaccinations completely. *"My youngest child hasn't received any vaccinations other than the vaccination they give at government hospitals even before the mother breastfeeds the baby"* the respondent said sarcastically.

"I had planned to give brahmi, vayambu and honey instead as per Ayurveda manuscripts for immunity. Which did not happen as we did not have much of a choice or decision making power because they vaccinated the child first and then only handed him over to us."

The respondent described the lifestyle change which began in 2010 was set by 2012, by then they had overcome the fear of not being vaccinated. *"When we did not know much about vaccination and its effect and at the same time we hear everybody saying vaccinations are the right of the child and other similar things, we feared if something might happen to the children. Especially as the workers of the health department also instill fear in us regarding not vaccinating our children."*

"The last time we went to hospital is for my wife's checkup when she was carrying. Now for the last four years we haven't used any modern medicine. We maintain our health by regulating and

maintaining our food habits. In case small illnesses, we use herbal remedies or traditional medicines and sometimes consult Ayurveda doctors. For dental issues we consult a homeopathy doctor, which was found to be very effective."

Aftermath of turning Anti-vaccine

"Since it is a government thing, not all people publicly oppose it. There are people who secretly oppose it or reject vaccinations. I know many traditional health practitioners who oppose vaccinations but do not share their opinions publicly. They personally give us information but if publicly shared they would come under the attack of the vaccine lobby. There are many who follows the same strategy and silently lead a vaccine free lifestyle."

The decision was a mutual one, as both parents made an informed decision to not vaccinate their children. Even thou they completely stopped taking vaccination for the children by 2010, people were not aware of it. He added *"since she was a nurse she understood things quickly. I was convinced first regarding the problems of vaccination, thou initially she was not convinced she too was convinced after a while"*. Later the respondent faced enormous pressure from many sides due to his public opposition of vaccines.

An Anti-Vaxxer's Rationale

"If it is immunity we need, we can acquire it naturally by maintaining a healthy diet, healthy food habits, pure water and a healthy environment. If we can arrange such an environment for our children, we don't need allopathic vaccines. In Ayurveda, traditional medicines and Naturopathy there are methods to increase immunity against diseases."

The respondent believes that if you are already living an unhealthy lifestyle, vaccinating or not vaccinating your children doesn't make much of a difference. He stresses on the he food we feed the children being very important. The water they drink and the air they breathe as well. He wishes the government showed the same focus and efforts in ensuring the environmental sanitation rather than just promoting vaccinations. He also hinted a conspiracy in the immunization programme in India stating *"As far as I have understood the vaccinations are produced neither by Indian companies nor Indian government. All these vaccines are introduced by foreign companies along with funds from other foreign organizations and promoted by the Indian government. No proper research is being done in this area. That is why vaccination is not made mandatory by law in India."*

The respondent described about the scare tactics used by private doctors to market vaccines.

> *"My child has been given MMR, pulse polio and also some other paid vaccines that private doctors recommend. The private doctors used to scare us to get vaccinations. If we don't take them on time as they instruct, later if the child is brought to the hospital due to cough or fever, they will ask for the vaccination card and even scold us. After a while I understood that it is pure exploitation. Because others I knew who went to government hospitals and not to private hospitals did not take these vaccines which we took. I understood their strategy was to scare those who can afford to buy vaccines so that they get scared easily. You can't scare a person who can't afford these expensive vaccines."*

The respondent narrated another incident where his brother followed his lead and stopped taking polio vaccines. But the *anganwadi* workers and ASHA came and scared his wife into giving polio drops to the child when my brother was not at home. *"I never tell anybody not to give vaccines. If somebody asks me, I just make them aware of the risks and benefits of vaccination"* he added.

Vaccine information

The researcher enquired about the sources of vaccine information of the respondent. Sources of information were the internet, books and other printed materials, "anti-vaccine movement" websites, and people who lead vaccination free lifestyle. According to the respondent *"majority of the population believes that allopathy can cure anything, which is not true. I don't publicly tell anybody to avoid vaccines but when I see people justifying vaccination and its benefits blindly and publicly through social media, I oppose it because I think what they are propagating is wrong and one-sided".*

When the system begins to pressure

> *"When we decided not to vaccinate our children, pressure started to come from the ASHA, anganwadi workers and the health workers as if we were some antisocial elements and trying to spread disease in the region. They blamed us that we were being cruel and playing with the lives of our children and that our children will question us once they grow. I should be the one having utmost concern about my child wellbeing, not anybody else."*

The respondent continued *"The health workers tried to explain that if our children don't get vaccinated, the vaccinations in the neighborhood won't be effective as the immunity is shared between the children. They were trying to explain that it is through the faeces the immunised children eliminate that immunity is spread to others in the community. I was furious at the nonsense they were saying. So I responded asking that if that is the case wouldn't the unvaccinated children be protected if they make the vaccinated children eliminate their human wastes in public places? They did not have a reply for me."*

The respondent said that he had enquired about the side effects of vaccination to those who come to compel, but none of them were aware of that aspect. They did not even know which company the vaccine belongs to. They did not know what the ingredients of vaccines were. All they know is that everybody should be immunized.

The parent described his last encounter with vaccine advocates in the region *"a group of 13 people came to my house including our panchayath representatives to discuss the issues. I am also a social worker and have stood for zilla panchayath elections, so I respected them and decided to hear them out. Some spoke as if I was an antisocial element while some spoke very politely and friendly, I understood that was their individual stands and standards. I replied to all their questions while they couldn't answer my queries since they did not know. All they knew was everybody should be vaccinated or else others are in risk and eradicated disease will come back. I showed them documents and literature I have, they rejected it stating they are not scientific. I was showing them scientific researches of prominent allopathy doctors around the world. They were forcing their beliefs and notions on me."*

The respondent had a strong opinion against pro-vaccine advocates and activists. *"At last they threatened to take case against me. Since i have been involved in this field I wasn't much worried, had it been others they would have been easily worried. I asked them under which law would they file a case against me. No such law exists. I have RTI information documents regarding vaccinations with me. They were just trying to use scare tactics. That might work in areas where people are not educated or do not have the awareness."*

He described the attitude of the authorities and the hypocrisy in the system *"The authorities argue that if you don't have an MBBS you shouldn't speak about vaccines. As far as I have understood this topic can be studied and understood even by a 10th standard student. They just follow orders and are not ready to do a personal research on the topic at least. Me as a parent decides what to provide my children; be it the clothes they wear, the food they eat and the education they get. Even if none of these are provided properly, the government couldn't care less but they are too much concerned about providing vaccinations."*

The respondent's children do not even take the iron or deworming tablets distributed through the schools or *anganwad*i by the government.

Risks and hazards of vaccination

When asked about any incidences of adverse effects observed by the respondent in his children following vaccination, he replied *"until now, no adverse effect due to vaccination or not vaccination has occurred to my children. But I have a cousin whose child has autism. I probed into the matter and understood that autism started to develop after the child was vaccinated with pentavalent vaccine. There are studies by doctors stating pentavalent vaccines leading to autism. The lead, mercury, formaldehyde etc in vaccines can be cause for autism, memory loss and learning disabilities. In our system a carrying mother is given medicines, scanning is done and precautions are taken still why are children born with autism and other congenital problems, which shouldn't happen if our system was so effective and our methods are so advanced."*

He made a last point before the interview was ended *"the percentage of disease incidence or risk might be low, but when our child unfortunately contributes to that low percentage, that is when we have a problem as a parent"*

CASE E

This case was referred by one of the previous respondents and introduced as a person leading a vaccine free life with her whole family following the same lifestyle. The researcher collected the contact number and phoned the responded to take an appointment. But since the respondent was free, the interview was conducted over the phone itself. The friendly nature of the respondent made it easy to establish rapport quickly.

The respondent is a retired aided school teacher who is 63 years old. She is the mother of two sons, 40 and 36 years of age. Both of them are married and have their own family. The respondent has five grandchildren. Both sons of the respondents were never vaccinated and her five grandchildren are unvaccinated too.

Vaccine free lifestyle

The researcher initially enquired the reason behind the respondent's peculiar lifestyle choice. The respondent described about her background and inclination to such a lifestyle.

> *"In my childhood we have not seen the use of any chemicals in agriculture. Everything was organic. I delivered both my children in my house, we did not need to go to the hospital. And after that they were not vaccinated we gave them herbal medicines only. Those days even thou vaccinations are available, it wasn't as compulsory as today."*

Drug free treatment versus immunization

> *"We used to read about vaccinations then and have read heard about the ill effects of vaccinations. If there is a medicine for a disease, isn't it expected to cure that disease? I had arthritis and used to take Ayurveda treatment for a long time but my condition did not change much. That is when I came across drug free treatment seminar in the newspaper in 1988. It is in this seminar that they told us that immunizations were not necessary and the adverse effects of immunizations. After that I read about this and learned more and practiced things. My arthritis had gone by then. I was convinced and began to spread the practice. Even when the health workers used to come to the school to vaccinate the children, I stopped them and asked them to vaccinate them with the consent of the parents and not at the school."*

Naturopathy

The respondent has learned naturopathy for more than 4 years and has done a one year diploma course in 2010 and holds a central government certificate. Her son and daughter in law have also done the course.

When her take on modern medicine was enquired she said *"We need modern medicine, I am not rejecting it completely as it is mostly scientific. In cases of accidents, we need allopathy. Ayurveda has now degraded; they use chemical substances in their preparations. In old days they used only natural substances and plants or herbs from our surroundings. Homeopathy they claim there are no side effects but we do not know."*

Vaccine free third generation

The grandchildren from the respondents oldest son were 11 (girl) and 7 (boy) years old. The grandchildren from the second son were all boys of age 2, 6 and 7 years. According to the respondent *"They might get common illnesses like cough, vomiting, fever seasonally but we use only naturopathic treatment by regulating the diet to treat it. We do not give maida food, bakery items or English medicines to them."*

> *"None of us take any medicines for any illnesses; we have been following the naturopathic lifestyle for about 30 years now."*

When asked if she influenced the decision to not vaccinate the grandchildren she replied *"My sons were convinced and listened to me."*

To the question whether the grandchildren have had any difficulties of not being vaccinated, the respondent replied *"None of them have had any problems because of not being vaccinated. Yes they do get illnesses. My 2 year old grandchild has cough for a while now. It has been like a month but we haven't given him any drugs or cough syrups. Cough syrups have side effects which are written on the bottle itself. We treat their illnesses in the natural way."*

Opinion on immunization

> *"Even in countries like America, people are rejecting vaccinations. I think it is not right to compel people who choose not to vaccinate. If it should be compulsory let people who lead an unhealthy lifestyle take vaccines. It is a government programme, let those who need it, take it."*

The researcher asked the respondent to clarify what she means by healthy lifestyle and why immunizations do not have a place there.

> *"I am not of the opinion that immunity can be provided; it is something that has to be acquired by birth. To acquire it by birth we need to have a clean and healthy environment, food, water and air. The child's immunity also depends on the physical and mental health of the parents and their food habits. Our predecessors were able to live upto 100 and 120 years not because they were vaccinated. They had good immunity. But today the problem is that people food habits have changed a lot. Children are fed too much milk, egg, fried food, bakery items etc., they will be more prone to illnesses. And having English medicines for all sorts of illnesses have brought down the natural immune power."*

Risks and Benefits of immunization

To understand the perception of the respondent, she was asked about the benefits and risks of vaccinations as she understands it.

> *"I don't think vaccination has any benefits. We believe that it is only a business to make crores of money. So many children have been affected adversely after being vaccinated with polio, pentavalent etc. So many victims of vaccinations are out there. This needs to be studied. They say vaccinations are to boost our immunity. But there is no need for that. It is the pharmaceutical*

companies' strategy to market vaccines is what I have understood."

According to the respondent *"Measles and chicken pox are result of the body's mechanism to eliminate the toxins produced in our body. If we give vaccines and suppress it, they turn into some other diseases. We believe diseases like cancers are because the elimination of toxins from the body does not happen properly."*

Disease and health

The researcher asked what the opinion of the respondent was regarding the reports of the diphtheria outbreaks and deaths of unvaccinated children.

The respondent very bluntly said that *"Diphtheria and the sort can be avoided with naturopathy and healthy food habits. People do not care about that and they blame naturopathy when people get diphtheria."*

She added with a concerned tone *"There is so much of conspiracy in this. Even doctors treat unvaccinated cases very indifferently. Only God knows how they handle the cases of children who are unvaccinated. They badly want to defeat our cause and show that our cause is wrong and vaccination is the right thing to do. For that they need to reports deaths. This is a strategy they are following. When we work against the government policy they will also work to defeat us right?"*

The respondent asked the opinion of the respondent regarding microbes such as viruses and bacteria being pathogens that cause certain diseases. The respondent quickly and impatiently replied *"Which place is free from microbes? How is it even possible to stop microbes? They say diseases like dengue are because of mosquitoes. These are just claims. What about the poor homeless people living on the road, why aren't they affected with dengue? Isn't it the well-off people who gets dengue and needs treatment and dies due to the disease?"*

Vaccine information

The respondent's sources of information were books, prominent naturopathy practitioners in Kerala, their classes and seminars, anti-vaccine activists and also the internet.

Religion and immunization

The researcher asked if the respondent believes that there is a religious or political agenda to immunisation.

> *"I don't think so, religious leaders also promote vaccination. It is as if they consider medicines and vaccinations above God."*

She added *"What we believe is we do not need medicines to treat illnesses. Our body can cure its illnesses. If God can give us such a sophisticated body, there is also a repair mechanism he has created within us. We need not go after medicines and treatments. Being a Mujahideen Muslim, I also believe that this practice is against God. Even thou religion is not the only reason for such a belief."* She reminded that she made that statement only because they understood the researcher to be of the same religious faith as hers.

Concerns

"Never felt any fear for not vaccinating my children but now the scenario is different. The government's stand worries us, such as the need for vaccination certificates to get admission in the school and to get passport etc. This is what causes worries and we are concerned about this global conspiracy lead by pharmaceutical companies. We are not worried about diseases or do not believe vaccines can protect us from them.

CHAPTER 5

DATA ANALYSIS

5.1 ANALYSIS OF DATA

The five cases would be analyzed based on a number of psycho-social factors associated with vaccine hesitancy in Individuals. The themes for analysis are 1) Respondents profile and vaccination status of children 2) Past experiences with vaccination; 3) Attitude and Knowledge; 4) Perception of importance of Vaccination; 5) Use of Complementary and Alternative Medicine (CAM); and 6) Social Pressure.

5.2 RESPONDENTS PROFILE AND VACCINATION STATUS OF CHILDREN

Profile	**Case A**	**Case B**	**Case C**	**Case D**	**Case E**
Age	65	38	38	39	63 years
Gender	Male	Male	Male	Male	Female
Religion	Hindu	Muslim	Christian	Hindu	Muslim
Education	Post Graduation	SSLC	Degree	Diploma	TTC
Occupation	Child Welfare Worker and Writer	Imam	Pastor	Trainer	Retired Teacher
No of children	2	3	2	4	2
Vaccination Status of children	Partially vaccinated	Partially vaccinated	Partially vaccinated	Partially vaccinated	Unvaccinated

5.3 PAST EXPERIENCES WITH VACCINATION

Past experiences influence the decision making of the parent regarding childhood vaccination. Case A did not have any specific past experiences with vaccination, he said *"We were confused regarding taking a decision then, but we took a bold decision not to immunize our children."*

Case B shared his experience saying **"***The youngest two children were born in a government hospital; there they consider having some special authority to provide vaccination to the child without our consent. We weren't informed about the vaccination."* The parent was not happy that hid consent was not taken during the vaccination of his children. He also had the story of adverse effects due to vaccination to say *"My niece had suffered from physical health problems after vaccination. We have seen it. So many other cases too I know with problems after being vaccinated."*

"That is when the government homeopathy doctor told us that the child has a peculiar condition of "soft skin" and should not be given vaccines. And that whichever homeopathy doctors we take her to, they will say the same and would even hesitate to give her homeopathic medicines due to the possibility of allergic responses." Case C, the father said his daughters were by birth allergic to vaccinations and he found it out through bad experiences with vaccinations, after which more fear made them stay away from any English medicines.

The father in Case D shared his experience of immunization from private hospital saying *"My child has been given MMR, pulse polio and also some other paid vaccines that private doctors recommend. The private doctors used to scare us to get vaccinations. If we don't take them on time as they instruct, later if the child is brought to the hospital due to cough or fever, they will ask for the vaccination card and even scold us. After a while I understood that it is pure exploitation."* Such an experience is capable of destroying the trust in the cause of vaccination.

Case E told the reason why they did not have any experience with vaccination *"None of us take any medicines for any illnesses; we have been following the naturopathic lifestyle for about 30 years now."*

5.4 ATTITUDE AND KNOWLEDGE

Case A repeatedly admitted that he did not know much about vaccinations.

"The deaths might not be only due to not vaccinating, it could be due to their lifestyle problems" he commented when asked about what might have caused the deaths due to diphtheria. The negative attitude towards vaccinations are because of their commercial aspect according to case A *"Today multinational corporates are making the whole world their market to sell their vaccinations. It's their strategy of creating a global movement to make vaccinations compulsory"*.

Case B knew the basics of immunization and how it worked but still chose to be humble *"He told us that in the present condition of the child, vaccination is not to done. If there are any other problematic conditions vaccination should be avoided or should not be given, that is what I have heard"*. He started to learn about immunisations following his daughter's allergic reaction to vaccines. *"I do not know much regarding vaccinations. Until then I did not know about the risks benefits about vaccination. After that I did a bit of personal research on the internet and YouTube and came to see many cases and reports of adverse effects due to vaccinations. I do not know if it's fake or real.*

Case D was conflicted and considered it nonsense when the health workers tried to explain to him about herd immunity. *"The health workers tried to explain that if our children don't get vaccinated, the vaccinations in the neighborhood won't be effective as the immunity is shared between the children. They were trying to explain that it is through the faeces the immunised children eliminate that immunity is spread to others in the community. I was furious at the nonsense they were saying. So I responded asking that if that is the case wouldn't the unvaccinated children be protected if they make the vaccinated children eliminate their human wastes in public places?*

Case E was an avid reader and got her information by reading *"We used to read about vaccinations then and have read heard about the ill effects of vaccinations."*

"I am not of the opinion that immunity can be provided; it is something that has to be acquired by birth. To acquire it by birth we need to have a clean and healthy environment, food, water and air. This knowledge was not congruent with what popular science says.

The attitude towards vaccination of all of the respondents was hostile and indifferent.

5.5 PERCEPTION OF IMPORTANCE OF VACCINATION

The respondents did not consider vaccinations as important. They did not find any benefits while the risk they perceived regarding vaccinations were high.

Case A desbribed the reason why he thinks so.*"if one leads a healthy and natural life, they do not require any artificially induced immunity since the body's innate immunity would be enough"*

"I am of the opinion that vaccinations are not effective and have only adverse effects. I have evidences for that and have spoken to people regarding this. Even if people are convinced they pretend otherwise since they are pro-vaccine." Case B rejected any importance for vaccination.

The perception of importance of vaccinaytion for Case D had changed drastically over a period of time with change in lifestyle. *"I was a pro-vaccine activist once. I developed an interest towards Naturopathy. And my further reading and studies on that topic revealed the dangers of vaccination to me. Even thou I have had heard it many times I did not have the courage to say no to vaccinations. I couldn't take a risk with the life of my children."*

"I don't think vaccination has any benefits. We believe that it is only a business to make crores of money. So many children have been affected adversely after being vaccinated with polio, pentavalent etc. So many victims of vaccinations are out there" Case E shared her views stating her complete disinterest towards vaccination as they were only commercial goods.

5.6 USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE

Four out of five parents practiced or followed one type of CAM or more. Naturopathy was the prominent interest of these parents. But they acknowledged the need for English medicines too.

"Naturopathy is not a 100% solution for all diseases! Sometimes we have difficulties due to diseases, due to many reasons such as nature of our work, travelling and so on; we won't be able to follow Naturopathy. In such situations I follow homeopathy. This was the opinion of Case A

Case B preferred Ayurveda since it did not have side-efffects. *"When there are some small common health issues like fever or the sort, we resort to Ayurveda. I am more interested in Ayurveda since they don't have side effects."*

Case B also introduced the researcher to a new CAM, prophetopathy as he said that its prophet's medicine, the treatments taught by the prophet. *"We use it for our children and have no side effects and also is highly effective."*

"The last time we went to hospital is for my wife's checkup when she was carrying. Now for the last four years we haven't used any modern medicine. We maintain our health by regulating and maintaining our food habits. In case small illnesses, we use herbal remedies or traditional medicines and sometimes consult Ayurveda doctors. For dental issues we consult a homeopathy doctor, which was found to be very effective." CASE D had distanced from modern medicine.

5.7 SOCIAL PRESSURE

Four of the five respondents faced social pressure due to their decision regarding vaccination or their lifestyle. The respondents were of the opinion that immunisations should not be forced on people and asked why they are being forced.

"Since childhood immunisations are something we do without the consent of the child, we are also responsible for the side effects it causes" said Case A

The social pressure and the pressure from various government systems was too much for Case B *"We had to face so much of pressure from many sides. But now since I have resigned and moved to another place, things have changed."*

Case B *says "I went through lot of psychological stress, not only me my whole family too. To the extent I even thought of complaining to the authorities." "I told them that as a parent we have the right to decide whether to give our child this vaccination or not. And asked them to kindly stop bothering us regarding this.*

The social pressure for the father was so much that he requested them to stop bothering him.

Case Cs experience was similar. *"So many people from various departments contacted us. I was contacted by people from the panchayath, block panchayath, zilla panchayath and even the DCPO approached me. We are not against the system or the government's policies. But they make us feel like as if we have committed some crime and we are criminals."*

Case D had to faced the wrath of the system "*When we decided not to vaccinate our children, pressure started to come from the ASHA, anganwadi workers and the health workers as if we were some antisocial elements and trying to spread disease in the region. They blamed us that we were being cruel and playing with the lives of our children and that our children will question us once they grow. I should be the one having utmost concern about my child wellbeing, not anybody else."*

CHAPTER 6

RESEARCH FINDINGS, SUGGESTIONS AND CONCLUSION

6.1 FINDINGS

The nature of vaccine hesitancy among parents

- Vaccine hesitancy among the parents ranging from mild vaccine acceptance to compete rejection of vaccines was observed.
- Vaccine awareness was poor among three parents as they did not even know the names of the childhood vaccinations.
- All the parents had personal experience or knew a negative experience of a close acquaintance with vaccination' which was a major reason for their vaccine hesitancy.
- Three of the parents believed that leading a nature friendly life, consumption of organic foods would boost the body's natural immunity hence there was no need for vaccination.
- In three parents, anti-vaccination attitude was observed to the extent they practiced of anti-vaccination activism.
- The parents did not conform to the generally accepted science and logic and was also skeptical about the vaccination and its effects.
- Four of the five parents claimed about conspiracy in vaccination programme and believed in strongly.
- The parents agreed that they provide information to others regarding vaccination hence influencing other individuals decision making.
- The parents accepted and trusted anecdotal evidences from relatives and friends regarding cases of adverse effects due to vaccination. Only two parents among the five have done broad personal research on vaccines and vaccination.
- Vaccine hesitancy was developed through a long period as long as 30 years and transmitted down to generations.

- The major sources of vaccination information for the parents were relatives, modern medicine doctors, CAM practitioners, Internet and publications.

Psycho-social implications of vaccine hesitancy

- Their issue with childhood vaccination is one that caused a psycho-social distress for four parents and their children.
- Fear of vaccination related problems and complications was a major factor influencing the decision making of vaccine hesitant parents.
- Three parents reported that they faced social stigma against the unvaccinated children and their families.
- The governments vigorous steps in ensuring total immunisation results in psychological and emotional abuse of the parents and children from the system, as they have perceived.
- One of the interviewed parents who had partially vaccinated their children reported adverse effects following vaccination.
- There is an ethical conflict between the state and individual (parent in this case) regarding child rights, the right on the child and decision making on vaccination.
- There is a strong conflict of interest between the state and vaccine hesitant parents.
- Parents suffer a high psychological and social stress when they make the decision to not vaccinate their children.
- The parents reported experiences of vaccine associated problems such as paralysis, autism, loss of natural immunity, rashes, etc as perceived by them.

The factors influencing vaccine hesitancy

Personal: Personal factors with influenced the vaccine hesistancy of the parents are their poor knowledge regarding about vaccinations and negative attitude towards immunization. Their personal choice of lifestyle and practice of CAM are also a major factor. Another factor identified is the support of the spouse in the decision not to vaccinate the children. The education level or religion of the parents were not identified as factor influencing their vaccine decision.

Political: Few of the parents are involved in activism and awareness against vaccination and also publicly oppose vaccination if needed. They question the health department's and governments interest in this area. And also believes presence of some conspiracy at political level.

Media: Social media had strongly influenced the parents as they shared and received vaccination information through them.

CAMs: A direct relationship between vaccine hesitancy and following Complementary and Alternate Medicnes (CAM) was evident from the study. The common CAM followed were Naturopathy, Ayurveda, Homeopathy, Traditional medicine, Herbal medicines and Prophetopathy. Fear of vaccination risks caused parents to follow CAMs and vice versa and following CAMs resulted in fear towards of vaccines.

6.2 SUGGESTIONS

- Strict review of vaccination routine and procedures in the state to ensure better delivery of vaccination services.
- Adopting a transparent and better health communication in the case of vaccines and AEFI.
- Legally confronting quackery that misleads and misinforms people on health choices and information.
- Effective use of social media to put out more materials on vaccinations and ensuring accessible vaccination information for everyone in layman's language.
- Ensure social justice for vaccine hesitant parents and respecting their dignity and individual choice. Avoid abusing or harassing them using the system.

6.3 CONCLUSION

Let us not forget the wonders vaccines have done in the world. At the same time it is essential to develop a critical and scientific attitude towards essential health choices such as vaccinations. Because a wrong decision a parent makes regarding vaccination can result in the death or disability of the child. The science of vaccination is also not foolproof but a rational informed approach is what is required. The topic is a sensitive

one and requires a comprehensive and unbiased approach in order to tackle the real issue behind vaccine hesitancy and to ensure scientifically proven health practices are not rejected.

"Childhood vaccines are one of the great triumphs of modern medicine. Indeed, parents whose children are vaccinated no longer have to worry about their child's death or disability from whooping cough, polio, diphtheria, hepatitis, or a host of other infections" -Ezekiel Emanuel

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APPENDIX I

Interview Guide

- **Basic Details of Respondent**

  Age

  Gender

  Education

  Occupation

- **Family profile**

  Details of Spouse

  Details of Children

- **Immunization Status of Children**

  Whether vaccinated or unvaccinated

  Reasons for the choice

  Risk and benefit of the choice

- **Personal experience with immunization**

  Positive or negative experiences related to vaccination

- **Attitude towards immunization**

  Acceptance or opposition towards vaccinations

  Reasons for accepting or rejecting

  Sources of vaccine information

- **Concept of health and wellness**

  Personal concept of health

  Personal choices for health

- **CAM**

  Practice of CAM

  Choice of CAM

  The reasons for practicing CAM

- **Social pressure**

  Social consequences of vaccine decision

Social pressure faced

Peer pressure faced

Effects of social pressure