

## CHAPTER - 1

# IMMUNISATION





## 1.1. Literature Review

In developing countries like India—the second most populous country in the world—vaccine-preventable diseases trigger a high incidence of disease-related deaths, both among children and in adults. According to the UNICEF, “immunisation is one of the most cost-effective public health interventions to date, averting an estimated 2 to 3 million deaths every year” (UNICEF 2021)<sup>1</sup>. Yet, in 2019 alone, an estimated 14 million infants remained unimmunised. On average, nearly 20 million children are still unvaccinated and under-vaccinated worldwide (Portal 2020)<sup>2</sup>. According to Niti Aayog and the National Family Health Survey for 2015-16 (NFHS-4), only 62% of children in India were fully immunised and less than 60% receive the entire basket of vaccines (Dr Rakesh Sarwal n.d.)<sup>3</sup> (Welfare, 2018)<sup>4</sup>. For a country that is a leading producer and exporter of vaccines, India is home to one-third of the world’s unimmunised children and sees tens of thousands of birth defects every year (Ramanan Laxminarayan 2011)<sup>5</sup>. Adding to this, according to the Morbidity and Mortality Weekly Report 2018, at 2.3 million, India has the second highest number of children who are not vaccinated against measles, a number that has doubled in 2018 from the earlier 1.1 million (Minal K. Patel, et al. 2019)<sup>6</sup> (Prasad, 2019)<sup>7</sup> (Nations 2019)<sup>8</sup>. This number is alarming considering that measles can be easily prevented through only two doses of vaccination. Consequently, there were approximately 70,000 cases of measles in India in 2018, the third highest in the world (news 2019)<sup>9</sup>. In 2019, the World Health Organization (WHO) reported nearly 29,000 confirmed cases.

Katherine O’Brien, Director of Immunization, Vaccines and Biologicals at the WHO says, “Measles is not going anywhere. It’s everyone’s responsibility (Nations 2019)<sup>8</sup>. For one person infected, up to nine or 10 people could catch the virus.” She adds, “In addition to being potentially fatal, measles symptoms include rashes, blindness and inflammation of the brain. The virus can be transmitted extremely easily, by coughing and sneezing, and it can also survive for hours in a droplet of water”. In India, the first dose of the measles vaccine is given at 9-12 months and the second dose is given at 16-24 months through the national immunisation programme. But it appears that millions of children in India do not receive the measles vaccine through routine immunisation activities. Although the true burden of vaccine-preventable diseases (VPDs) among children and adults is unknown, they are particularly vulnerable during outbreaks. While significant steps have been taken through policies including Mission Indradhanush and the Universal Immunisation Programme (UIP) to ensure full immunisation with all available vaccines for children up to two years and pregnant women, there are other challenges to the problem (Dr Aruna Rastogi 2018)<sup>10</sup> (Welfare, Universal Immunization Program n.d.)<sup>11</sup>. In the recent MR mass vaccination that was introduced in the high-performing south Indian states, India has faced a new challenge of vaccination resistance/refusal in response to negative

propaganda on social media platforms like Facebook and also on messaging app, WhatsApp. In fact, in 2019, the WHO listed vaccine hesitancy among the top 10 threats to global health. Thus, the aim of this report is to both present the challenges of such misinformation and suggest the necessary strategies as the way forward to promote and ensure universal immunisation.



## 1.2. Common Myths and Misconceptions

**MYTH:**  
**01** | Vaccine intake has been linked to autism.

**FACT:** Andrew Wakefield's 1998 paper on the MMR vaccine raised some serious concerns on vaccination linked to autism. As a result of this study, vaccination rates dropped significantly leading to an outbreak of diseases. However, this study was later found to be flawed and the journal retracted the published paper refuting the posited link between MMR vaccination and autism (T. S. Sathyanarayana Rao 2011)<sup>12</sup>.

**MYTH:**  
**02** | Natural immunity is better than vaccination.

**FACT:** A child left to natural immunity is more likely to increase the risk of complications. Vaccination is a better option to fight diseases. For instance, polio infection without vaccination can cause permanent paralysis (Prevention n.d.)<sup>13</sup>.

**MYTH:**  
**03** | Vaccines will induce disorders affecting a child's memory and learning capacities, and are pushed in the country at the behest of foreign pharma companies.

**FACT:** The fear of side effects is one of the primary reasons for people to refuse vaccines. All the vaccines present in the market are lab-tested and the ingredients present in them are medically approved, making them safe for human use. Vaccines are manufactured to protect a human body from illness and nothing else.

**MYTH:** | Vaccines are anti-religious and poisonous  
**04** | (contain traces of mercury).

**FACT:** While religious beliefs are subjective, there is no scientific research till date to prove that mercury that is added as a preservative only in trace amounts can prove to be dangerous to health.

**MYTH:** | Vaccines induce infertility in both men and women, especially  
**05** | the vaccines for COVID-19.

**FACT:** Possible vaccines and those undergoing clinical trials are being monitored by the WHO. It is also false to say there are different gender-specific COVID-19 vaccines. The claims about infertility chemicals are highly misleading, and appear to have been taken from decades-old studies on completely unrelated topics (Staff 2020)<sup>14</sup>.

**MYTH:** | Diseases can be prevented through hygiene and sanitation  
**06** | instead of vaccinations.

**FACT:** While hygienic habits and healthy living conditions can help against infectious diseases, there are infections that spread despite maintaining hygiene and cleanliness. Avoiding vaccination will only make the preventable diseases return and may turn fatal.

**MYTH:** | Vaccines can overwhelm the immune system, thus rendering it  
**07** | ineffective.

**FACT:** A child is exposed to far more antigens from a common cold or sore throat than from vaccines. There are no side effects on a child's immune system due to vaccination. In fact, multiple vaccines act as a better mechanism to build strong immunity at an early age. The immune system can never saturate as cells are constantly being replenished and vaccines further strengthen it to fight diseases.

**MYTH:** | Administering vaccines during pregnancy may harm mother/  
**08** | child/both.

**FACT:** Immunisation is part of preventive medical care and flu shots are extremely important for pregnant women as catching flu during pregnancy can lead to serious pregnancy complications like preterm labour and preterm birth.





### 1.3. Case Study- Misinformation on Vaccines in Malappuram District, Kerala

According to the WHO, vaccine hesitancy is defined as a reluctance or refusal to vaccinate despite the availability of vaccines. Like in the Western nations, vaccine hesitancy has been a cause of concern in India as well. For instance, one of the main reasons for five times low uptake of oral polio vaccine in the early 2000s among poor Muslim communities in Uttar Pradesh was the fear and the misconception that the polio vaccine caused illness and infertility, and that it was ineffective (Prasad, 2019)<sup>15</sup>. When it was introduced in 2017, a dip in vaccine uptake was noticed even in states like Karnataka and Tamil Nadu, which otherwise have high vaccine uptake.

Vaccine hesitancy was sufficiently high in certain districts of Kerala to render community immunity a challenging goal. The following case study is the curious case of Malappuram district in Kerala where, in 2017, there was significant resistance during the MR vaccine drive. With the sudden rise in cases of diphtheria and measles, the state government was rendered clueless as to how to tackle the danger in store. According to news reports, some people in Malappuram, where Muslims make up over 70% of the population, opposed the vaccination saying it was a ‘Modi-RSS vaccine’—a political conspiracy—when an audio clip went viral claiming rumours targeting Muslim population (Subramani 2018)<sup>16</sup> (Patel 2020)<sup>17</sup>. It was believed that the vaccine injections made the Muslim population impotent; that the globally-banned MR-VAC vaccine against measles and rubella was a Modi

government-RSS conspiracy to regulate the population growth of the Muslim community. Driven by fake news (including that the vaccines are derived from animal tissue and pork-based gelatine, making it haram or forbidden), vaccine coverage has been abysmally low in states with high Muslim populations until May 2017: 77.2% in Lakshadweep (96.58% Muslim population), 84.6% in Kerala (26.56% Muslims), and 87.92% in Manipur (8.32% Muslims). The District Health Department staff had to face angry protesters (News 2016)<sup>18</sup>. A group opposing vaccination twisted the arm of a nurse (Varma 2017)<sup>19</sup>. As a result, parents of more than 2,40,000 children refused to give their children the combined measles, mumps, and rubella (MMR) vaccine and thus, the immunisation drive was stalled for two months (Deepika Khurana 2019)<sup>20</sup>. The viral



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wave of fake news on vaccines causing infertility was felt in states like Gujarat and Maharashtra as well, where inoculation drives were halted in many schools.

Despite the religious orthodoxy, conspiracy theories, superstitions, and lack of information and trust in modern medicine, Malappuram had not lost its momentum. The district has soared to 92.5% immunisation coverage in 2019 from a mere 57% in 2017 and has been further exempted from the central government's Mission Indradhanush, a vaccination drive with an aim to achieve 90% vaccination across the country (Naha 2019)<sup>21</sup>. This staggering feat was possible through the efforts of the Health Department to involve and coordinate with various stakeholders including the district administration, district panchayat, grama panchayats and municipalities, mass media, police, NRIs, religious groups and leaders, students, teachers and parents, voluntary and non-government organisations, and doctors' bodies like the Indian Medical Association and the Indian Association of Paediatrics. Vaccine resistance was cleverly circumvented through persistent means of awareness programmes. According to a report by The Hindu, "When the District Collector issued orders from time to time denying chances for the vaccine baiters to proceed, the health officials made best use of social media to reach out to the masses with correct information and to weigh down the negative campaigns" (Naha 2019)<sup>21</sup>.

Medical misinformation and vaccine hesitancy have been growing exponentially and have become alarming public health concerns, putting the lives of countless children at risk. In this context, we interviewed Dr Shimna Azeez, who has been the face of the immunisation campaign wherein, during an awareness campaign at a school in Kondotty, she accepted a parent's challenge to inject herself the vaccine to prove its safety and efficacy (Varier 2017)<sup>22</sup>.



#### 1.4. Expert Speaks

Dr Shimna Azeez, a doctor at Manjeri Medical College, Malappuram and widely read author in print and social media, has been the face of the Kerala Government for various community health initiatives including multiple pro-vaccination campaigns and COVID-19 awareness drives. Despite being the most literate state with a good track record on health indicators, the critical challenge identified in Kerala is that misinformation is deeply rooted in the cultural and religious sentiments through tight-knit family hierarchical structures. This accompanied by the lack of scientific temper among the families to not question but consume content on various social media platforms has only resulted in rapid penetration of misinformation and misguidance in vaccine hesitancy.

## Excerpts from the interview

**DR SHIMNA AZEEZ**

She is a Public Health worker from Manjeri, Kerala. She is a published writer who has two popular books to her credit, and a social media influencer who is widely read online and in print media. A pro-vaccination exponent, she has been the face of the Kerala Government's pro-vaccination campaigns, and multiple COVID-19 awareness drives. Dr Shimna has been involved in various community health initiatives including

the Kerala Government's Measles-Rubella Vaccine Campaign in 2017 and medical camps during the mega Kerala floods of 2018 and 2019.

**01**

What are some of the crucial challenges with immunisation coverage owing to misinformation in Kerala?

In Kerala, we are an extremely educated and significantly different society; our health indicators are better than the rest of the country. Even with the coronavirus, we have been a step ahead. Social media is saturated by sugar-coated messages and are easily accessible to everyone. When it comes to immunisation, they are very attracted to conspiracy theory because it is easy to follow, so much so that they prefer WhatsApp forwards over doctors or science. Thus, misinformation has nothing to do with intellect but rather the belief system of the people. Other potential challenges include misinformation that is in local slang that is easy to consume, and people do not have the scientific temper or the inquisitiveness to question things. They blindly follow what the misinformation leads on to. On one hand, there were rumours of infertility and vaccines causing cancers while on the other hand, there was the issue of religion—multiple groups were against vaccination because if it's God's prerogative to give the disease, then vaccination would imply interfering with the work of God, thus making vaccination an act that is unfaithful to God.

Also, given that out-of-pocket health expenditure is higher in India, the common man is always on the lookout for easy solutions or cures that are easily available through misinformation.

## 02

Why was there so much resistance to vaccines, specifically in Malappuram, compared to other districts in Kerala?

In our district, family structures are a little tighter with a higher proportion of Muslim population—these are essentially the main factors that backlashed the vaccine campaign here in Malappuram. But with open discussions and communication, a lot of people had come forward seeking vaccinations. Also, this is a difficult ground for science to grow, especially because a lot of quacks spouting pseudo-science take our place. Despite this, we have managed to communicate with people and there have been good results here. It was definitely a difficult task, but we did attain our MR vaccination goals.

## 03

What is the effect of alternative medicine in Kerala? People tend to believe in alternative medicine than in modern medicine. Owing to the lack of scientific evidence, it is even more difficult to weigh in the effects of traditional medicine. According to you, what kind of misinformation is prevalent and is there more misinformation in alternate medicine?

In most of the cases, there is a lack of scientific evidence and people tend to have a notion that all modern medicines have side effects, but the fact is that even disproportional use of authentic Ayurvedic medicines can lead to side effects (verified by qualified Ayurveda practitioners). There is unwanted hatred towards modern medicine owing to the issues with negligence and mistrust in our hospitals (owing to low healthcare budgets). In fact, professional Ayurvedic practitioners have the courtesy to redirect their patients to modern medicine when the issue cannot be treated through alternative practices. Recently, there was misinformation around Homeopathy preventive medicine for COVID-19 which was circulating in the market. Ayurveda tends to attract a lot of unwanted popularity. Anything that is leaf and root does not qualify as Ayurveda; it has its own traditional methods that are not tested scientifically like that of modern medicine. Therefore, while one should respect alternative medicine, it must not be administered without scientific evidence. Its use must be limited, and people should not fall prey to the quacks in the market.



04

Kerala happens to be one of the most literate states in the country with good health indicators and even in such a state, people are falling prey to misinformation. So, how deep do you think is the problem of misinformation when compared to other states?

Misinformation has become a real menace. It is a deep-rooted problem that runs in extremely close circles like family, friends, religion, and other sentiments that cannot be questioned. However, the younger generation is using social media widely and wisely, and they do have the ability to differentiate right from wrong and educate their families. Therefore, it has nothing to do with literacy or how well-informed families or health indicators are, but misinformation has penetrated our cultural beliefs and systems. In Kerala's society, there is a large proportion of expats in the Middle East who aid in the spread of such misinformation on social media and WhatsApp groups through rapid sharing in their free time, post work hours. They also share the misinformation from their respective countries and mix it with the culture back home, making it even more difficult to distinguish the misinformation. There is no direct link between education and spread of misinformation; fundamentally, human beings are emotional and not scientific in nature. Social media uses this psychology to make an impact and that is what makes identifying and combating misinformation more challenging.

05

Considering the problem runs deep, what kind of strategies should the Centre and state governments adopt to tackle the problem?

People have unlimited access to the internet, but that freedom should not be absolute. Of course, governments must intervene in regulating content; why I say this is because you cannot stop anyone from posting content but once posted, there must be consequences, considering that especially, shared misinformation tends to have an impact on others. Stringent action must be taken, especially against those who post unnecessary and unverified information. Unlike other types of misinformation, health misinformation can have detrimental effects in terms of ignoring proper treatment. This strict action should correct others' behaviour and accordingly, pause and take a step back before sharing. We have laws for everything, it is all about implementation, and such actions will set a precedence for others.



## 1.5. Conclusion

Misinformation around vaccination is often associated with adverse public health consequences, including serious disease outbreaks and epidemics. Moreover, vaccine hesitancy has always been a convoluted issue, since the myths/conspiracies touch the most delicate chord with people, which is the safety of their children. In addition to the need for more educational material for healthcare workers, vaccination strategies need to be contextualised (Rajasekharan K Nayar 2019)<sup>23</sup>. The challenge is to combat the deep-rooted psychological and emotional needs of parents, leaving little room for health officials to manoeuvre short-term solutions. Even for the Kerala Health Department, it was a long game, but within two years, the tables have been turned. The strategy was to leverage the same social media platforms as an opportunity to promote and propagate vaccination knowledge just like the misinformation propagated by anti-vaccine groups. One such effort has been undertaken by Dr Shimna Azeez along with a group of other doctors, who started Info clinic, a Facebook page in the regional language (Malayalam) to combat health misinformation in Kerala (Azeez 2016)<sup>24</sup>. Although misinformation/misleading content is extensively shared, this initiative with the tagline, “The cure for Ignorance is Knowledge”, is a starting point for the combat. The page has seen a consistent increase in its reach to wider audience, thus solidifying the way forward—that a strong communication strategy encompassing awareness and debunking campaigns is the only tangible way forward in addressing health misinformation.

In our experience, there is no one-size-fits-all approach, specially to combat medical misinformation. While existing and introducing new laws such as the amendment of the Kerala Police Act that provides for a five-year jail term for any social media or cyber post that is deemed ‘offensive’ or threatening can be a plausible way forward, it becomes discretionary and often short-sighted in implementation (Philip 2020)<sup>25</sup>. Therefore, it is important to perceive vaccination strategies beyond short-term goals and it becomes crucial that contextual social realities are understood, i.e., each state should identify, define, approach, and combat vaccine hesitancy through proper and feasible communication strategies to succeed in the long run.