

Chapter 2

Review of literature

Primary caregivers hold a very important position when it comes to research. Their roles, importance, performance and various other attributes and effect on their caregiving have been studied by many researchers. Primary caregiver is someone who is involved in the care of a person for most of the time and is responsible for the same.³³

This review brings out all the researches done so far in the field of immunization, relate to primary caregivers especially mothers, caregivers awareness and self-efficiency. The chapter highlights all the work in three sections.

Role of caregivers and strategies used regarding immunization.

A review of strategies used to improve vaccination coverage of children belonging to low and middle income countries was done using studies from low income countries. The main strategy found effective, were creating awareness among parents and community members. Importantly, giving reminders to parents via a reminder card, emphasizing the importance of vaccinations during visits to health clinics and integrating with other health services were also recognized as important strategies. Giving monetary benefits to family and use of vaccination outreach team have also been studied but had a low certainty.³⁴

A qualitative study on caregivers and health providers' perception and experience related to communication strategies and barriers faced in vaccination was conducted using focus group discussions (FGDs). The caregivers revealed their need for good communication with health worker, impolite behaviour may sometimes may a mother resistant to any information, also frequent reminders via media announcements and inclusion of a trusted local leader is good. The caregivers also preferred more text messages and reminders more frequently at the right time and not just limited to vaccination campaigns.³⁵

A systematic review and meta-analysis was done on the range of parental interventions used to increased vaccine uptake. While reminder based interventions

were found most effective when compared to others, the researchers concluded that discussion based educational strategies are especially the most important for non-complaint families and that acknowledging parental concerns are also important.³⁶

A survey on parents and children showed that all respondents felt vaccines are important for children. The study identified six barriers which included majority barriers related to caregivers ie 24% and vaccinators (19%) others reported were concerns related to vaccine side effects, cultural and religious beliefs and also health centres and health system. Among the barriers related to caregivers were, inattention to due dates, fear of side effects lack of time and negligence.³⁷

It is also proposed that most developing countries have reached a plateau and good vaccination coverage had been achieved but even then to increase it further and make unvaccinated children reachable we need to find more ways. Parents need to be empowered to freely and clearly express their attitudes towards vaccination. It also suggested that simple operational research into local knowledge and attitude of parents is important.³⁸

Parents or caregivers understanding of vaccination and its importance were highlighted in a study on parents of children below 6 years and also expectant parents via a telephonic survey. Most (87%), considered vaccination an important event that parents must assume important take to keep their children healthy while, a substantial number (25%) held that giving too many immunizations at one time can harm a child's immune system.⁸ In a yet another study, more than 60% parents suggested use of multimedia for promoting childhood immunization while 77.5% opined that improving financial expenditure doesn't affect immunization.³⁹

The need for vaccination should be explained as a part of good parenting practice than be done out of fear for diseases as more time is required by health professionals to remove misconceptions and promote vaccination. An editorial by Thomson A on strategies to increase vaccine uptake and acceptance gives an insight into context – specific and culturally appropriate evidence based communication and interventions that have be used and tested for impact. The article brings out the key highlights of various studies. The author explains about many determining factors for

vaccination uptake. Increasing knowledge and knowing the benefits of vaccination to increase vaccination coverage is long held notion. The author emphasizes that it is important to understand the deciding factors for vaccination and simply increasing the awareness doesn't help much. There is also a need to understand the communication needs of parents and the intervention should be tailored to address their concerns. It is also required that efforts for communication should be sustained and appropriate to context. There is no "one size fits all" ⁴⁰

Parents' information needs were identified using focussed group discussions with caregivers of children upto one year of age. The study reported, the more hesitant the parents the more detailed information they desired. Parents were assured when their concerns related to immunization were addressed. Hesitant parents were found sensitive to persuasive language forms. ⁴¹

A study addressed the issue of autism associated with vaccination and parents concerns around it. Health care providers were acknowledged as the most commonly accessed and trusted source of information. Insufficient knowledge regarding vaccination lead to 23% subjects making poor decision regarding vaccination. Parental vaccine acceptance or socio-economic status and vaccination status was not found significantly related. ⁴²

The researchers in past have found that providers sometime underestimated the importance of some vaccines for parents and overestimated their concerns related to route. The findings shed light on newer aspects of parent's concerns that should be included in future planning of vaccination campaigns. ⁴³

Healy CM., et al (2011) highlight the role of health workers in determining parent's decision to vaccinate their child. The author emphasizes that HCPs need to understand the parents' beliefs about vaccines and the influencers of their belief in order to affect their decision making. Address of their concerns includes an honest dialogue with parents, acknowledging that vaccines associated with adverse events however benefits outweigh risks. ⁴⁴

Previous studies reveal that parents intend to vaccinate their children against more serious diseases than against mild conditions. Parents also preferred to vaccinate children against mandatory diseases and not optional vaccines. Parents also believed that administering too many vaccines at a time may harm the child who may not be able to physically handle them and vaccines are necessary especially at young age since the immune system is weak. The novel finding from the study was that parent's concern about disease severity was linked to their perception of the child's overall physical condition.⁴⁵

The above studies focus on various strategies used for communicating parents about vaccination schedule, its benefits and side effects of vaccine. The communication methods used include text messages, post cards, telephonic reminders, use of informative teddy bear and perinatal health education. There is no conclusive data on which of the communication technique is best in influencing parents or caregivers attitudes and affecting vaccination coverage since there are huge differences in the methodologies used in these studies and also differences in sampling the subjects. The studies also identify various barriers for vaccination like vaccine availability, parents' knowledge, lack of available time at the time of immunization clinic and fear of side effects. There are many other outcome variables that have been studied and are known to influence a caregivers /parents decision to vaccinate their child. Most studies with the stake holders point that trust, community participation, understanding parents information needs must be assessed and tailor made information be given to the caregivers to have compliance. Vaccine hesitancy is also a widely used concept and factors leading to hesitancy include vaccines related problems and fear of serious adverse events.

Studies also appreciate the role of health care providers (HCPs) in influencing parents decision making related to vaccination. In this regard studies suggest that HCPs can use various opportunities to educate the parents. Vaccination must also be seen as a part of good parenting practices, positive messages should be given to parents. It is also seen that providing informative material that addresses their concerns instead of fear of diseases and using images and experiences of parents of

children who got the disease, brings significantly positive changes and affects vaccination coverage.

As have been pointed out by above mentioned studies knowledge or awareness of caregivers, is an important factor affecting vaccination. The level of mothers/caregiver's awareness predicts their behaviour and future actions. Much has to be done in this direction as it is an important aspect of vaccination.

Caregivers/mothers awareness related to immunization.

An Indian study was done among mothers of children under five years of age in rural area to determine their knowledge, attitude and practices regarding immunization. While accurate knowledge and awareness about vaccination was among 70% mothers, 30% didn't know that vaccination can be done during minor ailments. Significant association with the level of education and maternal age was found. Birth order had no effect on mother's knowledge.⁴⁶

Knowledge, attitude and compliance regarding immunization were studied among Nigerian mothers using interviewer administered questionnaire. It was seen that 70% mothers had good knowledge regarding immunization. All had positive attitude and 86.4 % mothers had fully immunized their children. Antenatal clinic clinics were reported as the main source of information by 46.8% mothers. Most mothers believed immunization is important for the children.⁴⁷

In a study done to determine mothers' knowledge and practices related to immunization, 140 mothers were assessed using an interviewer administered questionnaire. More than 70% mothers knew about DPT vaccine and the diseases it prevents. While close to 95% mothers knew that vaccines prevent diseases, 2.9% opined that vaccines are used to treat illnesses. 89% mothers considered vaccination as highly important. Overall, 47% mothers possessed good knowledge, 36% had average and 15% had poor knowledge about immunization. Mothers in urban area, employed mothers possessed higher knowledge.⁴⁸

Mahalingam S., et al studied compared differences in knowledge, attitude and perception of mothers related to vaccination from urban and rural background.

Mothers were found to be the decision makers of child's vaccination. As regards the knowledge about vaccination rural and urban participants had a stark difference. Most mothers (91%) in urban areas knew, age of initiation of vaccination against 44% in rural participants. However both urban and rural participants believed that vaccination is important for the child. Main source of information for the groups was through hospital and anganwadis (98% and 42% respectively). Vaccine related side effects were experienced by more than 70% mothers in both urban and rural area. Overall urban mothers were more aware compared to their rural counterparts.²⁹

A similar study was conducted to study vaccination coverage and awareness about newer vaccines among fifty mothers. Pentavalent vaccination was known to about one third mothers while IPV was known among one fourth mothers. Extremely low knowledge regarding rota virus vaccine was seen among only 2% mothers. None of the mothers knew about second dose of measles. Only 8% of mothers had knowledge of Vitamin A schedule. Major source of information was mass media (43%) followed by health workers and doctors ie 27% and 19% respectively.⁴⁹

Nnenna TB, Davidson UN, Babatunde OI did a study focussed on socio demographic determinants and questions related vaccination schedule, knowledge about side effects among mothers and father's view of immunization. While 80% mothers knew the importance of immunization, 14% believed that vaccines could prevent any kind of disease. No significant relationship was found between maternal education and belief about vaccination. Some (10.6%) mothers were able to name at least three adverse events following immunization and 80% intended to have child's immunization even if adverse events occur.⁵⁰

A survey on mothers of infants about vaccination coverage, mothers' knowledge about VPDs and side effects of vaccination reported that 86.6% fathers acknowledged, vaccination was important and remaining considered it unnecessary. Most (98.6%) mothers knew the age at which vaccination begins i.e. at birth and 54% were able to enumerate the diseases against which vaccination is done. Most were able to name vaccines for tuberculosis (75.6%), polio (40.4%), whooping cough (38.8%), measles and hepatitis (15.4%). The study stressed strengthening of nurses

and paramedics who are frequently reported as main sources of information about vaccination and its various aspects by parents.⁵¹

Mabrouka AM, reported a study to assess mother's knowledge, attitude and practices related to immunization and also to determine maternal characteristics and other determinants of complete immunization among children. About 81% had fully immunized children and the rest partially immunized. Paramedics were reported as the main information source ie 88.28%. Child's health condition and illness were reported as the prime reason for cessation of vaccination. This was followed by social reasons and forgetfulness. As have been reported from earlier studies, locality or area of residence i.e. urban and rural and mothers occupation, did not affect the child's immunization status. Negative attitudes included mother's fear of side effects and false beliefs which were reported by parents of partially immunized children.⁵²

An experimental study was conducted on mother baby dyad less than six weeks using pictorial messages in the intervention group. Infants in the experimental group had complete primary vaccination of their children with three doses of DPT and Hepatitis B vaccines compared to 51.7% in the control group. Rate of BCG vaccination was similar in both the groups. DPT-3/Hepatitis vaccination improved by 39% in the intervention group. Maternal awareness about the importance of vaccination was found significantly associated with higher DPT-3/Hepatitis B vaccination rates.⁵³

In a cross sectional study, knowledge and practices of parents related to immunization were assessed using a pre-validated questionnaire. A significant association of father and mothers educational level, age at time of delivery and number of preschool children was found with the knowledge – practice score ($p < 0.05$). The study also revealed that more number of fathers had adequate knowledge compared to mothers who were mainly in inadequate knowledge group. Parents with children having institutional deliveries were found to have significantly higher knowledge practice scores ($p < 0.05$).⁵⁴

The effect of a short educational interventional program on parent's knowledge regarding immunization was studied. The educational intervention

consisted of informative animated video and a lecture via PowerPoint presentation. The knowledge level of parents was significantly increased related to importance of vaccination among healthy children. It also highlighted some of the parents' concerns like occurrence of autism and meningitis after MMR vaccination, the necessity to vaccinate the child against diseases that no longer exist and the credibility of related information available on social media.⁵⁵

Parents' intentions to vaccinate and the factors affecting them are important determinants of immunization compliance. A study in this regard reported safety as prime concern by 46%, followed by the belief that the vaccine itself may cause the disease (influenza) as expressed by 20% respondents. 78% respondents expressed their intent to vaccinate their child. Common adverse effects reported were fever (20%), allergy (5%) and "getting sick" (4%). It was seen that caregivers' knowledge, attitudes and beliefs played a more important role in predicting their intention to immunize more than their demographic characteristics. Except for the level of education other factors were found insignificant.⁵⁶

Face to face interviewer administered questionnaire was used to collect data about vaccination from a migrant population. Low vaccination coverage was observed for all doses. Complete series coverage for DPT, OPV and Hep B were 57.6%, 64.0% and 52.2%, respectively. The place of delivery, mothers' educational and occupational status was found significantly influence full immunization of the children. Antenatal checkups and follow ups were also associated with increased immunization coverage.⁵⁷

A study conducted on childbearing mothers concluded that mothers' knowledge and attitude affected timeliness of their children's immunization. Most (93.5%) were found aware of protection provided by vaccines while some believed vaccines promote growth (26.3%). Most were aware of main VPDs and their schedule of vaccination. Partial vaccination was attributed to fear of side effects and ignorance. Full immunization correlated with good knowledge among mothers.⁵⁸

Bohannon K reviewed and explored reasons for non-vaccination of children. The study brings forth many facts about vaccine hesitancy and reasons for parental

refusal of vaccines. The main reasons identified were namely “religious reasons, personal beliefs or philosophical reasons, safety concerns, and a desire for more information from healthcare providers, vaccine safety and fear of side effects”. The study suggested that HCPs should have face to face frank conversation with the families to help them make informed decisions and equipping them with knowledge related to benefits and risks associated.⁵⁹

The importance of caregivers’ awareness regarding vaccination in determining vaccination coverage was highlighted in a study on caregivers. About 53% caregivers correctly stated time of initiation of vaccination and knew when it is complete. About 57% believed in vaccine safety and 48% considered vaccines beneficial. Very few knew about VPDs. Age specific immunization status revealed, close to 30% children were partially immunized and lack of information was found to be the major reason for incomplete or partial vaccination. Other reasons stated were lack of time, family issues and child illnesses. Fear of side effects was found among 7.46% caregivers. Health workers remained the major information source related to vaccination i.e 63%.⁶⁰

Focussed group discussions were conducted with the mothers visiting the PHCs for immunization clinic to assess their perceptions regarding immunization. A total of 10 FGDs were conducted to have a total of 60 participants. Majority mothers were able to name main VPDs however perceived their knowledge insufficient. Most didn’t know what vaccine had been injected /given to their child on that visit. Mothers also reported having heard of vaccine adverse reactions but none had experienced any side effect. Few information needs were identified by the subjects like more information related to risks for vaccinating and not vaccinating a child. Also spreading information related to diseases was seen as ineffective. Scientific information regarding vaccines was also desired by the subjects.⁶¹

Self-efficiency and its related studies.

Self-efficiency /efficacy are frequently studied concept in health sciences. The term “self- efficacy” was coined by Bandura who defined it as individual’s belief about his/her capabilities to learn or perform behaviour at the defined level.

While self- efficacy is a perceived ability, self -efficiency can be seen as achieved outcome. A perception of low efficacy can lead to low self-esteem and make things look tougher to achieve. A similar approach is required for caregivers who are face to face with vaccine related problems occurring during and after vaccination. They require attaining efficiency for handling their babies who experience side effects and pain related to vaccination. HCPs can plan interventions that increase their self -efficiency to care for the child who is disturbed for during this period.

Studies have shown that children become more manageable and cry less when mother feels competent and efficient. A study on effect of increasing maternal self -efficacy among mothers who attended birth preparedness classes was done. It was observed that babies of mothers who reported high self -efficacy had reduced prenatal stress. Also excessive crying among babies was reported less among mothers who measured higher on self- efficacy scores. Thus self-efficacy was seen to have a moderating effect on crying among babies which can be significant source of stress for mothers further affecting her emotional stability and maternal competency.⁶²

Coleman in her study on maternal self- efficacy as predictor of parenting competence among toddlers studied mothers –toddler dyad. The study findings revealed that self-efficacy failed to predict parenting competencies which is contrary to other studies where a significant relationship between self-efficacy and parenting skills was found.⁶³

Self-efficacy has also been studied in children with behavioural problems like autism and adults requiring long term care e.g. dementia. Studies in children have related this concept with maternal competency and general self-efficacy beliefs.

Another study supported the hypothesis that parental self-efficacy (PSE) is associated with a range of parenting behaviours for both mothers and fathers. The results are however different for mothers and fathers. For mothers increased self-efficacy had a low correlation with hostile and coercive behaviour. For fathers PSE correlated positively with parental control. The study's findings deviate from previous studies and revealed that negative interaction of caregiver with the child

during stressful time may decrease the sense of parental competence especially in mothers.⁶⁴

Bandura A in his pioneering study titled self-efficacy mechanism in human agency has highlighted the development of self-efficacy, its influencers, motivational factors, relapse and other aspects. The author states that perception of self-efficacy comes through mastery or learning of the skill. A person tends to perform a function more if he believes that he has a mastery of the skill. The ability to function may come through enactive attainments, vicarious experience, verbal persuasion or physiologic state. Enactive attainment is the most powerful influencer which involves doing the task by self, vicarious experience ie. performance by a similar person and verbal persuasion for people who have some reason to believe that they can do it. All the three can have a great impact on what people believe about their ability to do something.⁶⁵

For the present study the investigator finds implication for the mothers who when equipped with adequate knowledge are likely to have their self-efficiency increased when caring for their immunized child.

Existing research on self-efficacy of caregivers of children has been limited to its main effect on other outcomes, such as stress, obesity and a breastfeeding satisfaction. Proactive approach for tackling breastfeeding issues for mothers useful in enhancing self-efficacy was demonstrated using randomized controlled trial on antenatal mothers. Results of prenatal counselling sessions were measured in terms of self-efficacy and breastfeeding issues which were assessed postpartum. Significant improvement in breastfeeding self-efficacy after delivery was found among mothers of intervention group.⁶⁶

Another qualitative study linked various factors including self-efficacy with behaviour and intention to vaccinate the child. The study derived its conceptual framework from ASE (attitude, social influence and self-efficacy) model by De Vries. It was observed from the results that caretaker's conviction, self-efficacy and the supportive role of the significant others in family influenced involvement of parents in the child's immunization. Self-efficacy was defined in the study as being able to

carry out immunization related activities and being able to remove barriers to vaccination like long distance, lack clothing, lack of money and gender roles.⁶⁷

Self-efficacy was studied as a part of main study that focussed on relationship between maternal perception and full vaccination coverage. Maternal perception was measured using statements related to perceived susceptibility, perceived barrier, perceived severity and self-efficacy. The results demonstrated that all these factors coupled with peer support, information reception, community leader support influenced vaccination coverage positively. The self-efficacy scores were found high among mothers with full vaccination coverage.⁶⁸

In a randomized controlled trial conducted online intervention was delivered via text messages, graphical information, and social group discussions and with time pressure component. Self-efficacy of mothers was reportedly high in the treatment arms compared to controls. However the results also suggested that internet /online information solely cannot improve vaccination coverage as the final coverage in the treatment group was not significantly higher.⁶⁹

Jung conducted a study on effect of maternal decisional authority, use of mass media self-efficacy on children's vaccination status among South Korean, Chinese and Japanese mothers. Self-efficacy was measured using a five point Likert scale containing five items. Odds ratio was used to calculate the likelihood of vaccination of children according to self-efficacy of mothers. The results showed that children vaccination status had higher odds with maternal decision authority, education and self-efficacy strongly.⁷⁰

Self-efficacy was measured on a five point Likert scale in a study to determine caregiver's intentions for vaccination of the children. It was found that self-efficacy had a positive association with vaccination intention among the caregivers of children aged 4-6 years. Caregivers of children aged 7-12 years had lower vaccination intention compared with those of aged 0-3 years.⁷¹

The above studies indicate self-efficacy /self-efficiency of caregivers as an important predictor of vaccination intention and behaviour and also justify the need for further studies related to this concept.