

CHAPTER 2

REVIEW OF LITERATURE

Reviews included in this study have been selected from a variety of research sources. Literature review is reviewing about what has already been written about the research area under investigation. It provides background of research problem in which the researcher is interested.

Identification of barriers and challenges faced by mothers for prevention and home-based management of ARI

Qualitative research using phenomenological approach was conducted by Rakhmani et al. (2020). Twelve caregivers having children who had children with history of recurrent episodes of ARI in the previous 3 months period were selected using purposive sampling technique. Individual in depth interview was conducted and information was collected and analyzed. Following themes were generated viz. ARI in children, parental role, family problems, influences of family members in management of ARI. Few important points viz. inability in caring for sick child, low income and stressful condition of mothers due to household chores were noted. This study concluded that psychology of caregiver and family problem might impact the quality of care given to children during sickness.⁴⁷

Ferdous et al. (2014) did a qualitative study to explore mothers' perception and health seeking behavior regarding children suffering from pneumonia. Focus group discussion was conducted among 33 mothers of children. Six themes such as perception about pneumonia, experience from recent sickness of child, perception related to cause of pneumonia, health care related seeking behavior and identification

of modifiable barriers were identified. Several significant barriers were identified including like sickness was not perceived as serious, lack of money, limited decision-making authority in family regarding usage of health care facilities, spiritual treatment in family (Jhada deya) and difficulty in bringing children alone by herself only reported by mothers. This study concluded the need of implementation of health education program in community regarding myths of spiritual treatment and to overcome barriers related to care of children.⁴⁸

Ingram et al. (2013) did a qualitative study to explore parent's information need, self-efficacy and consultation to physician for respiratory tract infection in children. Sixty eligible parents having children between 03 months to 12 years were recruited for data collection. Out of 60 parents, 30 had consulted doctor most frequently for children having respiratory infection during past 12 months and 30 parents had consulted least frequently during same period. Focus group discussion was conducted among these parents and collected information was analyzed into themes such as perception of threat from illness, child susceptibility to infection, need of information related to illness, social pressure, perceived parental challenges and hindering factors for managing respiratory infection viz. perceived parental pressure, parent's experience, confidence and efficacy influencing the care for child.⁴⁹

Kauchali et al. (2004) did a study on maternal perception regarding ARI in under five children. The result revealed mothers described respiratory illness in different categories like attributed to the supernatural, tuberculosis, cold weather. Mothers who perceived respiratory illness as a supernatural cause did not prefer medical care but instead preferred traditional remedies. It concluded that awareness program for health care workers should be implemented so they can educate mothers about ARI in children less than age of five years and dispel myth related to this infection.⁵⁰

Summary

Qualitative studies mentioned above concluded that psychology of caregivers, family members, perceived parental pressure, parental self-efficacy and supernatural myths related to illness impact the quality of care given to children during sickness. They have recommended need of implementing health education program in community regarding dispel of some myths of spiritual treatment to overcome barriers related to care of children.

Prevalence and risk factors of ARI in under five children

Kumar et al. (2022) conducted study on prevalence pertaining to ARI in children who were below five years in Ghaziabad. The findings showed that overall prevalence rate was 26.01%. Among them, most of the children were infants.⁵¹

Vinod and Kaimal (2023) did a study to determine risk factors and incidences of ARI in children. The result revealed that 60% children had ARI and remaining 40% did not have any symptoms of ARI. This study highlighted that occurrence of ARI among under five children was more who had history of respiratory illness in their family, non-exclusively breast-fed infants, early weaning, exposure to indoor smoking, exposure to cold and rain and biomass fuel.⁵²

Zebua et al. (2023) conducted study to find out about risk factors related to occurrence of ARI in children who were less than five years of age. The convenient sampling technique was adopted to recruit 389 children. The findings of the study revealed that low birth weight, history of breastfeeding, knowledge of mother and nutritional condition of children had association with presence of ARI in children.⁵³

Hossain et al. (2022) reviewed factors responsible for ARI in children. Bangladesh Health Survey 2014 was taken for data analysis. The findings revealed stunted children and male children had higher risk of getting acute respiratory infection.⁵⁴

Salmaddiina et al. (2022) analyzed association of environmental factors with incidences of ARI in under five children. Screening of 337 children was done to identify symptoms of ARI and their environmental characteristics were also investigated. The findings revealed that type of residence, passive smoking, type of roof and cooking fuel were significant environmental factors for ARI.⁵⁵

Study by Hasan et al. (2022) extracted and analyzed information from National Health Family Survey- 4 of India. This survey enrolled 238945 children aged below five years to find out information regarding prevalence of ARI and gathered data from the mother's response in terms of presence of ARI symptoms. This study found that incidences of ARI was less in northeast and south region as compared to central region and was more common in region of high altitude. This study emphasized the regional variation for incidences and contributing risk factors to ARI which must be addressed to prevent risk factors related to ARI.⁵⁶

Ghimire et al. (2022) identified risk factors causing ARI and its prevalence in children. About 286 children who attended pediatric OPD were taken by convenient sampling method. The children were assessed for presence of symptoms of ARI by using revised WHO ARI screening classification and their caregivers were asked about general information related to risk factors using pretest structured questionnaire. The result revealed 60.8% children had ARI and about one fifth children among them had severe condition of pneumonia. It was also reported that among all these children who had ARI, 11.5% children were born preterm, 7.3% had low birth weight, 24.1 %

lived in overcrowded house, 23.1% had poor ventilated house, 32.2% children's family members smoked inside the house and greater than one fourth of the families were living and cooking in one room only. It concluded that boys were likely to get ARI more frequently than girls and there is need to conduct awareness program on prevention of ARI and its risk factors.⁵⁷

Ahmad et al. (2022) did a research to find out nature of respiratory infection in pediatric population. The findings showed that children had higher frequency of URTI than LRTI and boys were more prone to get respiratory infection than girl children. It was observed that otitis media, tonsillitis and pharyngitis were 75.10% collectively among children which were followed by lower respiratory tract infections.⁵⁸

Ahire et al. (2022) carried out an observational study to investigate risk factors of ARI that can be modified among children. Eighty children having ARI were taken in the study. The findings showed that modifiable risk factors of ARI were illiteracy of parents, low socio-economic status, inadequate immunization status, pre-lacteal feed, parental smoking, early weaning, history of malnutrition and respiratory infection in family. It was concluded that these risk factors need to be minimized by using effective health teaching and awareness in community.⁵⁹

Putri et al. (2022) carried out a literature review to find out relation between parental smoking and ARI in under five children. Seventeen articles were used for review of literature. The findings revealed that incidences of ARI were increased due to presence of active smokers in the families.⁶⁰

Kumar et al. (2022) conducted study in Silguri. Hundred mothers admitted in post-natal ward and their children admitted in paediatric hospital were recruited. The

findings revealed that only 22% mothers had good knowledge on prevention of ARI and 33% had good knowledge on management related to ARI in children.⁶¹

Demissie et al. (2021) conducted study to find out magnitude and factors responsible for ARI in children below five years of age. Children who visited outpatient department in hospital were recruited. Findings showed overall occurrence of ARI in 40.3 % children. It was also reported that nonexclusive breastfeeding, smoky cooking fuel, absence of window in kitchen, unvaccinated children and lack of a separate kitchen were significant factors.⁶²

A research done by Enyew et al. (2021) on association of biomass fuel usage with magnitude of ARI in under five children. Three case control and 18 cross-sectional research articles with total of 30,013 samples were included for study. The pooled prevalence of ARI was 22% where biomass fuel was used in the house. In addition to biomass, lack of separate kitchen, carrying child on the back or in lap while cooking and absence of kitchen window were found to have significant association with ARI. It was concluded that need of implementing advanced non-smoky combustion of fuel in houses is important to decrease morbidity and mortality rate of ARI in children.⁶³

An observational research was done by Swathi et al. (2021) on risk factors causing ARI and deaths in children between the age group of two months to five year. Results showed that 94.12% were alive and 5.88% had died. Majority of children were males (60.78%). It was also observed that 79.41% children belonged to low socio-economic status, 62.4% had inadequate immunization status, 57.2% had poor rearing practices and 56.54% were not exclusively breast fed, 66.67% had higher risk of ARI.⁶⁴

Srivastava et al. (2020) measured risk factors of diarrhea and ARI in children who were less than twenty-three months. The researcher extracted the data from National

family health survey four (2015-16) and analyzed it. The findings showed overall prevalence of ARI and diarrhea was 3.4% and 13.8% among children respectively. They observed that approximately 42.2% children were initiated breastfeeding early, 54.9% had exclusive breast feeding and 74.1% of children had predominant breastfeeding. This study interpreted that risk of diarrhea and ARI was low in children who had predominant breastfeeding, exclusive breastfeeding and early initiation of breast feeding. They have recommended that exclusive breastfeeding and predominant breastfeeding can be preventive aspects for reduction in prevalence of both ARI and diarrhea.⁶⁵

Savitha et al. (2018) explored factors which causes URTI in children below five years in Tamil Nadu. 380 under five children were taken in the study and mothers of these children were interviewed using semi structured questionnaire by visiting house to house. The findings showed that ARI prevalence was 41.6% and common among boys than girls. The semi-pucca or kuccha house (50.3%), presence of indoor smoking (57%), poorly ventilated house (61.3%), malnourished children (66.4%) and absence of immediate cry after birth were found risk factors of ARI. This study highlighted multiple factors which were contributing to prevalence of ARI.⁶⁶

Tazinya et al. (2018) explored risk factors causing ARI in children attending hospital in Cameroon. The consecutive sampling method was adopted to select 512 children. Data gathered from mothers using structured questionnaire included demographic, clinical and socioeconomic variables. Result showed that 54.7% children were suffering from ARI. It was found significant association between passive smoking, poor mother's education, contact with infected person, exposure to wood smoke and respiratory illness. This study concluded that preventive measures need to be taken to reduce illness and deaths related to ARI.⁶⁷

A research done by Admasie et al. (2018 in Ethiopia highlighted that poorly ventilated house, smoky cooking fuel (biomass and charcoal), holding child while cooking and large family size were significant risk factors.⁶⁸

Raykarmakar et al. (2017) did research on prevalence of ARI and its correlates in children below age of five years in Kolkata. Sixty-eight children were recruited using total enumerative sampling techniques by house to house visit. The findings revealed that overall prevalence was 66.2% among under five children. Highest prevalence was found in male children. It was also observed that overcrowding, cooking fuel, parental smoking and ventilation status had significant association with presence of ARI symptoms in under five children.⁶⁹

A research conducted by Krishnan et al. (2015) regarding incidences of acute respiratory infection in children of one to ten years of age group. A weekly home to home visit was done to screen out children for presence of ARI. Approximately 2859 children were enrolled from four villages of north Indian states of Haryana. The result revealed that there were 5.88 incidences of ARI per child in one year and higher incidences were among boys as compared to girls which was 2.4 times higher in boy. They concluded that acute respiratory infection imposes burden on children and affect their growth and development.⁷⁰

Ranganathan et al. (2015) studied prevalence of ARI and risk factors in children less than age of five years. The findings showed ARI prevalence rate was 22.8%. It was found that education of father and mother and low socio-economic status were major risk factors of ARI.⁷¹

Taksande and Yeole (2015) did case control study to assess ARI risk factors in children under the age of five. Three hundred children having ARI admitted in

pediatric ward were enrolled as a case and 300 children with homogenous characteristics of age, sex and religion of children selected from neighborhood as control. A detailed history of child was taken regarding chief complaints of throat pain, cough, running nose and fever. A past history of recurrent episode of respiratory infection, dietary history, initiation time of weaning diet and detailed immunization history were also recorded. Results revealed that 54% cases had illiterate mothers, maximum of the cases related to low socio- economic status and 53.2% cases were overcrowding family, 17% cases had exposure to kerosene smoke and passive smoking had high risk of acute respiratory infection as compared to control group. This study emphasized many contributing factors which leads to higher prevalence of ARI among children like malnutrition, indoor smoking, overcrowding, incomplete immunization and lack of exclusive breastfeeding.³⁵

A research done by Singh et al. (2014) showed that out of 390 children, 300 (75.6%) had symptoms of acute respiratory infection with 2.6 number of episodes per child in last three months.⁷²

Walke et al. (2014) conducted a study in Delhi. Purposive sampling technique was adopted to recruit 106 children. Assessment of children was done for presence of ARI through physical examination and history collection and recorded on UNICEF Performa. The result showed ARI prevalence rate was 34.3% and incidence was 4.1 episodes/child in a year. The highest incidences were found in infants rather than toddlers. It was found that peak of ARI incidence was high in february month and low in november month. It was concluded that awareness related to ARI/pneumonia need to be conducted for mothers .⁴⁶

Choube et al. (2014) explored possible risk factors that may cause ARI in children. The mothers of children were interviewed with pretested questionnaire including information related to feeding practices, housing condition, type of cooking fuel, birth order, presence of symptoms of ARI and demographic variables. Results revealed 27.69% children were suffering with ARI. Most of them were boys (74.2 %) and aged between twelve to forty-seven months (59.74%). children who were underweight at birth, were not breast fed exclusively, had no smoke outlet and had dampness and pets in their houses had more occurrence of ARI.⁷³

Bhat et al. (2013) did a study to identify correlates of ARI in children. Results showed inappropriate weaning period, low parent literacy level, respiratory infection in family members, malnutrition, low economic status, pallor and cooking fuel were significant risk factors.²⁷

Alam et al. (2013) identified determinants of ARI and its prevalence in children in Bangladesh. Bangladesh Health Survey 2004 was taken for data analysis. Findings revealed that incidence rate was 16.56 per 1000 children per day and about 1/3 of children were having ARI. It has also found that ARI was higher among toddler, acutely malnourished children and poor economic status.⁷⁴

Khalequzzaman et al. (2011) compared effect of biomass fuel and air pollution inside the house on status of respiratory system of children residing in rural and urban region of Bangladesh. Data was collected from 51 families of selected rural and urban areas. The findings showed that children were more suffering from respiratory infection in rural areas than urban areas.⁷⁵

Summary

Previous studies have revealed prevalence of ARI among under five children which directly impact their growth and development. They have identified the risk factors such as environmental and birth related factors which can be modified to some extent to prevent ARI in children. They recommended that awareness of ARI should be conducted for mothers.

Knowledge & practice of mothers regarding prevention of ARI among under five children

A study done by Bansal (2022) with aim to assess mothers' knowledge on ARI and its prevention in Meerut city. Mothers were interviewed personally with a structured knowledge questionnaire. The findings showed that majority of mothers (42%) were aged between 25-30 years, 58% were housewives and most of them (90%) were taking care of their children. It was assessed that 70% mothers had poor level of knowledge, 30% had average level and none of them had adequate information on the concerned subject. The study identified significant association of mothers' knowledge level with their educational status, family size and exposure of mother to ARI information.⁷⁶

A research done by Muthukumaran (2022) identified that in pretest 8.4% mothers had sufficient knowledge, 90% had average knowledge, 1.6% had insufficient knowledge, 29% had moderate practice and 31% had adequate level of practice. After intervention, majority of mothers (80%) had adequate knowledge, 93.3% had adequate practice and 6.6% had moderate level of practice.⁷⁷

An experimental study done by Kavungal (2021) indicated that most of mothers had poor knowledge and only 20 % had average knowledge. It was found that there was significant improvement in posttest score of mother's knowledge after structured teaching program regarding respiratory infection. The study concluded that creating awareness among mothers and family members may lead to reduction in incidences of ARI in children.⁷⁸

Raja et al. (2021) evaluated effect of teaching program on knowledge of mothers regarding ARI. The result showed that mean post-test (80.16) knowledge score was more than mean pretest score (23.40). It was reported that before intervention 66% mothers had adequate level of knowledge and 34% mothers had moderate level of knowledge score but after intervention more than 75% mothers had adequate knowledge and approximately 25% had moderate level of knowledge. It was determined that intervention program was beneficial in enhancement of mother's knowledge level.⁷⁹

Kareem et al. (2021) carried out a study to identify mothers' caring practice of children having ARI. Information was gathered using self-reported practice and knowledge questionnaire. The study findings showed that there was average practice related to care on obstruction of respiratory tract, poor practice on home remedies and application of steam inhalation. It was reported that 32% mothers had good, 32 % mothers had average and 38% mothers had poor practices. Types of feeding, age of children were significantly associated with practices of mothers. This study indicated the need of organizing special education program about preventive measures.⁸⁰

A pre-experimental research was conducted by Kumar and Gupta (2020) on effect of health teaching regarding prevention of URTI on knowledge of mothers. Sixty

mothers were selected purposively. The study findings showed that in pre-test, 66.7% of mothers had inadequate, 23.66% had moderate and only 1.67% had adequate level of knowledge where as in post-test 63.33% had adequate, 36.67% had moderate and none of them had inadequate. The significant improvement was identified in post-test mean score of mothers' knowledge and concluded that educational intervention was beneficial in improvement of knowledge level of the mothers.⁸¹

Bhalla et al. (2019) did a prospective study to determine caregiver's knowledge and practice related to acute respiratory infection. Data was gathered for a period three months from the pediatric ward of a tertiary hospital. A total of 1752 children who were admitted in the ward with complaints of symptoms of respiratory infection were enrolled for study. The findings showed that 68.26% children were suffering from malnutrition and out of them 59.36% and 8.9% were moderately and severely malnourished respectively. Approximately 18.3% children had history of hospitalization in the last one year. It was observed that 42.6% caregivers had good knowledge regarding symptoms of ARI and had poor practices for preventive measures but 66.3% caregivers were practicing home remedies if their children presented symptoms of any respiratory infection. This study concluded that they had adequate knowledge regarding symptoms, risk factors and complication of ARI but there was limited knowledge about minimizing risk factors and thus there was a need to encourage them to reduce gap between knowledge and practice.⁸²

A descriptive study was done by Shiva and Nayak (2019). Total 154 mothers attending pediatric OPD with children having ARI were selected conveniently. The information was gathered by personal interview by using questionnaire. Result found that majority of mothers (43.5%) were using ginger and turmeric mixture, 4.5% were using tulsi water for managing cough. For managing running nose, 46.1% mothers

were using ginger and turmeric powder, 11.6% were using steam inhalation and 37% were not practicing any of home remedies. For sore throat, 21.4% mothers were using ginger with warm salt water, 40.2% were using gargles with warm saline water and 31.8% were not practicing any home remedies. This study concluded that most of mothers were practicing home remedies for children having ARI as per their knowledge before seeking medical help.⁸³

A descriptive research done by Ariyalakshmi (2018) to evaluate mother's knowledge about ARI in children hospital of Chennai. Thirty mothers whose children were admitted in hospital were enrolled by using convenient sampling method. Information was gathered from mothers using a structured questionnaire including demographic data, information regarding ARI and its management. Findings revealed that 30% mothers had adequate knowledge and 70% had average level of knowledge related to management of ARI. It was identified association between level of knowledge of mothers, mother's education, age and number of children in family. This study concluded that there is need to incorporate an effective method for increasing mother's knowledge on acute respiratory infection, its prevention and management which is necessary to improve wellbeing, growth and development of child in advancing age at its optimum level.⁸⁴

Study done by Fakunle et al. (2017) to assess cooking practice of mothers. Around 220 children below age of five years with ARI admitted in hospital were enrolled as a case and 220 children without ARI admitted in the same hospital were enrolled as a control for the study. The observation checklist and semi structured questionnaire were administered to all mothers for data collection. The findings of study highlighted that children whose mothers carried them on back or lap while cooking were three times more developed to have ARI. The suffering of ARI was eight times higher in

cases than control who cooks in same room where child sleeps. It was also reported that overcrowding, mother carrying child on back and lap during cooking, use of fire wood and charcoal for cooking in the living room, cooking at the door step of entrance of living room were major risk factor of ARI. It was concluded that inappropriate cooking practice in house lead to increase in occurrence and number of ARI episodes in children and need of creating awareness regarding importance of appropriate and good cooking practice.⁸⁵

An experimental study done by Raval et al. (2015) concluded that teaching program was found effective in enhancing mother's knowledge significantly about prevention of acute respiratory infection.⁸⁶

Summary

Previous studies have revealed that mothers had average knowledge and poor level of practice regarding preventive measures related to ARI and care of child at home. Gap in practice of mothers as per their knowledge was observed due to multiple factors. They recommended that health education regarding preventive measures of ARI and care of child at home should be conducted for mothers.

Effectiveness of intervention program on occurrence of ARI among under five children

A systematic review was done by Vasta et al. (2023) to analyze effect of WASH practice (safe drinking water, sanitation and hygiene) on ARI and diarrhea in under five children. The result revealed that WASH practices were effective intervention to reduce high burden of ARI and need strategies to change people's behaviour towards health and hygiene.⁸⁷

James and Wilson (2023) studied effect of balloon blowing exercises on parameters of respiratory system in under five children having LRTI. Twenty children in experiment group and 20 children in control group were allocated. The balloon blowing exercise with daily care routine were implemented in experiment group and only daily care routine provided in control group. Result showed significant difference in posttest score of respiratory parameters in intervention than control group. It was determined that intervention was much beneficial in improving status of respiratory parameters in under five children having LRTI.⁸⁸

Tunny et al. (2020) did a study to identify effect of health teaching on mother's knowledge related to prevention of ARI in Maluku. A total of 129 mothers were recruited and intervention was given by visiting house to house to all mothers. The result showed that 25.6% mothers had good level of knowledge, 69.8% had average level of knowledge and 6.9% had less knowledge. It has concluded that knowledge level of mothers has increased after intervention.⁸⁹

Quasi-experimental research done by Shuman et al. (2018) to compare the benefit of steam inhalation with tulsi leaves in children with URTI. Thirty children were allocated in to experimental and another 30 children allocated in to control group. The children were screened out to assess symptoms of URTI with modified Wisconsin tool and identified as mild, moderate and severe. The steam inhalation with tulsi leaves was provided to children in experimental group and reassessed the sign and symptoms for continuous three days after intervention. The result revealed that in experimental group, it was found significant decrease in sign and symptoms of URTI after steam inhalation with tulsi leaves as compared to control group. This study concluded that tulsi leaves steam inhalation were faster reliever for respiratory infection.⁹⁰

An experimental study done by Pundir et al. (2018) reported effect of breathing exercise on children's cardiopulmonary parameters who were suffering from acute respiratory infection. Sixty-seven children having age between three to twelve years having acute respiratory infection were allocated in to intervention (34) and control (33) group randomly. Baseline data of cardiopulmonary parameters of children included heart rate, blood pressure, respiratory rate, cough, SPO₂, chest expansion and breath sound were recorded using observation checklist. The balloon blowing breathing exercise as a play method was implemented to children in experimental group and cardiopulmonary parameters were reassessed after one week of intervention in both groups. Findings showed mean post test score of heart rate, respiratory rate and SPO₂ was significantly close to normal parameters in intervention group, mean post test score of coughs, chest expansion and dyspnea were found significantly lower than control group. It was indicated that balloon blowing breathing exercise had an advantageous effect on cardiopulmonary parameters in children having ARI.⁹¹

Alexandrino et al. (2016) carried out a study to identify effect of health education session for caregivers regarding respiratory infection on the health status of under five children. One hundred seventy-seven caregivers of children were selected who visited day care center and randomly allocated in to intervention and control group. Intervention included sessions of first sign and symptom of ARI, worsening sign, prevention of ARI, medication and nasal clearance technique was implemented to intervention group and follow up was done after one month in both groups. The findings showed that 5.8% children in experiment and 19% children in control group had LRTI, 9.5% children in experiment and 27% children in control group had symptoms of otitis media after implementation of intervention. The outcome of study

concluded that health education session was effective and reduced the cases of respiratory infection.⁹²

Summary

Studies done on intervention like WASH practice, home based management such as steam inhalation, tulsi steam, breathing exercise and health teaching program on preventive measure of ARI found to be effective in reducing the cases of ARI and frequency of symptoms of ARI in children.

Summary

This chapter included existing review literature related to problem statement under investigation.