

The Role of Parents in Fulfilling Nutrition and Respiratory Health for Children in Agricultural Area: Literature Review

Enggal Hadi Kurniyawan^{1*}, Nur Hana¹, Muhammad Haidar Putra Kahono¹, Ifnadilla Ritma Sari¹, Alfid Tri Afandi¹, Dicky Endrian Kurniawan¹, Kholid Rosyidi Muhammad Nur¹

¹Faculty of Nursing, Universitas Jember, Indonesia; enggalhadi.psik@unej.ac.id (Corresponding Author)

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ABSTRACT

Parents have a significant role in fulfilling the nutritional status of children. Lack of nutritional knowledge, especially in agricultural areas, influences food processing behavior, so dietary problems in children tend to increase. This literature review aims to describe mothers' knowledge, family support, and risk factors for infectious diseases with nutritional status and respiratory problems in children in agricultural areas. Methods: This research uses the literature review study method with four databases, namely Google Scholar, PubMed, Scient Direct, and Springer, with a range of 2019-2023. Result: The role of parents is related to nutritional status and health conditions in children. Parental education, inadequate environmental conditions, and potential risk factors can also affect the nutritional status and respiratory problems in children under five in agricultural areas. Babies born to mothers with low levels of education have a higher risk of experiencing health problems than babies born to mothers with higher education. The occurrence of ISPA in agricultural areas is caused by various environmental factors such as exposure to smoke and inadequate physical conditions of houses which can worsen indoor air quality. Potential risk factors that can cause STH infection are parental education and occupation, how to play on the ground, use of the toilet, and how to wash hands. Nurses must provide support and education to people in agricultural areas related to nutritional intake, quality of the living environment, and patterns of daily life to reduce problems with nutritional status and respiratory disorders in children.

Keywords: role of parents; nutrition; children; agricultural; agronursing

INTRODUCTION

Parents have a crucial role in fulfilling the nutritional needs of a child. Parenting is one factor that dramatically influences nutritional status, such as giving full attention and affection to children and giving sufficient time to pay attention to their nutritional intake to improve their nutritional status (Ariyanto et al., 2023). Mothers have a critical role in the growth and development of infants, toddlers, and children, especially knowledge of mothers influences the mindset and level of concern to provide proper food intake for their children (Ariyanto et al., 2023). The Indonesian Doctors Association advises mothers to give exclusive breastfeeding until the baby is six months old and continue with complementary feeding since the baby is aged 6-24 and continues breastfeeding until the age of 2 or more (Aprillia et al., 2020). Therefore, the knowledge and education of parents, especially mothers, are very influential in fulfilling the nutritional status of children, so the higher the level of education, the easier it is to receive and apply nutrition information compared to low education (Suryani & Nadia, 2022).

Children who become individuals are defined as someone under 18 years old in a period of growth and development with unique physical, psychological, social, and spiritual needs (Erita et al., 2019). Children are individuals with a range of developmental changes from infancy to adolescence. In development, children have physical, cognitive, self-concept, coping patterns, and social behavior. The physical characteristics in all children may not be the same as in cognitive development, sometimes sooner or later (Erita et al., 2019).

Indonesia still has problems with nutrition and child development (Carolin et al., 2021). The nutritional status of children under five is influenced by direct factors such as diet and infectious diseases and indirect factors such as parenting style and provision of quality health services. Nutritional status is the condition of the body due to food intake and utilization

of nutrients (Afandi et al., 2023). Toddlers are an age group that is very vulnerable to infections, especially those that attack the respiratory tract. Acute Respiratory Infection (ARI) in developing countries causes high child mortality (Sholeh et al., 2022). Several factors contribute to the development of ARI in children, including nutritional status, exclusive breastfeeding, birth weight, ventilation, smoking status of parents, and humidity (Dinda et al., 2022).

Agronursing is the management of nursing care and management of nursing services to healthy and sick clients that are holistic and comprehensive throughout the human life cycle within the scope of agriculture. Agronursing has a crucial role in overcoming health problems and maintaining the health of farmers (Kurniyawan et al., 2023a). Agronursing care focuses on holistic and comprehensive customers in the agricultural sector (agriculture, fisheries, animal husbandry, plantations, and agribusiness) (Kurniyawan et al., 2023b). Many farming families need assistance because of low income, low education, inadequate business capital, and high production costs (Kurniyawan et al., 2023c).

METHOD

The literature search process in this literature review uses four databases, namely Google Scholar, PubMed, Scient Direct, and Springer, from 2019-2023. This search was carried out using keywords in English and Indonesian. In the search for English literature, use the keywords "Nutritional Status" OR "Toddler Nutrition" OR "Toddler" OR "Nutritional Problems" OR "Malnutrition." Meanwhile, searching for Indonesian language literature uses the keywords "*Status Nutrisi*" OR "*Nutrisi Balita*" OR "*Balita*" OR "*Masalah Nutrisi*" OR "*Gizi Buruk*".

The article search process begins with the identification of predetermined keywords. At the identification stage, 50,600 articles match the keywords. The next step is to do a screening by selecting the title of the article and the year of publication that fits the assessment criteria. At the screening stage, 18,200 articles met the research criteria. After that, the articles were filtered according to the inclusion and exclusion research criteria. Fourteen thousand five hundred articles met the inclusion and exclusion research criteria. The next step is to filter articles against abstracts to focus on articles according to research criteria. In this step, 20 articles meet the research criteria. Then, from the ten selected articles, the selection of language, research design, outcome, and several other criteria were determined. Finally, ten articles were determined that matched the research criteria and could proceed to the analysis stage.

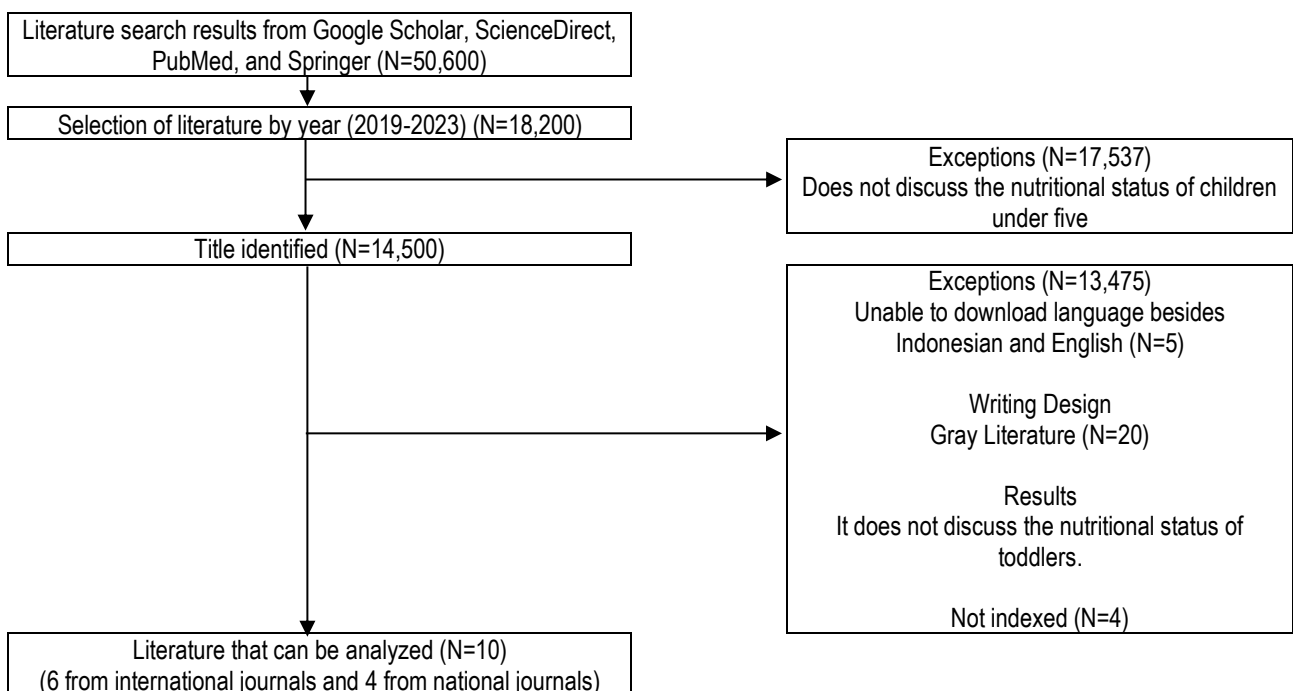


Table 1. Article Search and Filtering Flow

RESULT

The analysis conducted in this study shows an overview of research on children's health in agricultural areas, especially regarding the nutritional status of toddlers. The research journals used consist of various regions in Indonesia, especially in areas with an average working as a farmer. The research journals used are in 2019-2023, with ten articles.

This study's analysis results show that malnutrition in toddlers can lead to stunting and ISPA caused by a lack of a mother's knowledge of toddler nutrition. Moreover, the amount of malnutrition in toddlers is quite large, especially in agricultural areas. Factors related to the nutritional status of children under five are energy adequacy level, mother's knowledge, history of infectious diseases, and protein adequacy level. Meanwhile, the unrelated factors were family food taboos and food processing habits.

Table 1. Analysis of Articles

No	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
1.	Author: Pasaribu, A. P., Alam, A., Sembiring, K., Pasaribu, S., & Setiabudi, D Journal Identity: BMC Public Health, (2019), 19:1066	Prevalence and risk factors of soil-transmitted helminthiasis among school children living in an agricultural area of North Sumatera, Indonesia	This study aimed to determine the prevalence of STH in North Sumatra and identify the associated risk factors among school children.	A cross-sectional study was carried out among primary school children in Suka village, Tigapanah subdistrict.	A cross-sectional study was carried out among primary school children in Suka village, Tigapanah subdistrict. Stool samples were processed using a single Kato-Katz method.	The prevalence of STH infection in school children in Suka village, Tigapanah subdistrict, is still high. Children's hygiene was associated with the prevalence of STH, but we found no association between parents' education and occupation with STH prevalence. Playing with soil/dirt increased the risk of infection, but hand-washing habits and latrine usage potentially decreased the risk of infection. The combined strategies of improving children's personal hygiene and biannual deworming will reduce the risk of STH infection in school children in Suka village, Tigapanah subdistrict.
2.	Author: Wulandari, V. O., Susumaningrum, L. A., Susanto, T., & Kholis, A. Identity: Jurnal Epidemiologi Kesehatan Komunitas 5 (2), (2020), 88-95	Relationship of Smoke Exposure to the Incidence of Acute Respiratory Infection (ARI) in Children Age 0-5 Year in the Agricultural Area of Panti District, Jember Regency	To analyze the relationship between exposure to smoke and the incidence of ARI in children aged 0-5 years in the agricultural area of Panti Jember District	This study's population was mothers with children aged 0-5 years diagnosed with ISPA and not diagnosed with ISPA. The sample uses samples from 120 case groups and 120 control group identified from all that sample included in the inclusion criteria of the researcher	This research method uses a case-control study design with a retrospective approach in the work area of the Public Health Center, Panti District, Jember Regency, East Java	Based on the results of the identified research using a furnace of 57.8%. Mothers who bring their children to do cooking activities in the kitchen are 62.1%, with a cooking duration of more than 1 hour 63.8%. The condition of the kitchen where there was no ventilation in the kitchen was 42.9%, all of which proved to be diagnosed with ISPA. Cigarette smoke negatively impacts health, especially the risk of breathing problems caused by children close to smokers. Diagnosed with ARI in a family with a daily habit of using mosquito coils. Therefore, there is a relationship between exposure to firewood smoke, cigarette smoke, and mosquito coils with the incidence of ARI in children aged 0-5 years. Exposure to cigarette smoke has the highest risk, namely 2,559 times in families where there are active smokers inside it.

No	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
3.	<p>Author: Pakilaran, G., Rasni, H., Nur, K. R. M., & Wijaya, D</p> <p>Journal Identity: Nursing and Health Sciences Journal, Volume 2, Number 3 (June 2022).</p>	<p>Family Support on Exclusive Breastfeeding in Babies Aged 0-6 Months in Indonesia: Literature Review</p>	<p>This study aims to identify publications that provide information on concepts and data relevant to family support for exclusive breastfeeding in Indonesia.</p>	<p>Articles with a cross- sectional approach were found as many as 12 articles with a population of mothers with babies aged 0-24 months.</p>	<p>This study used a literature review to examine family support for exclusive breastfeeding in Indonesia more deeply. The type of literature study used was narrative literature review or traditional review. Literature searches were carried out through article search engines, namely SINTA, Science Direct, Google Scholar, and PubMed.</p>	<p>Mothers can carry out exclusive breastfeeding due to several factors, namely, the mother's knowledge, the mother's education, and the mother's age. Mothers with good knowledge regarding breastfeeding and an understanding that breast milk is given without additional food or drinks tend to breastfeed, as their knowledge will influence their behavior in making decisions to breastfeed exclusively. Family support is an interpersonal relationship between family members, which is shown through attitudes and actions of family acceptance. The forms of family support that can be provided are informational, appreciation, emotional, and instrumental support. In providing support by the family, there are some factors, such as the level of knowledge, education, and occupation of the family or husband.</p>
4.	<p>Author: Mandaharisoa, S. T., Steinke, J., Randrianarison, N., Kubitzka, C., Konzack, A., Rafanomezants oa, A. S., Randriamampio nona, D., Sieber, S., & Andriamaniraka, H. (2022). Journal Identity: Implementation Science</p>	<p>Assessing Farmers' Diverse Preferences and Expectations for Tailoring Food and Nutrition Security Interventions in Southeastern Madagascar</p>	<p>This study assessed the perceptions of local communities in rural Atsimo Atsinanana toward a range of FNS intervention options.</p>	<p>This study used a population from the Atsimo Atsinanana region in southeastern Madagascar, with a total area of 18,373 km². With its five districts, this research focuses on the three most densely populated: Vondrozo, Farafangana, and Van Gaindrano. The districts are home to around 80% of the population, with a population density of 54.4 people/km².</p>	<p>We held 12 gender- disaggregated workshops with 80 prospective beneficiaries of an FNS project from inland and coastal parts of the region. Preferences were elicited for 14 potential FNS interventions. Next, participants ranked eight impact criteria through participatory ex- ante impact assessment and individually estimated the expected impacts of all intervention options on these criteria.</p>	<p>As a result, farmers in southeastern Madagascar carried out interventions that targeted crops, vegetables, and livestock on agricultural land to achieve food security and nutrition. This is used to improve the nutritional status of children in southeastern Madagascar.</p>

No	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
5.	<p>Author: Santoso, M. V., Bezner Kerr, R. N., Kassim, N., Martin, H., Mtinda, E., Njau, P., ... & Young, S. L. (2021). A</p> <p>Journal Identity: Environmental Research/2020</p>	<p>A Nutrition- Sensitive Agroecology Intervention in Rural Tanzania Increases Children's Dietary Diversity and Household Food Security But Does Not Change Child Anthropometry: Results From a Cluster- Randomized Trial</p>	<p>In a cluster- randomized trial (NCT02761876), we examined whether a nutrition-sensitive agroecology intervention in rural Tanzania could improve children's dietary diversity. Secondary outcomes were food insecurity and child anthropometry. We also posited that such an intervention would improve sustainable agricultural practices (e.g., agrobiodiversity, intercropping), women's empowerment (e.g., participation in decision- making, time use), and women's well-being (e.g., dietary diversity, depression)</p>	<p>In this journal, the researchers used 33 villages by the Singida Rural District Council. Twenty-two were identified as potential sites in October 2015 based on the willingness of their village leaders to participate in the study, having >200 children aged <5 years. Twenty villages were included.</p>	<p>Food-insecure smallholder farmers with children aged <1 from 20 villages in Singida, Tanzania, were invited to participate. Villages were paired and publicly randomized; control villages received the intervention after two y. One man and woman "mentor farmer" were elected from each intervention village to lead their peers in agroecological learning on legume intensification, nutrition, and women's empowerment. The impact was estimated using longitudinal difference-in- difference fixed- effects regression analyses.</p>	<p>So the results of nutrient- sensitive agroecology carried out by farmers in Tanzanian villages can increase the food consumed by children and maintain the food available in the household but does not change the anthropometry of children.</p>
6.	<p>Author: Dallmann, D., Marquis, G. S., Colecraft, E. K., Kanlisi, R., & Aidam, B. A.</p> <p>Journal Identity: Environment International 2019</p>	<p>Maternal Participation Level in a Nutrition- Sensitive Agriculture Intervention Matters for Child Diet and Growth Rural Ghana</p>	<p>This study examined the association between participation level in a nutrition- sensitive agriculture intervention and children's diet and anthropometric outcomes in rural Ghana.</p>	<p>The sample used in this study was 54 women who did not adopt and 213 pairs of caregivers in 20 communities that received health and agricultural services.</p>	<p>This journal uses the Nutrition Links method, a cluster randomized controlled trial. Then also, the outcome variables, covariates, statistical analysis, primary analysis, secondary analysis, and test ethical approval</p>	<p>The results of this study indicate that the level of participation or upbringing of mothers in rural Ghana who use agricultural interventions can produce good nutrition for children and child growth. Overall, mothers with low participation will result in malnutrition in children, and vice versa; if mothers have high participation, the fulfillment of child nutrition will be fulfilled.</p>

No	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
7.	Author: Seprian, A. M. R., Wahyudi, I., IJ, M. A., Wardani, D., Riati, H., Nisrina, N., ... & Nisak, H. Journal Identity: Journal of Service Master of Science Education. Volume 5, No. 4, (2022)	Stunting Prevention Through Utilization of Agricultural Products in the Form of Corn Milk Processing in the Village Korleko Labuhan Haji District	The goal is to find out if milk Corn can be an active solution to increase nutritional intake in overcoming the problem of stunting in farmer children.	Sample from In this study, this activity was attended by 24 participants came from mother group Korleko village PKK.	This study applies several methods, including namely: 1. Stage preparation, which contains observation, evaluation, compiling materials, and preparing tools and materials 2. Stage implementation, which contains outreach, training 3. Evaluation stage	So children who consume corn milk can increase their nutritional intake and overcome stunting problems. Because the corn has a lot of carbohydrates or high. The benefits of this corn are offered for other health reasons because it has good qualities, especially for children, which is very good for fulfilling their nutritional status. So children who are at risk of stunting can consume this corn milk so they do not experience more severe stunting.
8.	Author: Doutel, E. J., Picauly, I., & Salmun, J. A. Journal Identity: Journal of Community Health, volume 1, number 3 (2019)	Determinants of Nutritional Status Toddlers in Farming Families in the Working Area of the Halilulik Health Center, Belu Regency, 2019	To conduct an analysis of the determinants of toddler nutritional status in farming families in the working area of the Halilulik Health Center, Belu Regency, in 2019.	The population used in this study, namely as many as 1,444 toddlers aged 12-59 months, with a total sample of 94 toddlers obtained through calculations using the Slovin formula.	The method used in this research is an analytic survey with a cross- sectional study approach. A cross-sectional approach is an approach between risk and consequence variables or cases that occur to the research object are measured and collected simultaneously.	The results of this study indicate that the factors associated with the nutritional status of children under five are the level of energy adequacy, mother's knowledge, history of infectious diseases, and protein adequacy level. Meanwhile, the unrelated factors were family food taboos and food processing habits.
9.	Author: Asparian, A., Setiana, E., & Wisudariani, E.	Factors Associated with Stunting in Toddlers Age 24- 59 Months from Farmer Families in the Work Area of the Gunung Labu Community Health Center, Kerinci Regency	to find out which factors are associated with the incidence of stunting in toddlers aged 24- 59 months from a farming family in the Gunung Labu Public Health Center Working Area, Kerinci Regency.	The population in this study is all the toddler aged 24-59 month (1,422 toddler) that located in the Working Area of Gunung Labu Public Health Center. The sample used in this study, namely number 98 toddler from a farming family. Sampling was carried out using the Proportional Random Sampling technique.	This study uses a quantitative method by design cross-sectional	The results of this study are: there is a relationship between the education level of the mother and household food security with the incidence of stunting in children under five, and there is no relationship between household income, parenting pattern, household food expenditure, mother's occupation, and number of household members with stunting in toddlers from farming families in Gunung Labu Community Health Center, Kerinci Regency.

No	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
10	Author: Heckert, J., Olney, D. K., & Ruel, M. T. Journal Identity: Social Science & Medicine, volume 233, (2019), 93-102	Is women's empowerment a pathway to improving child nutrition outcomes in a nutrition-sensitive agriculture program: Evidence from a Randomized controlled trial in Burkina Faso	The objective of this study was to examine the association between women's Empowerment four domains (purchasing decisions, healthcare decisions, family planning decisions, and spousal communication) and an Aggregate score and child wasting and Hb using baseline data and test whether these effects are moderated by household economic status.	The population in this study uses mothers of children aged 3-12 months. (1058 for the cross-sectional analysis and 1035 for the medication analysis). the samples were limited to mother-child dyads in which the mother lived with a spouse. The sample for cross-sectional analysis is 404 (3-5-month-olds) and 654 (6-12 month-olds). The sample for medication analysis is 610 (3-12 months old) children.	The journal uses cross-sectional and mediati on analysis methods.	This study confirms that women's empowerment is associated with lower odds of child wasting and that household economic status moderates the relationship between women's empowerment and child wasting. Lower prevalence of wasting on purchasing decisions and aggregate empowerment between 6-12 months of age, but there is no evidence that this effect is moderated by household economic status.

DISCUSSION

Problems with nutritional status and respiratory problems in children in agricultural areas are still one of the major problems that many farming families are still experiencing. This study investigates the relationship between mothers' knowledge, family support, and risk factors for infectious diseases with nutritional status and respiratory disorders in children in agricultural areas. It shows an increased risk of respiratory disorders in children with inadequate environmental conditions (Heckert et al., 2019). Continuous exposure to pollutants can increase the risk of respiratory infections in children in agricultural areas. The occurrence of ARI in agricultural areas is caused by various environmental factors such as exposure to firewood smoke, cigarette smoke, and mosquito coils which put children at risk of contracting ARI. These factors are influenced by the inadequate physical condition of the house, which worsens indoor air quality. Families should pay more attention to this to reduce the risk of ARI in children in agricultural areas (Wulandari et al., 2020). Earthworm infection in children in agricultural areas is also common. There is a relationship between potential risk factors and the incidence of STH infection. The factors analyzed are parents' education and occupation, how to play on the ground, not wearing shoes/sandals, using the toilet, and how to wash hands. Playing habits involving dirt and excrement have been shown to increase the risk of infection in children living in agricultural areas and result in nutritional problems (Pasaribu et al., 2019).

Based on the factors of history of infection, the mother's knowledge, energy supply, and protein supply significantly affect children's nutritional status, which is supported by energy supply factors and protein supply factors (Fahrudin et al., 2022). The variety of daily parental dishes children consume significantly impacts the baby's energy and protein intake (Dallmann et al., 2022). Children who do not get enough energy have a 17,142-fold risk of experiencing malnutrition compared to children who get enough energy, and children who do not get enough protein have a 5,110-fold risk of experiencing malnutrition compared to children who get enough protein (Heckert et al., 2019).

Optimal knowledge of mothers about exclusive breastfeeding allows them to choose the best nutrition for their babies by giving exclusive breastfeeding until the baby is six months old, thereby reducing the risk factors for malnutrition in infants (Pakilaran et al., 2022). Highly educated mothers have good information about how to meet their babies' nutritional needs based on their knowledge and experience as well as the experiences of others (Santoso et al., 2021).

Mothers with the potential to get pregnant also affect exclusive breastfeeding because mothers with fertile potential have the psychological maturity to provide exclusive breastfeeding and care for their babies. Therefore, family support also has an essential influence on the implementation of exclusive breastfeeding in infants. Families or husbands provide mothers with family support for exclusive breastfeeding, namely instrumental, informational, appreciation, and emotional support (Pakilaran et al., 2022). The knowledge possessed by the mother has a tremendous influence on increasing thoughts and decisions to determine the mother's attitude towards exclusive breastfeeding to meet the baby's nutritional status.

A significant relationship exists between the mother's education level and children's health problems (Pasaribu et al., 2019). According to research on babies born to mothers with low levels of education, the risk of experiencing health problems is 2,554 times higher compared to babies born to mothers with higher education because higher education provides opportunities for mothers to make choices about proper parenting and nutrition in infants (Asparian et al., 2020). Food diversity, household food security, and information on mother and child nutrition are the most important factors to meet children's nutritional status optimally.

CONCLUSION

The role of parents is critical in providing food intake, quality of the living environment, and daily life patterns for children in agricultural areas to reduce problems with nutritional status and respiratory problems in children. This can cause children to experience malnutrition, infection, and even a decline in growth. Therefore, nurses must support and educate people in agricultural areas, especially parents, regarding nutritional intake, environmental quality, and daily living patterns to reduce problems with nutritional status and respiratory problems in children in agricultural areas.

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