Women's Contribution to Improving Children's Nutritional Status

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Abstract. Undernutrition among children under five are still a problem in the developing countries. Recent basic health survey in Indonesia had shown that the number of undernutrition is increased, mainly stunting conditions among children which reached the prevalence more than 20% in several places. This article aims to review contribution of women in improving nutritional status among children in the family. A literature study was conducted to explain and find out the role of women in a family to improve family food consumption and nutrition. We used keywords nutritional status, women empowerment, risk factors, and undernutrition through online resources such as Science Direct, Google Scholar and Pub Med. After searching the articles, we found 22 articles that related to the topic. Then, we reviewed and analyzed for discrepancies in this literature study. We found that specific women empowerment indicators like education and employment status, are factors that have related to children's nutritional status. There is a direct impact to women's empowerment on children's nutritional status by improving women's health. So, it's recommended to design a comprehensive intervention based on women empowerment to enhance child nutrition status through involvement in decision-making in family activities, especially on produce and process of food.

Keywords: women, empowerment, children, nutritional status

1 Introduction

Malnutrition prevalence among children under five was still high in the world, this condition was suffered mainly by children who lived in developing countries than developed countries. This problem is the major contributor of child mortality in the world, besides the extended consequences into adulthood such as diminished productivity, higher risk of excess weight gain or increased obstetric risks and degenerative diseases in the next age. Women are more at risk than men regarding to health and nutritional status. However, she could not reach full growth potential, chances education and working place, and also impact to the next generation when she is married and has a baby (Donya S. Madjdian, 2016).

Undernutrition is one of malnutrition condition with forms namely underweight, wasting and stunting. Based on Health Survey in Indonesia or we called Riskesdas from 2013 until 2018 found that prevalence undernutrition among children still showed a high prevalence, especially stunting status. It was 37.2% on year 2013 and 30.8% on year 2018 for stunting prevalence among children under five ages. This condition is not only happened in the rural area but also in some urban areas that showed an increase of undernutrition problem, including stunting (Kemenkes RI, 2018).

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Children with age 2-3 years old is one of the vulnerable groups because at this age children are growing faster and develop than other groups of age. United Children Fund or UNICEF year 2013 stated that multi factors cause nutrition problems, consist of 2 (two) main factors are insufficient consumption of nutrients and infectious disease. Other factors related to children's nutrition status are food security, feeding care and in adequacy of health centers access.

Women's role in order to increase children's nutritional status was proved from previous studies in the world. Women as the primary caretaker of children play an important role in providing of food and caring a member in the household. Even though the results were not consistent, but the studies showed that women empowerment with some indicators had significant association with nutritional status among children (Awaisra Shafiq, 2019; Elizabeth L. Fox, et al, 2019). Because of that, more effective strategies should be done to overcome malnutrition among children.

Based on the previous explanation, we are interested in reviewing women's contribution to improving nutritional status of children in the family.

2 Methodology

Literature study was conducted to explain and find out women's contribution in improving family food consumption and nutrition status, specifically improve children's nutritional status. This study was done because of previous studies had proved that several determinants of nutritional status among children, including maternal factors related with nutritional status among children. The study stages were by searching and reviewing articles on women and their contribution to children's nutritional status.

We used keywords nutritional status, women empowerment, risk factors, and undernutrition through online resources such as Science Direct, Google Scholar, Pub Med, and other related websites. Articles that were included in this literature study from year 2001 until 2021. After we searched, we reviewed and analyzed for discrepancies of the results, including findings from quantitative studies. We divided the analysis of literature study into three parts, (1) factor affecting children nutritional status, (2) factor of women and nutritional status of children, (3) strategy in combating children nutrition status through women contribution in family.

3 Result and Discussion

After searching the articles, we found around 22 articles that related to the topic. The description of the articles are showed below;

No.	Author (Year)	Variables	Methods	Research Results
1.	Awerke Girna, (2019)	Mother characteristics, family characteristics, children's fed on cow milk, children's nutritional status	Cross sectional study	Mothers with no formal education, food insecurity, and children with no feeding plate are associated significantly with undernutrition

2.	Dinaol Abdissa Fufa, et al (2021)	Maternal and children's factors	Cross sectional study	Low mother's nutritional status, inadequate information access, close birth order, inbreeding, father with low education, living in rural, inadequate toilet, and inadequate vitamin A intake
3.	Jawad Tariq, et al (2018)	Socio-demographic, mothers' nutritional status, and children's health factors, children's nutritional status	The secondary data	The risk of undernutrition increased with low nutritional status of mother, inadequate information access, close birth order, inbreeding, father with low education, living in rural, inadequate toilet and lack of vitamin A intake
4.	Kidanemaryam Berhe, et al (2019)	Maternal and children's status	Case control study	Mother's low formal education, mother stature less than 150 cm, mother's low nutritional status, low birth weight, household with more than two of under-five children, diet diversity score less than 4 (WHO reference) and often frequencies diarrhea episodes were a risk factors of stunting
5.	Desalegne Amare, (2016).	Maternal and children's factors	Systematic review and meta-analysis	Age and sex of children, supplementary food, lack of dietary diversity, a frequent diarrhea disease, maternal with low education, maternal stature, residential area and low income were significantly related with undernutrition
6.	Awaisra Shafiq, (2016)	Women empowerment factors, socioeconomic status and children' malnutrition status	The secondary data	Inadequate house, low family financial, a more family members, and low maternal work were related with school children malnutrition
7.	Alemayehu Gonie Mekonnen, et al (2021	Growth problems and women's empowerment and gin under five children	The secondary data	Living in rural areas, were aged more than 18 years at marriage and antenatal clinic visited more than three times on pregnancy had a risk to be stunted. Lack of maternal educational level, short height, low birth weight and nutritional status of mother were related with underweight status among children. Mother with no education had a risk wasted children

8.	EW Mwaniki, et al (2020)	Children characteristics and nutritional status	Cross sectional study	Children characteristics such as children's health was associated with children nutritional status. Infectious disease such as diarrhea and colds or coughs increased the odds of undernutrition among children aged 4 until 11 years in Nairobi
9.	Piere Pratley (2019)	Empowerment of women and child health outcomes	Systematic review	Malnutrition causes children more susceptible to infections
10.	Morris Ndemwa, et al (2017)	Demographic characteristics and nutritional status	Cross sectional study	Increasing age are significantly with the prevalence of underweight and stunting
11.	Ira Jain, et al (2020)	Sociodemographic factors and nutritional status	Cross sectional study	Sex, children's immunization status and birth order are related with children's undernutrition
12.	A.A Marphatia et al (2016)	Socioeconomic and gender inequality exposures and children's nutritional status	The secondary data	The reduction of Gender Inequality Index (GII) will impact to major reduction of poor birth weight, child malnutrition in low- and middle-economic countries.
13.	Monalisa Chakraborty and Saswata Ghosh (2020)	A family member mainly children, mother's educational status, food intake and children's nutritional status	Case control study	A big family member, lack of mother's educational status and inadequate food intake had a risk of being malnourished among children
14.	Kathleen M, Kurz, (2001	Contributions of women, food intake of family and nutritional status	Literature review	Activities of bringing food into the household and resources, such as an labor-saving technology, financial, production inputs, social link and support finance focus on micro for women and women's own capacity contribute to family nutrition and health
15.	Donya S. Madjdian and Hilde AJ Bras, et al (2016)	Sex, family, and nutritional Status	Literature review	Women with strong bond in the household, family systems with complex rules, more roles in traditional, and are more home bound than women in families with weaker bond
16.	Rebecca Jones, et al (2019)	Empowerment of women and children's nutritional status	The secondary data	Maternal nutritional status was positively related with children's nutritional status

17.	Alamgir Kabir, et al (2020)	Empowerment of women, maternal nutrition and low birth weight (LBW)	The secondary data	Empowerment of women was significantly related with undernutrition among mothers and LBW
18.	Jessica Hal, et al (2020)	Household factors, children's nutritional status	Cross sectional study	Women with short stature was significantly related with stunting
19.	Elizabeth L. Fox, et al (2019)	Women's nutrition	Literature review	Intervention on women during pregnancy and postpartum was not successful in addressing the nutritional disadvantages of women's lives
20.	Ahmed Abdulahi, et al (2017)	Maternal and children's status	Systematic review	Child age and gender, early complementary food, inadequate dietary diversity, diarrhea diseases, a lack of maternal education, maternal stature, area living and low of socio-economic status were significantly related with undernutrition
21.	Lahiru Sandaruwan Galgamuwa, et al (2017)	Factors of socio-economic, nutritional status	Cross sectional study	Inadequate house, low financial, more family members and maternal job were related with malnutrition
22.	Sadaf Khan, 2019	Maternal factors, socio-demographic factors and children's status	Secondary data	Early marriage, low educational status and nutritional status of mother are associated with children's nutritional status

3.1 Factors affecting children nutritional status

According to conceptual framework malnutrition by UNICEF, undernutrition among children under five is caused by multiple factors, directly of inadequate food intake and infectious disease. Then others are indirect factors, food security in the household, parenting and in adequate environment, also in access to the health centers. The low of income and resources of socio-economic available to family and a lack of political need also parts of indirect factors. Even though it is identified that these factors act through mother's factors, the important factors of women's status in wider society relative to male receives little attention from policymakers (Unicef, 2013).

In general, results from previous studies have identified several factors which affected children's nutritional status. These factors are poor child feeding and maternal hygienic practices (Awerke Girna, 2019). Other studies found that mothers with no formal education, food insecurity, and children with no feeding plate are associated significantly with undernutrition (Dianol, 2021).

Moreover, the odds of undernutrition among children under two age old increased. It is caused by some factors such as with low nutritional status of mother, inadequate information

access, close birth order, inbreeding, father with low education, living in rural, inadequate toilet and lack of vitamin A intake (Jawad Tariq, et al 2018). Kidanemaryam Berhe, et al, 2019 identified as risk factors for stunting were mother with low education, mother stature (≤150 cm), mother with low nutritional status, low birth weight, household with more than two under-five children, diet diversity score less than 4 by WHO reference and a frequent of diarrhea episodes. Study in Ethiopia showed that children characteristics such as age, gender, poor dietary diversity, complementary food, a frequent of diarrhea diseases, and maternal characteristics, such as education, stature, living area and income factor were associated with undernutrition among children (Desalegne Amare, 2016).

Specific in maternal characteristics like employment, had a large number of children, close birth orders and having children with female gender were related with children's undernutrition. Beside that factor such as inadequate houses, more family members, low monthly financial and unemployment also contributed to undernutrition status among school children (Awaisra Shafiq, 2016). The previous study found that other factors like living in the rural areas, were aged more than 18 years at marriage and visited antenatal clinic more than three (3) times on pregnancy were less likely to have children with stunted condition. Then, a lack of mother's educational level, short height, low birth weight and low nutritional status of mother were proved related with children under five age nutritional status. Mothers had lack of education level were more odds having wasted children (Alemayehu Gonie Mekonnen, 2021).

Specific factor from children characteristics such as health status was related with nutritional status among children. Infectious diseases such as diarrhea and colds increased malnutrition risk among children aged 4 until 11 years in Nairobi (EW Mwaniki, 2020). Otherwise, malnutrition causes children more susceptible to infections (Piere Pratley, 2019). Moreover, Morris Ndemwa, et al (2017) identified that underweight and stunting prevalence positively related with the increased of children's age. Then Ira Jain, et al study in year 2020 identified that gender of children, order birth, and immunization status are positively related with undernutrition among children. The researchers also found that undernutrition number was low on children who took complementary nutrition than children who did not received complementary nutrition.

A.A Marphatia et al (2016) explained that the reduction of GII will impact to major reduction of child with LBW, child malnutrition in developing countries. This index is newly index of composite measuring women's disadvantage consist of three points; called empowerment, reproductive health and the labor market. Monalisa Chakraborty and Saswata Ghosh (2020) through case study in India identified the odds of malnutrition increases positively with increasing children's number in family, a lack of maternal educational status and inadequate food intake.

3.2 Children nutritional status and women' factor

Women have a role in household health and nutrition through two (2) ways, namely from (1) Activities of bringing food into the household, such as producing, processing, selecting purchased food, providing care for the family member and (2) Resources, such as inputs on production, financial, technology of labor-saving, social networks and support, microfinance for women and women's own capacity. But, in fact there is often limited on access to resources, for example access for income, production-focused inputs, labor-saving technology, microfinance for women, social networks and support, and women's capacity (Kathleen M, Kurz, 2001).

Overall, aspect of family system is another factor that comes into a cycle of malnutrition in family. There are long-standing historical roots in the norms and values in the family. Many

families in some places in the world still use this pattern, such as gender, impact to the roles that women have in their groups and the power relations between male and female. The previous studies found that women with strong bonds and the complex systems in the family, have roles in traditional aspect, and are more home bound than women with weaker ties.

However, power relations and gender attitudes are shaped by historical changes. The values and practices underlying these are relatively persistent, changing only slowly over time, thereby highlighting the relevance of historical and cultural perspectives on today's development outcomes (Donya S. Madjdian and Hilde AJ Bras, 2016). This fact, we linked with men or father as the leader of the family has played an important role in decision-making on household activities, according to food security and food distribution.

Through the study, Rebecca Jones, et al (2019) stated empowerment of women domains were significantly associated with nutritional status on maternal. The study categorized women's empowerment into three points, intrinsic agency such as attitudes of intimate partner violence, social/human assets and influence in household decision making. Besides that, previous studies about association of empowerment of women with children's nutritional status had a significant impact to child nutritional status (undernutrition). Women's empowerment factors in this study is education, status of employment, and decision-making about visits to the family. Similarly, wealth status of household factor also had related with the index of anthropometric failure composite.

Alemayehu Gonie Mekonnen, et al (2021) found that an increase in each dimension of empowerment, namely attitude towards violence, social dependence, and decision-making was correlated with a reduction in the odds of child growth faltering. Alamgir Kabir, et al (2020) identified that women's empowerment was related with maternal undernutrition and LBW with a dose-response relationship. They used five groups of women's empowerment index indicators in their study, namely a) education, b) socio-familial decision-making access, c) economic contribution and access to economic decision making, d) attitudes towards domestic violence and e) mobility. Piere Pratley (2016) noted that women's empowerment and maternal had related with child health outcomes such as antenatal care, skilled attendance at birth, contraceptive use, child mortality, full vaccination, nutritional status and exposure to violence.

Women's factor mainly nutritional status is also an important factor that contributed to children's nutritional status. Undernutrition women were related with undernutrition among children. Women with low body mass index is one of anthropometry indexes that we can use to determine nutritional status. Several studies have proved that underweight women are related to her child, such as producing preterm births, resulting in stunting, inadequate growth and development, or mortality.

Jessica Hal, et al (2020) found that women with short stature (<150 cm) was related with stunting of child, the odds increased as women stature decreased. Rebecca Jones, et al (2019) identified that maternal BMI was significantly associated with child nutritional status, exactly height for age and child weight for age. Other specific factors about women are age, education, nutritional status, parity, and multiple birth related to nutrition problems among children (Aweke Girma et al, 2019) and low household income,

More explanation about women characteristics regarding to child health and nutrition have done by several studies. Women characteristic such as age at first delivery contributes significantly to child health. The risk of malnutrition is greater in children who have younger mothers about aged 13–17 years compared to those who have older mothers. Similarly, teenage mothers are more likely to be undernourished during pregnancy due to the depletion of nutrients and, subsequently, due to breastfeeding (Jawad Tariq, et al, 2018). Women had no or low formal education were more likely to have undernutrition children than women who had formal

education. We can explain that women who had formal education could have good knowledge about nutrition, hygiene behavior and health-seeking behavior for her child.

However, economic status has significantly related to women's low performance according to education, nutritional status, and being a young mother. Low financial can contribute significantly to the poor nutritional status of mothers by restricting their access to nutrition-rich foods, which will affect child health. Children is belonging to poor families are more likely to be stunted, wasted, and underweight. Information access and education can play a vital role in improving child health-related issues in Pakistan (Jawad Tariq, et al, 2018)

3.3 Strategy in combating children nutrition status through women contribution in family

A comprehensive nutritional intervention program is needed to overcome nutrition problems among children. It would be going well if we used of nutrition sector and multi-sector strategies. Multi-sector should corporate each other to plan the strategy in a short period or long period. A wide approach should be conducted by government in term to make the effort of some programs successfully.

Based on the factors which linked with women and children nutrition status, one of the factors is income. Previous study found that women spend much the income for food and other basic needs than men. Women buy food, vitamin supplements, immunizations, or medications or to pay fees for health services regarding to the better health of family member. It will be reflected in children nutritional status such as child weight for height increased significantly 8 times faster if income was in women hand than men hand (Kathleen M. Kurz and Charlotte Johnson-Welch, 2001).

Awaisra Shafiq, et al (2019) explained that women's participation in income generating activity can improve household economy, social status, child nutritional status, but and reduce gender inequality. Governmental and non-governmental organizations should establish a formal and informal income-generating sector for women in rural and slum urban areas to overcome that economy factor.

Another important aspect of women which is linked with children nutritional status is women's health. Some interventions, such as nutrition counselling and education are done to increase women's knowledge, improve dietary diversity, and provide healthy and nutrient food in the family.

Also, micronutrient supplementation programs for vitamin A, iron and folic acid, calcium, zinc, and multiple micronutrients are conducted in terms of effectively impacted the micronutrient status of pregnant and lactating women, as well as women of reproductive age and adolescent girls according to deliver a healthy and normal nutritional status of baby. However, the current study from Elizabeth L. Fox, et al (2019) identified that intervention on women during pregnancy and postpartum was not successful in addressing women's nutritional status in lives. Because of that, more effective strategies needed to overcome the disadvantage faced by women across women's lives.

Women's empowerment program is another strategy to increase children's nutritional status. If we discuss about women's empowerment, some scientist also related with women's ability in making life choices. It is also linked with education and employment. Based on that, women empowerment activities usually were conducted through community-based program, like house visits, community groups, and community centers. To reach a wider target, using radio, television or media social is recommended. Good empowerment was related with increased financial, household decision-making, control over resources, and utilization of health resources, such as visit the health center.

In term to nutrition outcomes, empowerment was associated with increased income allocated to food expenditures, improved household food security and increased dietary diversity. But from several studies, empowerment had no impact on women's BMI. So, an effective way to get a positive impact from women's empowerment intervention is women's participation in empowerment activities. Even though, the findings are not consistent, however the previous studies proved that a significant association of women participation on empowerment activities with decrease of prevalence underweight and maternal anemia. This is showed through increase fruit and meat consumption in the household (Elizabeth L. Fox, et al, 2019). Specific programs and policies should be undertaken in rural and urban areas to create awareness about women's education level. Governments should also actively support programs in these areas at the level of regional and national to increase each individual's nutrition, health, education, and employment-generating activities (Awaisra Shafiq, et al (2019).

4 Conclusion

Women as a primary caretaker of children in the household contribute to keeping children's health and nutritional status. Some women's factors are associated with children nutritional status such as women health and women empowerment. The other side, low access for women on education and nutritional status, also in decision making were happened in the household. However, to increase women's contribution to improve children's nutritional status could be done through women's empowerment program. Participation in empowerment activities were recommended in order to improve their nutrition knowledge, attitude and behavior in the household.

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